

# June 2015 Faro Mine Complex Groundwater Sampling

Prepared for:  
**Government of Yukon**

Prepared by:  
**Hemmera Envirochem Inc.**  
230 – 2237 2<sup>nd</sup> Avenue  
Whitehorse, YT Y1A 0K7

File: 1343-005.09  
November 2015

## TABLE OF CONTENTS

<b>1.0</b>	<b>INTRODUCTION.....</b>	<b>1</b>
1.1	SITE LOCATION .....	1
1.2	SCOPE OF WORK .....	1
1.3	SAMPLE SITES .....	1
<b>2.0</b>	<b>METHODOLOGY.....</b>	<b>9</b>
2.1	PROTOCOLS.....	9
2.2	WELL MEASUREMENTS AND PURGING .....	9
2.3	FIELD PARAMETERS .....	10
2.4	GROUNDWATER QUALITY SAMPLE COLLECTION.....	10
2.5	DATA ANALYSIS.....	11
2.6	QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC).....	11
2.6.1	Field QA/QC.....	11
2.6.2	Laboratory and Sampling QA/QC .....	11
<b>3.0</b>	<b>RESULTS .....</b>	<b>13</b>
3.1	GROUNDWATER SAMPLING SUMMARY .....	13
3.2	ANALYTICAL RESULTS .....	17
3.2.1	Cross Valley Dam .....	17
3.2.2	Down Gradient of Cross Valley Dam .....	17
3.2.3	ETA .....	18
3.2.4	Haul Road near NFRC.....	18
3.2.5	Intermediate Dam .....	18
3.2.6	Intermediate Dump .....	19
3.2.7	Main Dump.....	19
3.2.8	Mill Area .....	19
3.2.9	NFRC Rock Drain Pond.....	19
3.2.10	Northeast Dumps .....	20
3.2.11	Second Impoundment.....	20
3.2.12	S-Wells Area .....	20
3.2.13	NFRC near S-Wells Area.....	21
3.2.14	Groundwater Vangorda/Grum.....	21
3.3	QUALITY ASSURANCE AND QUALITY CONTROL RESULTS .....	22

<b>4.0</b>	<b>RECOMMENDATIONS.....</b>	<b>23</b>
<b>5.0</b>	<b>CLOSURE.....</b>	<b>24</b>
<b>6.0</b>	<b>REFERENCES.....</b>	<b>25</b>
<b>7.0</b>	<b>STATEMENT OF LIMITATIONS .....</b>	<b>26</b>

**List of Tables (*within text*)**

Table 1-1	Summary of Groundwater Sample Sites Identified for the 2015 Spring Program .....	2
Table 2-1	Groundwater Sampling – Field Parameter Purging Criteria .....	10
Table 2-2	Groundwater Sampling – Preservation and Intended Analysis .....	10
Table 3-1	Groundwater Field Parameters and Well Measurements for 2015 Spring Sampling Program .....	14

**List of Tables (*following text*)**

Table 3-2	Groundwater Sampling Analytical Results and CCME Guideline Exceedances for June 2014 Sampling Program	
Table 3-3	Quality Assurance and Quality Control Analytical Results for June 2014 Groundwater Sampling Program	

**List of Figures**

Figure 1-1	Site Location – Faro Mine Complex.....	5
Figure 1-2	Groundwater Sampling Locations – Faro Mine Area.....	6
Figure 1-3	Groundwater Sampling Locations – S-Wells Area.....	7
Figure 1-4	Groundwater Sampling Locations – Vangorda/Grum Area .....	8

**List of Appendices**

Appendix A	Laboratory Reports	
Appendix B	Site Photos	
Appendix C	Field Forms	
Appendix D	Response to Comments from Draft Report Version	

## 1.0 INTRODUCTION

Hemmera Envirochem Inc. (“Hemmera”) and Ecological Logistics & Research Ltd. (ELR) were retained by the Government of Yukon (GY), Assessment and Abandoned Mines (AAM) to conduct a groundwater sampling program at the Faro Mine Complex (FMC) during 2015. The program consists of two sampling events: spring (June) and fall (September). This report summarizes the activities completed and the analytical results from the spring sampling event.

### 1.1 SITE LOCATION

The FMC is located approximately 13 km northeast of the Town of Faro, Yukon (20 km by road). The FMC consists of two distinct areas, the Faro Mine Area and the Vangorda/Grum Area (**Figure 1-1**), which are connected by a 14 km roadway (the Haul Road; **Figure 1-1**). Groundwater sampling stations exist throughout the FMC and surrounding area, a subset of which were sampled during the spring 2015 program. Specific sampling locations and general sample site distribution are described in **Sections 1.2** and **1.3**.

### 1.2 SCOPE OF WORK

The scope of work (SOW) included the coordination and execution of the spring groundwater sampling program and the preparation of this summary report. This report provides a summary of the sampling program activities, methodologies (including any deviations from standard methodologies), field in-situ and laboratory analytical results, concentrations of contaminants exceeding the applicable guidelines, and recommendations relating to sampling procedures and monitoring well conditions. This report does not provide an interpretation of the analytical results or provide recommendations relating to the program. The spring groundwater sampling event at the FMC was conducted over an eight (8) day period from June 11 to June 15, and June 17 to 19, 2015. A total of 84 groundwater wells were specified by AAM for the spring sampling event (**Table 1-1**).

At each well (sampling station) the depth to groundwater and the depth to bottom of the well were measured, the well was purged appropriately, and field parameters were measured (pH, water temperature, and conductivity). Groundwater samples were collected following purging and were analysed for general groundwater quality chemistry (major anions/cations and physical parameters), and dissolved metals at an accredited laboratory. At the request of AAM, mercury and total metals were not analyzed as part of the spring 2015 monitoring event. A detailed description of the sampling methodology is provided in **Section 2**, below.

### 1.3 SAMPLE SITES

Groundwater sampling during the spring sampling event targeted 84 groundwater wells across 14 different areas of the FMC (**Table 1-1**). 77 of the 84 wells identified for the spring event were

successfully sampled. The majority of spring sample sites were located in the Faro Mine Area (64 wells), with the remaining wells located in the Vangorda/Grum Area (20 wells). A large portion of the wells sampled in the Faro Mine Area were located in the S-Wells Area (17 wells; **Figures 1-2** and **1-3**), with additional wells in the surrounding areas. Wells in the Vangorda/Grum Area were primarily located south east of the Grum Sulphide Cell (**Figure 1-4**). **Table 1-1** summarizes the targeted wells included in the spring sampling program, **Figures 1-2** and **1-3** show locations and general distribution of the sites. Photographs of each sample site are included as **Appendix B**.

**Table 1-1 Summary of Groundwater Sample Sites Identified for the 2015 Spring Program**

Area	Well Name	UTM (Zone 8N)		Well Status	Sample Successfully Collected	QA/QC Sample Collected
		Easting	Northing			
Cross Valley Dam (CVD)	P01-11	580093	6914486	Good	✓	
	P05-01-03	580407	6914119	Good	✓	
	P05-01-05	580056	6914508	Good	✓	
	P09-C2	580014	6914400	Good	✓	
	P09-C3	579973	6914319	Good	✓	
Down Gradient of CVD	P01-01A	579701	6914854	Good	✓	
	P01-01B	579701	6914854	Good	✓	
Emergency Tailings Area (ETA)	P09-ETA-2	583222	6914073	Good	✓	
	P96-8A	583222	6914073	Good	✓	
	P96-8B	582699	6913811	Good	✓	
Haul Road Near NFRC	MW14-02D	584758	6913127	Good	✓	Duplicate
	MW14-02S	584758	6913127	Good	✓	
	MW14-03	584613	6913290	Good	✓	
	MW14-04S	584658	6913321	Good	✓	
	MW14-04D	584648	6913321	Blocked		
	MW14-05	584694	6913345	Good	✓	
	PW14-01	584752	6913151	Good	✓	
	PW14-06	584476	6913310	Good	✓	
Intermediate Dam	P01-03	580516	6914255	Frozen		
	P01-04A	580372	6914074	Frozen		
	P01-04B	580544	6914298	Frozen		
	X24-96D	580544	6914298	Slow recharge	✓	
	X25-96A	580407	6914119	Good	✓	Duplicate
	X25-96B	580544	6914298	Good	✓	
Intermediate Dump	P96-6	584900	6913312	Good	✓	
Main Dump	SRK08-P9	583688	6913622	Good	✓	

Area	Well Name	UTM (Zone 8N)		Well Status	Sample Successfully Collected	QA/QC Sample Collected
		Easting	Northing			
Mill Area	SRK08-10A	582719	6914051	Good	✓	
	SRK08-11A	582582	6914571	Good	✓	Duplicate & Field Blank
	SRK08-11B	582585	6914572	Good	✓	
NFRC Rock Drain Pond	MW14-12D	584858	6913264	Good	✓	
	MW14-12S	584858	6913264	Frozen		
	MW14-13	584921	6913285	Good	✓	Duplicate
	MW14-14	584821	6913250	Good	✓	
	MW14-15	584831	6913263	Good	✓	
	MW14-16	584887	6913289	Good	✓	
Northeast Dumps	BH13B	585746	6914494	Good	✓	
	BH14A	585584	6914005	Good	✓	
	BH14B	585584	6914005	Good	✓	
Second Impoundment	P03-06-1	582452	6913496	Good	✓	
	P03-06-2	582452	6913496	Good	✓	
	P03-06-6	582452	6913496	Slow recharge	✓	
	P03-06-7	582452	6913496	Dry		
S-Wells Area	P09-SIS1	584479	6913127	Good	✓	
	P09-SIS2	584485	6913122	Good	✓	Field Blank
	P09-SIS3	584495	6913121	Good	✓	
	P09-SIS4	584508	6913112	Good	✓	
	P09-SIS5	584515	6913108	Good	✓	
	P96-7	584123	6913285	Good	✓	
	S1A	584433	6913114	Good	✓	
	S1B	584433	6913114	Good	✓	
	S2A	584470	6913117	Good	✓	
	S2B	584470	6913117	Good	✓	
	SRK05-SP-4A	584503	6913117	Good	✓	Duplicate & Field Blank
	SRK05-SP-4B	584503	6913110	Good	✓	
	SRK05-SP-5	584468	6913129	Good	✓	
	SRK08-SP-7A	584438	6913098	Good	✓	
	SRK08-SP-7B	584439	6913099	Good	✓	
	SRK08-SP-8A	584294	6912953	Good	✓	
SRK08-SP-8B	584292	6912952	Good	✓		

Area	Well Name	UTM (Zone 8N)		Well Status	Sample Successfully Collected	QA/QC Sample Collected
		Easting	Northing			
NFRC Near S- Wells Area	MW14-08	584701	6913035	Good	✓	
	MW14-09	584691	6913044	Frozen		
	MW14-10	584679	6913040	Good	✓	
	MW14-11	584677	6913028	Good	✓	Duplicate & Field Blank
Vangorda/Grum	BH05-9B-R	592640	6903347	Good	✓	
	P09-GS1A	592494	6904829	Good	✓	
	P09-GS1B	592486	6904832	Good	✓	
	P09-LCD1	593358	6903313	Good	✓	
	P09-LCD4	593327	6903272	Slow recharge	✓	
	P09-LCD6	593313	6903252	Good	✓	Duplicate
	P09-VC1	593520	6903419	Good	✓	
	P09-VC2	593515	6903432	Good	✓	
	P2001-02A	593132	6902864	Slow recharge	✓	
	P2001-02B	593132	6902864	Good	✓	
	P2001-3	593095	6902880	Good	✓	
	P96-9A	592647	6903345	Good	✓	
	SRK05-07	592371	6903187	Good	✓	
	SRK05-08	592583	6903238	Good	✓	Duplicate
	SRK05-5C	592766	6903382	Good	✓	
	SRK05-9	592951	6903165	Good	✓	
	V34	593428	6902474	Slow recharge	✓	
	V35	593177	6902553	Slow recharge	✓	
V36	593133	6902916	Good	✓		
V37	593311	6903081	Slow recharge	✓		

580000

585000

590000

595000

6915000

6910000

6905000

580000

585000

590000

595000



Faro Mine Area

Faro Mine Complex

Haul Road

Town of Faro

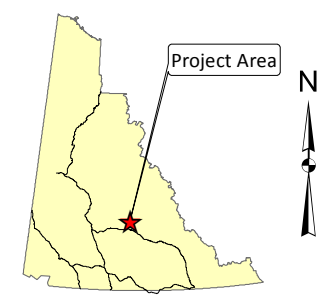
Vangorda/Grum Area

NOTES:  
 1. Units: Meters  
 2. Projection: UTM Zone 8 NAD83  
 3. 2008 Quickbird imagery (courtesy of Yukon Geomatics) and spatial data provided by Yukon government.

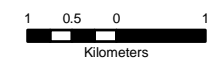
**June 2015 FMC Groundwater Sampling Program**



Client:



Scale: 1:85,000



October 27, 2015

Hemerra Project: 1343.005-08  
 ELR Project: 15-199.1

**FIGURE 1-1**  
 Site Location - Faro Mine Complex



NOTES:  
1. Units: Meters  
2. NTS Mapsheet: 11503  
3. Projection: UTM Zone 8 NAD83  
4. Site features (e.g., roads, trails, streams, waterbodies, watercourses and infrastructure areas) digitized by ELR using 2008 Quickbird imagery (courtesy of Yukon Geomatics) and spatial data provided by Yukon government.  
5. ELR Groundwater Sampling Locations collected by ELR Sept, 2014.

### June 2015 FMC Groundwater Sampling Program

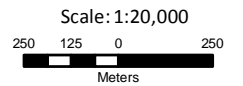
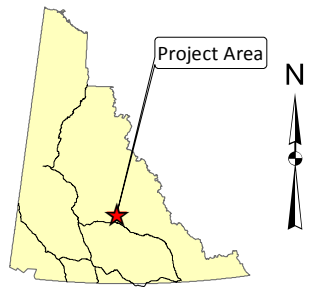


Client:



### Legend

● Groundwater Monitoring Well Locations



October 27, 2015

Hemerra Project: 1343.005-08  
ELR Project: 15-199.1

**FIGURE 1-2**  
Groundwater Sampling Locations  
Faro Mine Area

Drawn by: AN

Checked by: CJ





NOTES:  
 1. Units: Meters  
 2. NTS Mapsheet: 11503  
 3. Projection: UTM Zone 8 NAD83  
 4. Site features (e.g., roads, trails, streams, waterbodies, watercourses and infrastructure areas) digitized by ELR using 2008 Quickbird imagery (courtesy of Yukon Geomatics) and spatial data provided by Yukon government.  
 5. ELR Groundwater Sampling Locations collected by ELR September, 2014.

**June 2015 FMC Groundwater Sampling Program**

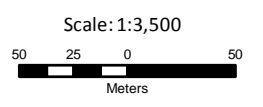
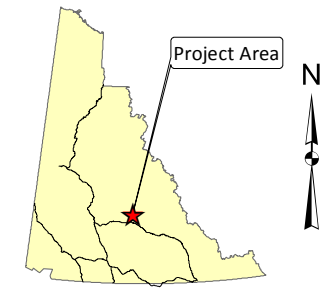


Client:



**Legend**

- Groundwater Monitoring Well Locations



October 27, 2015

Hemerra Project: 1343.005-08  
 ELR Project: 15-199.1

**FIGURE 1-3**  
 Groundwater Sampling Locations  
 S-Well Area

Drawn by: AN  
 Checked by: CJ

NOTES:  
 1. Units: Meters  
 2. NTS Mapsheet: 115I03  
 3. Projection: UTM Zone 8 NAD83  
 4. Site features (e.g., roads, trails, streams, waterbodies, watercourses and infrastructure areas) digitized by ELR using 2008 Quickbird imagery (courtesy of Yukon Geomatics) and spatial data provided by Yukon government.  
 5. ELR Groundwater Sampling Locations collected by ELR September, 2014.

**June 2015 FMC Groundwater Sampling Program**

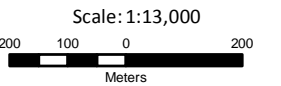
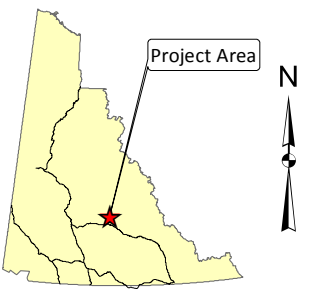


Client:



**Legend**

- Groundwater Monitoring Well Locations



October 27, 2015

Hemerra Project: 1343.005-08

ELR Project: 15-199.1

**FIGURE 1-4**  
 Groundwater Sampling Locations  
 Vangorda Grum Area

Drawn by: AN

Checked by: CJ



## 2.0 METHODOLOGY

### 2.1 PROTOCOLS

Groundwater purging and sampling conducted by Hemmera/ELR was in accordance with Yukon Environment's *Protocol for the Contaminated Sites Regulation #7 – Groundwater Monitoring Well Installation, Sampling and Decommissioning* (Government of Yukon, 2002). The methods were also consistent with the ASTM *D4448-01 Standard Guide for Sampling Groundwater Monitoring Wells* (ASTM, 2013), the *D6452-99 Guide for Purging Methods for Wells used for Groundwater Quality Investigations* (ASTM, 2012) and in accordance with *Standard Methods for the Examination of Water and Wastewater* (Rice et al., 2012).

### 2.2 WELL MEASUREMENTS AND PURGING

Upon arriving at each location, the well structure and casing were inspected for damage, closure, and general conditions. Several measurements were recorded from each well, including depth to water (DTW; m), depth to bottom (DTB; m), well diameter (cm), and well stick-up height (m).

DTW and DTB were measured using either a Solinst – Model 102 Water Level Meter (for 2.54 cm diameter wells) or a Heron Water Tape (for wells with diameter greater than 2.54 cm). In order of preference, DTW and DTB were measured from: 1) a black mark drawn on the top of the well; 2) the bottom of the most significant notch found on the top of the PVC, if a mark was not present; or 3) a line was drawn on the highest point of the well and a measurement was taken from that line if no distinguishable measurement point was present. Stick-up height was measured from the lowest point on the bottom of the well casing to the highest point (or distinguishing mark) on the well. Water level meters were decontaminated between each sample site using a combination of Alconox low-foaming phosphate-free detergent solution and de-ionized water.

Following the initial checks and measurements described above, groundwater wells were purged and sampled using one of four (4) techniques: 1) Hydrolift electric pump using dedicated high density polyethylene (HDPE) Waterra tubing and footvalve, 2) Manual purging using dedicated HDPE Waterra tubing and footvalve, 3) GeoPump peristaltic pump using dedicated HDPE and silicone tubing, or 4) Grundfos Redi-Flo2 submersible pump using dedicated HDPE tubing. The purging technique chosen for each well was that which would produce the most representative groundwater sample.

Groundwater wells were determined to be sufficiently purged when either three successive field parameter measurements were recorded to be within an allowable tolerance level (as summarized in **Table 2-1**, below), or when a volume of groundwater equivalent to three standing well volumes of groundwater had been purged. Groundwater turbidity measured in Nephelometric Turbidity Units (NTU) was also measured prior to sampling and was used as an indication of sample quality. Where possible samples were not collected until turbidity was less than 50 NTU.

Purge volume measurements were collected using a graduated container and stop watch. All well measurements, purging details, and additional field notes were recorded on field forms, this information is presented in **Table 3-1**.

**Table 2-1 Groundwater Sampling – Field Parameter Purging Criteria**

Field Parameter	Allowable Variance in 3 Consecutive Readings
Temperature (°C)	±3%
pH (pH Units)	±0.1
Conductivity (µS/cm)	±3%

### 2.3 FIELD PARAMETERS

Hemmera/ELR measured general field parameters using either an YSI Professional Plus multi-parameter meter or a Hanna 991300 field meter (used at certain wells after one of the program YSI Professional Plus meters malfunctioned). All field parameters were collected using a flow through cell in order to minimize field parameter variability. The required field parameters recorded at each sample site included: groundwater temperature (°C), conductivity (µS/cm), and pH (pH units). Where available, Hemmera/ELR also recorded specific conductivity (µS/cm), dissolved oxygen (mg/L), and oxidation-reduction potential (mv). Where possible, field parameters were recorded throughout the purging process at five-minute intervals. For wells with slow recharge field parameters were recorded at volume related intervals (e.g., every 500 mL). Groundwater turbidity was measured at the time of sample collection using either a LaMotte 2020we or a Hach 2100Q Portable turbidity meter.

### 2.4 GROUNDWATER QUALITY SAMPLE COLLECTION

Groundwater quality samples were collected and preserved in accordance with laboratory directions, and using techniques consistent with Standard Methods for the Examination of Water and Wastewater (Rice et al., 2012). ALS Global was the analytical subcontractor chosen for this project, and an example summary of the sample set collected at each sample location, including parameters analysed and preservation techniques, is provided in **Table 2-2**.

**Table 2-2 Groundwater Sampling – Preservation and Intended Analysis**

Bottle Type	Parameters Analyzed	Sample Treatment	Preservation Added
120 mL (Plastic)	Dissolved Metals (except mercury)	Field Filtered and Preserved	HNO3
1 L (Plastic)	Acidity, alkalinity, chloride, conductivity, pH, hardness, sulfate, total suspended solids (TSS)	-	None

## 2.5 DATA ANALYSIS

Groundwater analytical results were compared to the Canadian Council of Ministers of the Environment (CCME) Water Quality Guidelines for the Protection of Freshwater Aquatic Life (FAL; CCME, 2014). All relevant CCME FAL guidelines are presented in **Table 3-1**.

## 2.6 QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC)

### 2.6.1 Field QA/QC

Several controls were used by Hemmera/ELR staff while in the field to help ensure that sample integrity was maintained and that data were recorded completely and accurately. All equipment used during the sampling process was dedicated to individual wells, including HDPE tubing and Waterra footvalves, laboratory provided pre-cleaned sample bottles, disposable filters, and disposable syringes. The only exception to this was a Grundfos Redi-Flo2 submersible pump that was required to sample several deep wells in the spring program. Field staff wore dedicated disposable nitrile gloves for all measurements, purging, and sampling. Water level meters and the submersible pump were cleaned using Alconox low-foaming phosphate-free detergent and de-ionized water and between wells, and field instruments (Hanna/YSI field meters and turbidity meters) were checked and/or calibrated before each site visit to ensure the parameters recorded were as accurate as possible.

Project-specific field data sheets were created for the sampling event to help ensure all required measurements were taken, and that information was recorded correctly. Field data sheets have been included as **Appendix C** of this report.

### 2.6.2 Laboratory and Sampling QA/QC

Laboratory and sampling QA/QC measures taken as part of the spring sampling program include the collection of travel blanks, duplicates, and field blanks, as outlined in the SOW and as per standard industry practice. Duplicate samples were collected at a ratio of 10% of the regular samples (8 duplicates were collected in relation to 77 sample sites). Additionally, four (4) field blanks were collected, and three (3) travel blanks accompanied the analytical supplies and samples during shipping to and from the laboratory.

The variation between sample and duplicate values was calculated as relative percent difference (RPD). RPD provides a measure of the relative difference between two values in comparison to their mean value, and is calculated as the difference between a sample and its field duplicate over the average of two values. RPD values greater than 20% indicates a greater variance than would normally be anticipated and may be due to a number of factors (e.g., short-term change in parameter concentration, sediment in the sample, sampling or instrument error, large relative % difference but very low actual difference in concentration, such as 0.0001 vs 0.0002 mg/L). RPD was calculated according to the following formula:

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

RPD is not calculated if either the sample or the field duplicate concentration is less than five times the detection limit. QA/QC analytical results including RPD values are presented in **Table 3-3**.

Laboratory replicates and additional quality control measures (i.e., measures against lab standards) were conducted by ALS. Laboratory QA/QC analytical results are included as **Table 3-2** and discussed in **Section 3.3**.

## 3.0 RESULTS

Summary tables of the laboratory analytical results are presented in **Table 3-1** of this report, including comparisons of results to CCME FAL guidelines. A summary of the QA/QC sampling results is also attached, including analytical data for duplicates, field blanks, and travel blanks (**Table 3-2**). Laboratory analytical reports are provided as **Appendix A**.

### 3.1 GROUNDWATER SAMPLING SUMMARY

The spring 2015 groundwater sampling was completed from June 11-15 and June 17-19, 2015. Weather conditions varied throughout the time of sampling with ambient air temperature ranging from 6 to 25°C. The weather conditions were varied and ranged from overcast with periods of precipitation to clear and sunny. All 84 groundwater wells specified for the spring sampling event were visited by Hemmera/ELR during the sampling event. Groundwater samples were successfully collected at 77 of the 84 sampling locations as outlined in **Table 1-1**. Five (5) wells were found frozen (P01-03, P01-04A, P01-04B, MW14-12S and MW14-12S), one (1) well was found dry (P03-06-7), and one well was blocked (MW14-04D). A summary of groundwater wells sampled during the 2015 spring sampling event, including field parameters and well measurements, is provided in **Table 3-3**. All samples were received by the laboratory within the required holding times and temperature limits.

A summary of the sampling results and guideline exceedances is provided in the following sections, organized by area.



**Table 3-1 Groundwater Field Parameters and Well Measurements for 2015 Spring Sampling Program**

Area	Well Name	Sample Date	Stick up Height (m)	Depth to Water (m)	Depth to Bottom (m)	Standing Water Volume (L)	Volume Purged (L)	Purge Start Time	Purge End Time	Elapsed Purge Time	Purge Rate (l/min)	Criteria (3WV / PS)	Draw Down (m)	pH (pH Units)	Temperature (°C)	Conductivity (µS/cm)	Field Specific Conductivity (µS/cm)	Oxidation Reduction Potential (mv)	Field Turbidity (NTU)	Well Diameter (cm)
Cross Valley Dam (CVD)	P01-11	11/06/2015	1.205	0.982	11.012	20.04	10.50	17:02	17:25	0:23	0.46	PS	0.000	6.78	4.60	2029.0	3534.0	-48.8	26.30	5.08
	P05-01-03 <sup>3</sup>	11/06/2015	0.580	1.470	17.771	2.07	6.00	16:05	16:35	0:30	0.20	PS	-	6.56	4.80	2163.0	3524.0	-30.9	0.93	1.3
	P05-01-05 <sup>3</sup>	11/06/2015	0.560	1.754	6.457	0.61	2.25	15:05	15:51	0:46	0.05	PS	-	6.63	5.30	2119.0	3350.0	-39.2	0.03	1.3
	P09-C2	11/06/2015	0.890	0.653	64.000	126.70	35.00	14:10	14:40	0:30	1.17	PS	3.092	6.60	4.90	1649.0	2668.0	-12.7	8.31	5.08
	P09-C3	10/06/2015	0.785	1.161	52.219	102.10	72.00	15:25	16:00	0:35	2.06	PS	0.129	6.60	3.90	871.0	1497.0	-38.0	0.57	5.08
Down Gradient of CVD	P01-01A <sup>4</sup>	11/06/2015	0.580	3.624	20.283	33.36	53.00	16:45	16:54	0:09	5.89	PS	-	NR	NR	1105.0	NR	223.2	1.29	5.08
	P01-01B <sup>1</sup>	11/06/2015	NR	3.787	35.215	65.00	129.00	17:13	17:43	0:30	4.30	3WV	0.093	NR	NR	875.0	NR	37.0	1.02	5.08
Emergency Tailings Area (ETA)	P09-ETA-2	11/06/2015	0.740	5.833	18.533	25.40	82.00	11:37	12:31	0:54	1.52	PS	0.062	5.82	1.90	4795.0	8561.0	-53.4	0.24	5.08
	P96-8A	10/06/2015	0.700	2.253	4.973	5.25	5.50	16:28	16:56	0:28	0.20	PS	0.023	3.54	4.60	5973.0	9776.0	293.9	0.45	5.08
	P96-8B	10/06/2015	0.610	2.200	9.426	14.50	15.00	17:07	17:59	0:52	0.29	PS	0.000	4.96	5.10	5843.0	9421.0	115.4	1.41	5.08
Haul Road Near NFRC	MW14-02D	17/06/2015	0.9	58.721	78.976	40.50	75.00	14:31	15:03	0:32	2.34	PS	3.721	5.85	5.00	316.7	589.8	41.6	11.47	5.08
	MW14-02S	17/06/2015	0.9	58.271	67.000	76.90	90.00	15:51	16:20	0:29	3.10	PS	0.269	7.47	8.60	104.4	151.8	83.7	8.47	10.16
	MW14-03	18/06/2015	0.885	53.342	65.000	206.70	217.00	12:26	14:03	1:37	2.24	PS	5.927	7.26	11.40	631.0	855.0	-37.7	11.30	15.24
	MW14-04S <sup>5</sup>	18/06/2015	0.910	60.241	62.700	8.00	8.00	17:30	18:12	0:42	0.19	PS	-	6.87	7.90	3125.0	4640.0	189.7	1136.00	10.16
	MW14-05	18/06/2015	0.860	53.541	66.500	229.70	180.00	14:44	15:28	0:44	4.09	PS	4.569	6.60	10.50	3400.0	4700.0	-11.2	45.90	15.24
	PW14-01	17/06/2015	1.020	58.800	78.350	345.00	120.00	17:19	18:05	0:46	2.61	PS	1.045	6.03	3.60	455.3	763.1	32.9	4.34	10.16
	PW14-06	10/06/2015	1.030	47.556	63.600	126.00	125.00	11:40	13:46	2:06	0.99	PS	0.209	4.09	22.30	16749.0	17561.0	151.8	16.60	10.16
Intermediate Dam	PW14-07	19/06/2015	0.960	66.265	75.600	166.00	180.00	12:13	12:55	0:42	4.29	PS	0.095	5.68	3.40	545.0	924.0	78.3	2.63	10.16
	X24-96D	11/06/2015	0.842	2.621	28.589	51.90	54.00	10:48	11:48	1:00	0.90	1WV	28.589	6.35	5.00	1822.0	2945.0	8.7	18.30	5.08
	X25-96A	10/06/2015	0.608	2.059	9.460	14.80	15.00	12:27	13:04	0:37	0.41	PS	0.002	6.70	4.00	1080.0	1801.0	-52.1	0.26	5.08
Intermediate Dump	X25-96B	10/06/2015	0.600	1.940	19.886	35.89	10.00	13:26	13:51	0:25	0.40	PS	0.005	7.31	4.10	1092.0	1817.0	-107.3	0.07	5.08
	P96-6	14/06/2015	0.600	11.751	18.085	13.00	18.00	14:29	14:42	0:13	1.38	PS	-0.003	6.52	1.90	713.0	1279.0	238.0	2.34	5.08
Main Dump	SRK08-P9	11/06/2015	0.090	3.999	6.189	4.38	5.00	11:21	11:50	0:29	0.17	PS	0.487	7.05	2.00	887.0	1583.0	78.7	1.67	5.08
Mill Area	SRK08-10A	11/06/2015	0.710	10.862	13.740	6.00	15.00	10:26	10:38	0:12	1.25	PS	0.897	6.32	3.90	2380.0	3985.0	120.4	45.70	5.08
	SRK08-11A	11/06/2015	0.640	1.220	12.448	24.00	25.00	9:27	9:40	0:13	1.92	PS	0.768	6.97	2.40	598.0	1052.0	86.1	3.55	5.08
	SRK08-11B	11/06/2015	1.000	0.860	6.739	12.00	12.00	8:45	9:26	0:41	0.29	PS	0.020	6.66	2.10	600.0	1065.0	91.7	1.54	5.08

Area	Well Name	Sample Date	Stick up Height (m)	Depth to Water (m)	Depth to Bottom (m)	Standing Water Volume (L)	Volume Purged (L)	Purge Start Time	Purge End Time	Elapsed Purge Time	Purge Rate (l/min)	Criteria (3WV / PS)	Draw Down (m)	pH (pH Units)	Temperature (°C)	Conductivity (µS/cm)	Field Specific Conductivity (µS/cm)	Oxidation Reduction Potential (mv)	Field Turbidity (NTU)	Well Diameter (cm)
NFRC Rock Drain Pond	MW14-12D	14/06/2015	0.960	1.820	6.343	11.00	14.00	12:21	13:02	0:41	0.34	PS	0.033	6.13	2.10	317.4	563.0	227.6	2.53	5.08
	MW14-13	14/06/2015	0.963	3.169	5.019	4.00	5.10	10:52	11:18	0:26	0.20	PS	0.006	5.88	3.00	810.0	1401.0	250.2	2.01	5.08
	MW14-14	14/06/2015	0.925	1.504	3.518	1.00	1.00	15:40	15:50	0:10	0.10	1WV	1.971	6.51	5.90	1525.0	1532.0	207.5	38.10	2.54
	MW14-15	14/06/2015	1.195	0.646	2.752	1.00	3.15	13:27	14:01	0:34	0.09	PS	0.376	6.72	3.50	586.0	988.0	199.1	46.00	2.54
	MW14-16	14/06/2015	0.978	4.800	6.895	4.00	5.20	11:38	12:05	0:27	0.19	PS	0.008	6.12	2.50	539.0	947.0	263.0	0.62	5.08
Northeast Dumps	BH13B	11/06/2015	0.750	2.557	4.404	3.70	4.00	12:52	13:19	0:27	0.15	PS	0.283	6.63	0.70	584.0	1090.0	110.5	0.98	5.08
	BH14A	11/06/2015	0.045	3.857	6.449	5.20	5.00	13:53	14:23	0:30	0.17	PS	0.634	6.42	1.90	2453.0	4389.0	121.2	3.37	5.08
	BH14B	11/06/2015	0.670	4.491	10.114	11.50	15.00	14:30	14:39	0:09	1.67	PS	5.169	6.78	2.70	2277.0	3959.0	110.2	32.80	5.08
Second Impoundment	P03-06-1 <sup>3</sup>	10/06/2015	0.778	14.409	26.538	1.50	5.00	10:16	10:41	0:25	0.20	3WV	-	4.60	5.40	3160.0	5021.0	153.2	1.52	1.3
	P03-06-2 <sup>3</sup>	15/06/2015	0.770	12.221	23.665	2.00	6.00	8:51	9:01	0:10	0.60	3WV	-	5.30	4.10	589.0	-	-	1515.00	1.3
	P03-06-6 <sup>3</sup>	11/06/2015	0.900	12.424	13.611	0.15	0.55	9:53	10:00	0:07	0.08	3WV	-	3.28	6.10	656.0	949.0	367.1	697.00	1.3
S-Wells Area	P09-SIS1 <sup>2</sup>	14/06/2015	1.010	4.915	6.481	3.00	3.50	16:48	17:12	0:24	0.15	PS	0.910	7.21	4.20	>3999	-	-	43.00	5.08
	P09-SIS2 <sup>2</sup>	14/06/2015	1.140	4.050	6.328	4.60	6.00	17:24	17:51	0:27	0.22	PS	0.050	5.55	4.20	6.5	-	-	0.74	5.08
	P09-SIS3	14/06/2015	1.036	3.994	4.628	1.00	2.60	16:52	17:08	0:16	0.16	PS	0.031	5.87	3.00	6380.0	11028.0	321.7	0.87	5.08
	P09-SIS4 <sup>2</sup>	15/06/2015	0.970	4.163	4.448	0.60	1.15	10:26	10:40	0:14	0.08	2WV	0.262	6.22	3.40	>3999	-	-	29.00	5.08
	P09-SIS5 <sup>2</sup>	15/06/2015	1.140	3.822	4.605	1.50	1.80	9:49	10:09	0:20	0.09	1WV	0.578	6.45	4.30	>3999	-	-	56.90	5.08
	P96-7 <sup>2</sup>	14/06/2015	0.760	6.645	9.877	6.40	6.00	8:28	9:04	0:36	0.17	PS	0.173	7.22	1.20	2835.0	-	-	0.45	5.08
	S1A <sup>2</sup>	13/06/2015	1.340	4.720	12.720	16.00	20.00	16:04	16:14	0:10	2.00	PS	0.020	7.21	2.00	1633.0	-	-	9.20	5.08
	S1B <sup>2</sup>	15/06/2015	1.160	4.566	5.175	1.20	1.30	14:39	14:46	0:07	0.19	1WV	0.479	6.69	7.70	936.0	-	-	13.70	5.08
	S2A <sup>2</sup>	14/06/2015	1.230	5.210	12.710	15.00	45.00	15:12	15:33	0:21	2.14	3WV	5.200	6.01	2.50	1701.0	-	-	70.50	5.08
	S2B <sup>2</sup>	14/06/2015	0.515	4.468	7.065	5.20	7.00	16:06	16:39	0:33	0.21	PS	1.552	5.91	3.00	>3999	-	-	27.80	5.08
	SRK05-SP-4A <sup>2</sup>	13/06/2015	0.690	4.636	22.401	36.00	40.00	2:21	2:36	0:15	2.67	PS	0.355	5.81	4.99	1288.0	-	-	8.35	5.08
	SRK05-SP-4B	14/06/2015	0.798	4.124	4.730	1.20	2.25	17:25	17:44	0:19	0.12	2WV	0.312	6.10	2.10	4846.0	8593.0	76.0	3.48	5.08
	SRK05-SP-5 <sup>2</sup>	13/06/2015	1.000	6.857	14.582	16.00	48.00	15:03	15:23	0:20	2.40	3WV	0.053	5.97	2.80	487.0	-	-	43.60	5.08
	SRK08-SP-7A <sup>2</sup>	13/06/2015	NR	2.630	17.728	30.00	32.00	15:35	15:45	0:10	3.20	PS	0.510	7.21	3.14	762.0	-	-	31.00	5.08
	SRK08-SP-7B <sup>2</sup>	14/06/2015	1.090	2.738	8.725	12.00	12.00	13:46	14:28	0:42	0.29	PS	0.003	6.28	2.40	265.0	-	-	6.56	5.08
SRK08-SP-8A <sup>2</sup>	14/06/2015	1.190	1.951	8.520	12.00	18.00	9:35	9:44	0:09	2.00	PS	0.012	6.12	1.96	2141.0	-	-	95.00	5.08	
SRK08-SP-8B <sup>2</sup>	14/06/2015	1.030	1.924	7.035	10.00	19.00	9:49	9:56	0:07	2.71	PS	0.011	6.14	0.50	2170.0	-	-	61.10	5.08	
NFRC Near S-Wells Area	MW14-08 <sup>2</sup>	14/06/2015	1.002	1.396	2.190	1.59	4.80	11:36	13:06	1:30	0.16	3WV	0.757	7.01	3.10	657.0	-	-	57.30	5.08
	MW14-10 <sup>2</sup>	14/06/2015	0.735	3.485	5.540	4.00	5.00	11:59	12:23	0:24	0.21	PS	0.340	7.11	2.00	938.0	-	-	9.19	5.08
	MW14-11 <sup>2</sup>	14/06/2015	0.725	1.915	4.430	5.00	5.00	10:43	11:07	0:24	0.21	PS	0.830	6.60	2.40	614.0	-	-	5.21	5.08

Area	Well Name	Sample Date	Stick up Height (m)	Depth to Water (m)	Depth to Bottom (m)	Standing Water Volume (L)	Volume Purged (L)	Purge Start Time	Purge End Time	Elapsed Purge Time	Purge Rate (l/min)	Criteria (3WV / PS)	Draw Down (m)	pH (pH Units)	Temperature (°C)	Conductivity (µS/cm)	Field Specific Conductivity (µS/cm)	Oxidation Reduction Potential (mv)	Field Turbidity (NTU)	Well Diameter (cm)
Vangorda/Grum	BH05-9B-R	12/06/2015	0.915	0.020	19.854	40.00	56.00	11:50	12:06	0:16	3.50	PS	8.015	8.05	3.20	362.7	621.0	-97.6	725.00	5.08
	P09-GS1A <sup>2</sup>	13/06/2015	1.385	2.345	7.390	10.00	10.00	9:08	9:54	0:46	0.22	PS	0.010	6.91	4.30	1613.0	-	-	0.02	5.08
	P09-GS1B <sup>2</sup>	13/06/2015	0.965	2.088	29.555	53.00	60.00	9:05	9:35	0:30	2.00	PS	13.832	6.93	4.30	1552.0	-	-	9.69	5.08
	P09-LCD1	13/06/2015	0.930	3.756	7.407	8.00	9.00	14:59	15:24	0:25	0.36	PS	0.040	7.37	3.40	575.0	981.0	-99.1	71.27	5.08
	P09-LCD4	14/06/2015	0.970	1.594	12.283	21.40	22.00	13:56	14:30	0:34	0.65	1WV	8.851	8.10	6.80	981.0	-	-	95.00	5.08
	P09-LCD6	13/06/2015	0.690	5.842	7.960	4.00	5.20	14:01	14:21	0:20	0.26	PS	0.066	7.39	4.00	618.0	1032.0	-119.3	2.97	5.08
	P09-VC1	12/06/2015	0.100	3.816	67.973	128.00	135.00	16:19	17:00	0:41	3.29	PS	11.294	8.46	3.80	215.6	362.5	-165.2	20.70	5.08
	P09-VC2	12/06/2015	0.864	1.500	19.375	36.00	50.00	15:35	16:01	0:26	1.92	PS	0.982	7.65	3.80	224.2	377.7	-86.5	826.00	5.08
	P2001-02A	14/06/2015	0.640	4.298	6.353	4.10	4.95	11:12	11:52	0:40	0.12	1WV	1.632	7.00	4.70	1958.0	3219.0	-15.0	21.10	5.08
	P2001-02B <sup>2</sup>	14/06/2015	0.420	4.130	27.560	46.90	100.00	11:13	NR	NR	NR	2WV	23.430	7.40	4.90	3960.0	-	-	11.60	5.08
	P2001-3	13/06/2015	0.755	37.224	62.165	49.88	160.00	9:17	10:12	0:55	2.91	3WV	-	7.50	3.00	565.0	972.0	121.3	39.90	5.08
	P96-9A	12/06/2015	0.954	5.623	9.400	8.00	14.00	12:15	12:24	0:09	1.56	PS	1.032	6.97	1.40	1467.0	2674.0	140.8	8.83	5.08
	SRK05-07	12/06/2015	0.670	4.688	6.526	4.00	4.20	9:00	9:35	0:35	0.12	PS	0.748	7.07	3.80	1849.0	3104.0	211.8	2.06	5.08
	SRK05-08	12/06/2015	NR	5.521	8.500	6.00	6.05	10:15	11:10	0:55	0.11	PS	0.313	7.10	4.90	1534.0	2482.0	222.8	1.50	5.08
	SRK05-5C	12/06/2015	0.960	1.465	3.718	2.48	4.90	13:28	13:58	0:30	0.16	PS	0.200	7.86	5.20	460.7	745.0	-73.9	3.36	3.81
	SRK05-9	12/06/2015	0.560	2.703	3.962	2.00	6.50	14:42	15:02	0:20	0.33	3WV	-0.775	7.43	2.00	737.0	1439.0	202.9	11.78	3.81
	V34	13/06/2015	0.547	5.851	12.331	14.00	14.50	16:02	16:28	0:26	0.56	1WV	2.304	7.21	4.40	1337.0	2203.0	44.3	13.06	5.08
	V35	13/06/2015	0.490	8.311	16.021	16.00	16.00	16:40	16:58	0:18	0.89	1WV	2.539	7.37	7.10	2416.0	3671.0	162.9	4.13	5.08
V36 <sup>6</sup>	13/06/2015	0.498	8.716	11.745	6.00	8.00	9:32	10:05	0:33	0.24	PS	0.076	7.10	3.20	1719.0	2943.0	134.0	4.87	5.08	
V37 <sup>2</sup>	13/06/2015	0.480	8.686	14.500	12.00	18.00	17:23	17:39	0:16	1.125	1WV	14.500	7.30	4.70	1344.0	-	-	26.40	5.08	

**Notes:**

NR = Not recorded in the field

<sup>1</sup> = Not Applicable.

<sup>1</sup> Field pH, temperature, and specific conductivity were not measured at sample site P01-01B due to malfunctioning equipment sensors.

<sup>2</sup> Field specific conductivity and oxygen reduction potential were not measured at locations where the Hanna 991300 field meter was used.

<sup>3</sup> Drawdown could not be measured at this sample site due to the narrow well diameter.

<sup>4</sup> Drawdown could not be measured at this sample site due to an ice blockage in the well casing. YSI Professional Plus meter malfunctioned at this well and therefore reliable specific conductivity, temperature, and pH readings were not recorded.

<sup>5</sup> Drawdown could not be measured due to excessive friction with moving Waterra tubing.

<sup>6</sup> V35 had been purged dry and allowed to recharge. Despite the noted elevated temperature, the other field parameters are considered to be the best available considering the purge method.

## **3.2 ANALYTICAL RESULTS**

Analytical results, including a brief summary of CCME FAL guideline exceedances and factors which may have influenced data precision, are provided below. In some instances the laboratory detection limits (DL) exceeded applicable CCME FAL standards (values shaded in light grey in **Table 3-1**). This occurs when samples with high levels of some elements or compounds require dilution in order for the lab to properly analyse the sample. Accordingly, the laboratory detection limit must then be increased. For the purpose of this report, samples where the reported DL is greater than the applicable guideline have not been reported as CCME FAL exceedances.

### **3.2.1 Cross Valley Dam**

Groundwater wells located in the Cross Valley Dam (CVD) area were sampled on either June 10 or 11, 2015. Samples were obtained from all seven (7) wells within this area identified for the sampling event.

Concentrations of dissolved arsenic, cadmium, iron and silver in water exceeded the CCME FAL guidelines in the Cross Valley Dam area.

One of the CVD wells (P09-C2) had been damaged and the well was repaired. A new monument was installed (using cement), and 1 m of 2" PVC pipe and a PVC coupler were used to extend the well casing from the break in the pipe. A J-Plug was used to cap the well.

The other CVD wells visited were in good condition and no additional concerns were identified in the field that may have affected data quality. Groundwater turbidity of all CVD samples was less than 50 NTU.

### **3.2.2 Down Gradient of Cross Valley Dam**

Groundwater wells located down gradient of the CVD area were sampled on June 11, 2015. Samples were obtained from both wells (2) within this area identified for the sampling event.

Concentrations of dissolved cadmium and iron in water exceeded the CCME FAL guidelines in samples collected from one of the two wells.

Drawdown in one well (P01-01A) could not be monitored during purging due to the build-up of ice in the well that blocked the passage of the tape.

Field water quality meter error messages were noted at both wells (P01-01A and P01-01B), potentially due to the cold temperatures and condensation. Field temperature, specific conductivity and pH readings could not be collected during groundwater purging or sampling at well P01-01A and P01-01B due to the malfunctioning of the field meter (which was replaced shortly thereafter).

Groundwater turbidity in both samples within this area was less than 50 NTU.

### **3.2.3 ETA**

Groundwater wells located in the ETA Area were sampled on June 10 and 11, 2015. Samples were obtained from all three (3) wells in this area identified for the sampling event.

Field groundwater pH in the ETA area was not in compliance with CCME FAL guidelines in all three samples (ranging from 3.54 to 5.82).

Concentrations of dissolved aluminum, arsenic, cadmium, copper, iron, lead, nickel, uranium and zinc in water exceeded the CCME FAL guidelines in the ETA. Field and laboratory pH were below the CCME FAL guideline range for all sites in this area.

No additional concerns were identified in the field that may affect data quality. Groundwater turbidity in all samples collected within the ETA area was less than 50 NTU.

### **3.2.4 Haul Road near NFRC**

Groundwater wells located within the Haul Road area (near NFRC) were sampled on June 10, 17, 18, and 19 June 2015. Samples were obtained from eight (8) of the nine (9) wells within this area identified for the sampling event.

Concentrations of aluminum, arsenic, cadmium, iron, lead, nickel, thallium, uranium and zinc in water exceeded the CCME FAL guideline values in this area. Field and lab pH were also below the CCME FAL guideline range at more than one well in this area.

Groundwater turbidity was very high in one well (MW14-04S) at 1,136 NTU. The samples collected from the other wells in the area were all less than 50 NTU.

Well MW14-04D became blocked during the sampling process when a bailers became lodged with what is believed to be a previous bailer down the well. Efforts were made to free the bailer during the sampling visit, but were unsuccessful. Hemmera/ELR will be attempting again to clear the well during the next site visit.

### **3.2.5 Intermediate Dam**

Groundwater wells located within the intermediate dam area were sampled on June 10 and 11, 2015. Samples were obtained from three (3) of the six (6) wells within this area identified for the sampling event. Three (3) wells (P01-03 and P01-04A, and P01-04B) were frozen during the time of sampling.

Field pH was below the CCME FAL guideline range at one of the three (3) wells.

Concentrations of dissolved, aluminum, cadmium, iron, nickel and zinc in water exceeded the CCME FAL guidelines in at least one of the three samples collected within the intermediate dam area.

No additional concerns were identified in the field that may affect data quality. Groundwater turbidity in all samples collected within the intermediate dam area was less than 50 NTU.

### **3.2.6 Intermediate Dump**

Only one (1) groundwater well located within the intermediate dump area was included in the spring 2015 sampling event (well P96-6), which was sampled on June 14, 2014.

Concentrations of dissolved selenium, uranium, and zinc in water exceeded the CCME FAL guidelines in this well.

The turbidity of groundwater from well P96-6 at the time of sampling was 2.34 NTU.

### **3.2.7 Main Dump**

One (1) groundwater well located within the main dump area was included in the spring sampling event (SRK08-P9), which was sampled on June 11, 2015.

Concentrations of dissolved selenium in water exceeded the CCME FAL guidelines in this well.

Hemmera/ELR staff found that the PVC stick-up of well SRK08-P9 was broken close to ground level with no metal casing protecting the well stick-up. A basic wooden frame was present over the well. The turbidity of groundwater from well SRK08-P9 at the time of sampling was 1.67 NTU.

### **3.2.8 Mill Area**

Three (3) groundwater wells located in the mill area were sampled on June 11, 2015.

Concentrations of dissolved aluminum, cadmium, uranium, and zinc in water exceeded the CCME FAL guidelines in samples collected within the mill area.

Field pH was below the CCME-FAL guideline range at one (1) of the three (3) sampled wells. The turbidity of the groundwater samples collected from the three (3) wells was less than 50 NTU.

### **3.2.9 NFRC Rock Drain Pond**

Five (5) of the six (6) groundwater wells in the Rock Drain Pond Area were sampled on June 14 and 15, 2015. One (1) well (MW14-12S) was found to be frozen and was not sampled.

Field and laboratory pH were below the CCME FAL guideline range at three (3) of the five (5) samples collected within the rock drain pond area. Concentrations of aluminum, cadmium, and zinc in water exceeded the CCME FAL guideline values in samples collected within the rock drain pond area.

The turbidity of all the groundwater samples collected within the rock drain pond area was less than 50 NTU.

### **3.2.10 Northeast Dumps**

All three (3) groundwater wells located in the northeast dumps area were sampled on June 11, 2015.

Concentrations of dissolved aluminum, cadmium, copper, lead, nickel, selenium, uranium, and zinc in water exceeded the CCME FAL guidelines in samples collected within the northeast dumps area.

Field pH was below the CCME FAL guideline range at one (1) of the three (3) sampled wells.

Groundwater turbidity of all samples within the northeast dumps area was below 50 NTU.

### **3.2.11 Second Impoundment**

Groundwater wells located in the Second Impoundment area were sampled between June 10 and 15, 2015. Samples were obtained from three (3) of the four (4) wells in this area identified for the sampling event. Well P03-06-7 was dry at the time of sampling.

Field and laboratory pH in the second impoundment area was less than the CCME FAL guideline range at all three (3) wells.

Concentrations of dissolved aluminum, arsenic, cadmium, copper, iron, lead, nickel, and zinc in water exceeded the CCME FAL guidelines in samples collected from the second impoundment area.

The well casings were too narrow to measure drawdown during the purging process.

Groundwater samples collected from two of the three wells in the second impoundment area were extremely turbid, with values ranging from 697 NTU to 1,515 NTU.

### **3.2.12 S-Wells Area**

Groundwater wells located in the S-Wells area were sampled between June 13 and June 15, 2015. Samples were obtained from all seventeen (17) wells in the area identified for the sampling event.

Concentrations of dissolved aluminum, cadmium, copper, iron, nickel, uranium, and zinc in water exceeded the CCME FAL guidelines in samples collected from the S-Wells area. Additionally, field and/or lab pH was below the CCME FAL guideline range at 14 of the wells from the S-Wells area.

The stick-up of well S2A is crooked and the coupler, which is about one metre below the top of the casing, is cracked and requires replacement.

Wells P09-SIS1 and SRK08-SP-7A did not have PVC well caps or J-plugs because of the presence of a transducer support cable.

Wells SRK05-SP-4A and SRK05-SP-5 were both found broken at ground level although samples were obtained.

Groundwater turbidity of five (5) samples within the S-Wells area was greater than 50 NTU.

### **3.2.13 NFRC near S-Wells Area**

Three (3) of the four (4) targeted wells in this area were sampled June 14, 2015. One (1) well was found to be frozen (ME14-09).

Concentrations of dissolved arsenic, iron, selenium exceeded the CCME FAL guidelines in samples collected from the NFRC near S-Wells Area.

The water sample from MW14-08 was collected from water that was above an ice plug in the well and therefore may not be representative of the groundwater quality.

Sample turbidity in one (1) of the three (3) sampled wells (MW14-08) was greater than 50 NTU (57.30).

### **3.2.14 Groundwater Vangorda/Grum**

Groundwater wells located in the Vangorda/Grum area were sampled between June 12 and June 14, 2015. Samples were obtained from all 20 wells in this area identified for the sampling event.

Concentrations of dissolved arsenic, cadmium, iron, lead, selenium, thallium, uranium, and zinc in water exceeded the CCME FAL guidelines in samples collected from the Vangorda/Grum area.

A J-plug was installed on well V37. Groundwater turbidity of all but four (4) of the twenty (20) collected samples within the Vangorda/Grum area was less than 50 NTU. Well V35 was purged dry and allowed to recharge prior to sampling. In-situ temperature measured at the time of sampling was noted to be higher than expected (7.1 °C). The field meter was working properly at the time of sampling and there was groundwater recharge, therefore the other in-situ parameter readings are considered to be the most representative available given the purging method.

Well P09-GS1A appears to have been heaved approximately 0.2 m above grade. Two feet of 6" PVC pipe was placed over the well with a 6" slip cap fitted on top to protect the well. The well stick up cover was removed.



Sediment was noted in the bottom of P09-LCD4. Bentonite was noted in well P2001-02B and debris has sloughed into the well. The top 0.94 m of PVC casing at well P09-VC2 was detached but the well was sampled.

### 3.3 QUALITY ASSURANCE AND QUALITY CONTROL RESULTS

A total of eight (8) duplicate groundwater samples were collected during the spring sampling event. Three (3) travel blanks provided by the laboratory accompanied the samples throughout the sampling program. Four (4) field blanks were prepared on-site on between June 11 and 14, 2015. Detailed results of QA/QC sampling program are provided in **Table 3-2**, including RPD values for all the collected duplicate and sample pairs.

Travel blank analytical results were reported below detection limits for all analysed parameters, indicating that there was no evidence of contamination during the transportation process. Analytical results for field blanks FB-1, FB-2, and FB-4 were also reported below detection limits for all analyzed parameters. Aluminum (0.002 mg/L) and zirconium (0.00081) were detected in field blank FB-3, indicating very slight environmental influence introduced from the air or from the samplers. The level of influence detected amongst the four field blanks is considered to be acceptable and does not represent any type of systematic contamination issue.

All RPD values for duplicate samples were within an acceptable range of variability (below 20%), with the exception of the following results:

- TSS in MW14-11 (RPD 47.7%)
- TSS in P09-LCD6 (RPD 20.5%)
- TSS in SRK08-11A (RPD 28.6%)
- Acidity in MW14-02D (RPD 21.7%)
- Acidity in MW14-13 (RPD 38.2%)
- Lead in MW14-02D (RPD 37%)
- Sulfate in SRK05-SP-4A (RPD 68.3%)
- Sulfate P09-LCD6 (RPD 35.6%)

TSS is expected to have more variability than other parameters; the TSS concentrations in in all the samples with a high RPD are considered to represent a valid range of values for a solution of suspended, rather than dissolved constituents.

The RPDs greater than 20% for acidity indicate a sampling or analytical bias. Sample variation is considered to be caused by variable results for acidity. Sampling using unfiltered methods can introduce sediment; if the sediment is acid-generating, the inclusion of the solid phase can bias the result<sup>1</sup>.

The RPDs greater than 20% for both lead and sulfate indicate a sampling or analytical bias. The RPD for other lead and sulfate QA/QC samples was within 20%, thus there does not seem to be a systemic bias. The dissolved lead concentrations are already very small concentrations (e.g., 0.000262 mg/L) and therefore small variations in these low values can produce a high RPD. In the case of sample MW14-02D the duplicate lead analytical result was only marginally greater than 5 times the detection limit for that sample (0.000262 mg/L compared to 0.0020 mg/L).

Laboratory replicates and additional quality control measures (i.e. measures against lab standards) were conducted by ALS (**Appendix A**). RPD was calculated for the majority of replicate samples. In some cases RPD was not available due to result(s) being less than detection limit. All replicate samples, where RPD calculations were available, were within the allowable limits specified by the laboratory. All measures against laboratory standards were also within the acceptable limits specified by the laboratory.

#### **4.0 RECOMMENDATIONS**

Hemmera/ELR have prepared the following recommendations based on the observations and results of the spring 2015 groundwater sampling program.

1. Damaged or degraded wells should be repaired. This includes wells where well stick-up is above the height of the well monument or where the PVC casing has been damaged above ground level and a well repair is possible. Wells that are unable to close properly or are cracked or broken are at risk of contamination. Damaged or degraded wells observed during the spring sampling event include: SRK08-P9, P09-VC2, SRK05-SP-4A, SRK05-SP-5, and S2A.
2. Attempts should be made to retrieve the bailers that are in the well MW14-04D. The well logs should be reviewed to help inform the best retrieval method to use.

---

<sup>1</sup> Similarly, the inclusion of particulate calcium carbonate can bias the result of an alkalinity sample.

## 5.0 CLOSURE

We have appreciated the opportunity of working with you on this project and trust that this report is satisfactory to your requirements. Please feel free to contact the undersigned regarding any questions or further information that you may require.

Report prepared by:  
**ELR**



Glenn Rudman, M.Sc, R.P.Bio.  
Biologist  
grudman@elr.ca

Report senior reviewed by:  
**ELR**



Chris Jastrebski, M.Sc., R.P.Bio.  
Project Manager  
chris@elr.ca

Report senior reviewed by:  
**Hemmera Envirochem Inc.**



Jason Wilkins, P.Ag., EP, CSAP  
Director, Land Development and Projects  
jwilkins@hemmera.com

## **6.0 REFERENCES**

ASTM Standard D4448-01. 2013. Standard Guide for Sampling Groundwater Monitoring Wells. ASTM International, West Conshohocken, PA, 2013, [www.astm.org](http://www.astm.org).

ASTM Standard D6452-99 2012 Guide for Purging Methods for Wells used for Groundwater Quality investigations. ASTM International, West Conshohocken, PA, 2012, [www.astm.org](http://www.astm.org).

Canadian Council of Ministers of the Environment (CCME). 2014. Canadian Water Quality Guidelines for the Protection of Aquatic Life. Accessed online at <http://st-ts.ccme.ca/>, July 2014.

Rice, E.W., Baird, R.B., Eaton, A.D., and Clesceri, L.S. 2006. Standard Methods for the Examination of Water and Wastewater. 22nd Edition. American Water Works Association.

Government of Yukon. 2002. Environment Act O.I.C. 2002/171 Contaminated Sites Regulation.

## **7.0 STATEMENT OF LIMITATIONS**

This report was prepared by Hemmera Envirochem Inc. ("Hemmera"), based on fieldwork conducted by Hemmera, for the sole benefit and exclusive use of Government of Yukon. The material in it reflects Hemmera's best judgment in light of the information available to it at the time of preparing this Report. Any use that a third party makes of this Report, or any reliance on or decision made based on it, is the responsibility of such third parties. Hemmera accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions taken based on this Report.

Hemmera has performed the work as described above and made the findings and conclusions set out in this Report in a manner consistent with the level of care and skill normally exercised by members of the environmental science profession practicing under similar conditions at the time the work was performed.

This Report represents a reasonable review of the information available to Hemmera within the established Scope, work schedule and budgetary constraints. It is possible that the levels of contamination or hazardous materials may vary across the Site, and hence currently unrecognised contamination or potentially hazardous materials may exist at the Site. No warranty, expressed or implied, is given concerning the presence or level of contamination on the Site, except as specifically noted in this Report. The conclusions and recommendations contained in this Report are based upon applicable legislation existing at the time the Report was drafted. Any changes in the legislation may alter the conclusions and/or recommendations contained in the Report. Regulatory implications discussed in this Report were based on the applicable legislation existing at the time this Report was written.

In preparing this Report, Hemmera has relied in good faith on information provided by others as noted in this Report, and has assumed that the information provided by those individuals is both factual and accurate. Hemmera accepts no responsibility for any deficiency, misstatement or inaccuracy in this Report resulting from the information provided by those individuals.

The liability of Hemmera to Government of Yukon shall be limited to injury or loss caused by the negligent acts of Hemmera. The total aggregate liability of Hemmera related to this agreement shall not exceed the lesser of the actual damages incurred, or the total fee of Hemmera for services rendered on this project.

# **TABLES**













Table 3-3: Quality Assurance and Quality Control Analytical Results for June 2014 Groundwater Sampling Program

Parameter	Units	Site Location		MW14-02D		X25-96A		SRK08-11A			MW14-13		P09-SIS2	
		Sample ID	MW14-02D	DUP-08 (MW14-02D)	DUP-1 (X25-96A)	X25-96A	FB-1 (SRK08-11A)	DUP-2 (SRK08-11A)	SRK08-11A	DUP-7 (MW14-13)	MW14-13	FB4 (P09-SIS2)	P09-SIS2	
		Date Sampled	17/06/2015	18/06/2015	10/06/2015	10/06/2015	11/06/2015	11/06/2015	11/06/2015	14/06/2015	14/06/2015	14/06/2015	14/06/2015	
		ALS Work Number	L1630559	L1630559	L1626746	L1626746	L1626746	L1626746	L1626746	L1627328	L1627328	L1627328	L1627328	
		Station Status	Good				Good	Good	Good		Good		Good	
		CCME-FAL <sup>1,2,3,4</sup>												
<b>Total Metals</b>														
Aluminum (Al)-Total	mg/L	Varies <sup>7</sup>	-	-	-	-	-	-	-	-	-	-	-	
Aluminum CCME Guideline	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	
Antimony (Sb)-Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	
Arsenic (As)-Total	mg/L	0.005	-	-	-	-	-	-	-	-	-	-	-	
Barium (Ba)-Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	
Beryllium (Be)-Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	
Bismuth (Bi)-Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	
Boron (B)-Total	mg/L	1.5	-	-	-	-	-	-	-	-	-	-	-	
Cadmium (Cd)-Total	mg/L	Varies <sup>8</sup>	-	-	-	-	-	-	-	-	-	-	-	
Cadmium CCME Guideline	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	
Calcium (Ca)-Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	
Chromium (Cr)-Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	
Cobalt (Co)-Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	
Copper (Cu)-Total	mg/L	Varies <sup>9</sup>	-	-	-	-	-	-	-	-	-	-	-	
Copper CCME Guideline	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	
Iron (Fe)-Total	mg/L	0.3	-	-	-	-	-	-	-	-	-	-	-	
Lead (Pb)-Total	mg/L	Varies <sup>10</sup>	-	-	-	-	-	-	-	-	-	-	-	
Lead CCME Guideline	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	
Lithium (Li)-Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	
Magnesium (Mg)-Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	
Manganese (Mn)-Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	
Molybdenum (Mo)-Total	mg/L	0.073	-	-	-	-	-	-	-	-	-	-	-	
Nickel (Ni)-Total	mg/L	Varies <sup>11</sup>	-	-	-	-	-	-	-	-	-	-	-	
Nickel CCME Guideline	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	
Phosphorus (P)-Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	
Potassium (K)-Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	
Selenium (Se)-Total	mg/L	0.001	-	-	-	-	-	-	-	-	-	-	-	
Silicon (Si)-Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	
Silver (Ag)-Total	mg/L	0.0001	-	-	-	-	-	-	-	-	-	-	-	
Sodium (Na)-Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	
Strontium (Sr)-Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	
Thallium (Tl)-Total	mg/L	0.0008	-	-	-	-	-	-	-	-	-	-	-	
Tin (Sn)-Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	
Titanium (Ti)-Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	
Uranium (U)-Total	mg/L	0.015	-	-	-	-	-	-	-	-	-	-	-	
Vanadium (V)-Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	
Zinc (Zn)-Total	mg/L	0.03	-	-	-	-	-	-	-	-	-	-	-	
Zirconium (Zr)-Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	



Table 3-3: Quality Assurance and Quality Control Analytical Results for June 2014 Groundwater Sampling Program

Parameter	Units	Site Location				MW14-11				P09-LCD6		SRK05-08			Travel Blanks				
		SRK05-SP-4A			RPD (%) <sup>12</sup>	MW14-11			RPD (%) <sup>12</sup>	P09-LCD6		RPD (%) <sup>12</sup>	SRK05-08		RPD (%) <sup>12</sup>	TRAVEL_BLANK	TRAVEL_BLANK	TRAVEL_BLANK	
		Sample ID	FB2 (SRK05-SP-4A)	DUP-4 (SRK05-SP-4A)		SRK05-SP-4A	FB-3 (MW14-11)	DUP-6 (MW14-11)		MW14-11	DUP-5 (P09-LCD6)		P09-LCD6	DUP-3 (SRK05-08)		SRK05-08	15/06/2015	16/06/2015	22/06/2015
		Date Sampled	13/06/2015	13/06/2015		13/06/2015	14/06/2015	14/06/2015		14/06/2015	13/06/2015		13/06/2015	12/06/2015		12/06/2015	L1626746	L1627328	L1630559
		ALS Work Number	L1627328	L1627328		L1627328	L1627328	L1627328		L1627328	L1627328		L1627328	L1627328		L1627328			
Station Status			Good			Good		Good		Good									
		CCME-FAL <sup>1,2,3,4</sup>																	
<b>Total Metals</b>																			
Aluminum (Al)-Total	mg/L	Varies <sup>7</sup>	-	-	-	-	-	-	-	-	-	-	-	-	<0.0030	<0.0030	<0.0030		
Aluminum CCME Guideline	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Antimony (Sb)-Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.00010	<0.00010	<0.00010		
Arsenic (As)-Total	mg/L	0.005	-	-	-	-	-	-	-	-	-	-	-	-	<0.00010	<0.00010	<0.00010		
Barium (Ba)-Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.000050	<0.000050	<0.000050		
Beryllium (Be)-Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.00010	<0.00010	<0.00010		
Bismuth (Bi)-Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.000050	<0.000050	<0.000050		
Boron (B)-Total	mg/L	1.5	-	-	-	-	-	-	-	-	-	-	-	-	<0.010	<0.010	<0.010		
Cadmium (Cd)-Total	mg/L	Varies <sup>8</sup>	-	-	-	-	-	-	-	-	-	-	-	-	<0.000050	<0.000050	<0.000050		
Cadmium CCME Guideline	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Calcium (Ca)-Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050		
Chromium (Cr)-Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.00010	<0.00010	<0.00010		
Cobalt (Co)-Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.00010	<0.00010	<0.00010		
Copper (Cu)-Total	mg/L	Varies <sup>9</sup>	-	-	-	-	-	-	-	-	-	-	-	-	<0.00050	<0.00050	<0.00050		
Copper CCME Guideline	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Iron (Fe)-Total	mg/L	0.3	-	-	-	-	-	-	-	-	-	-	-	-	<0.010	<0.010	<0.010		
Lead (Pb)-Total	mg/L	Varies <sup>10</sup>	-	-	-	-	-	-	-	-	-	-	-	-	<0.000050	<0.000050	<0.000050		
Lead CCME Guideline	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Lithium (Li)-Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0010	<0.0010	<0.0010		
Magnesium (Mg)-Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0050	<0.0050	<0.0050		
Manganese (Mn)-Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.00010	<0.00010	<0.00010		
Molybdenum (Mo)-Total	mg/L	0.073	-	-	-	-	-	-	-	-	-	-	-	-	<0.000050	<0.000050	<0.000050		
Nickel (Ni)-Total	mg/L	Varies <sup>11</sup>	-	-	-	-	-	-	-	-	-	-	-	-	<0.00050	<0.00050	<0.00050		
Nickel CCME Guideline	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Phosphorus (P)-Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050		
Potassium (K)-Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050		
Selenium (Se)-Total	mg/L	0.001	-	-	-	-	-	-	-	-	-	-	-	-	<0.000050	<0.000050	<0.000050		
Silicon (Si)-Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050		
Silver (Ag)-Total	mg/L	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	<0.000010	<0.000010	<0.000010		
Sodium (Na)-Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	<0.050		
Strontium (Sr)-Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.00020	<0.00020	<0.00020		
Thallium (Tl)-Total	mg/L	0.0008	-	-	-	-	-	-	-	-	-	-	-	-	<0.000010	<0.000010	<0.000010		
Tin (Sn)-Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.00010	<0.00010	<0.00010		
Titanium (Ti)-Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.00030	<0.00030	<0.00030		
Uranium (U)-Total	mg/L	0.015	-	-	-	-	-	-	-	-	-	-	-	-	<0.000010	<0.000010	<0.000010		
Vanadium (V)-Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.00050	<0.00050	<0.00050		
Zinc (Zn)-Total	mg/L	0.03	-	-	-	-	-	-	-	-	-	-	-	-	<0.0030	<0.0030	<0.0030		
Zirconium (Zr)-Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.00030	<0.00030	<0.00030		

## Notes

- (1) CCME guideline exceedences shaded with dark grey. Light grey shading denotes reportable detection limit in exceedence of CCME Guideline. Where guideline value is dependent on hardness or pH, reported values have been compared against a guideline value calculated for each site based on the relevant value, and the guideline value has been noted as "varies".
- (2) - = No standard or not analyzed
- (3) CCME = Canadian Council of Ministers of the Environment, Canadian Environmental Quality Guidelines, 1999, updated to November 2014
- (4) CCME FAL = Chapter 4, Canadian Water Quality Guidelines for the Protection of Aquatic Life, Freshwater, updated to November 2014
- (5) CCME FAL stipulates pH not < 6.5 and not > 9
- (6) Guideline note: Lowest acceptable dissolved oxygen concentration for cold-water biota, early life stages
- (7) Aluminum varies with pH as follows for CCME FAL:  
0.005 if pH<6.5  
0.1 if pH>=6.5  
when field pH is not available, lab pH is used. When field and lab pH are both not available, the most stringent guideline has been used.
- (8) Cadmium varies with Hardness in mg/L as follows for CCME FAL:  
0.00 if H<17  
0.00004 - 0.00037 if H>=17 and H<=280 as follows;  
CWQG ( $\mu\text{g/L}$ ) =  $10\{0.83(\log[\text{hardness}]) - 2.46\}$   
0.00 if H>280
- (9) Copper varies with Hardness in mg/L as follows for CCME FAL:  
0.002 if H<82  
0.002 - 0.004 if H>=82 and H<=180 as follows;  
CWQG ( $\mu\text{g/L}$ ) =  $0.2 * e\{0.8545[\ln(\text{hardness})]-1.465\}$   
0.004 if H>180
- (10) Lead varies with Hardness in mg/L as follows for CCME FAL:  
0.001 if H<60  
.001 - 0.001 if H>=60 and H<=180 as follows;  
CWQG ( $\mu\text{g/L}$ ) =  $e\{1.273[\ln(\text{hardness})]-4.705\}$   
0.007 if H>180
- (11) Nickel varies with Hardness in mg/L as follows for CCME FAL:  
0.025 if H<60  
0.025 - 0.15 if H>=60 and H<=180 as follows;  
CWQG ( $\mu\text{g/L}$ ) =  $e\{0.76[\ln(\text{hardness})]+1.06\}$   
0.15 if H>180
- (12) RPD = Relative Percent Difference. The difference between a sample and its field duplicate over the average of two values.  
*nc* = not calculated. RPD is not calculated if either the sample or the field duplicate concentration is less than five times the detection limit.
- Italics* text indicates the parameter-specific standard (calculated) for a particular sample.  
**Bold** and underlined indicates values above RDL in Field Blank or Travel Blank  
***Bold*** and *Italic* Indicates QAQC values exceed expected results (i.e. RDP values exceed 20%).

**APPENDIX A**  
**Laboratory Reports**





HEMMERA ENVIROCHEM INC.  
ATTN: Natasha Sandys  
230 - 2237 2nd Avenue  
Whitehorse YK Y1A 0K7

Date Received: 15-JUN-15  
Report Date: 23-JUN-15 18:11 (MT)  
Version: FINAL

Client Phone: 867-456-4865

## Certificate of Analysis

Lab Work Order #: L1626746  
Project P.O. #: NOT SUBMITTED  
Job Reference: 1343-005.08  
C of C Numbers: 1, 2, 3  
Legal Site Desc:

---

Brent Mack, B.Sc.  
Account Manager

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

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

## ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1626746-1	L1626746-2	L1626746-3	L1626746-4	L1626746-5
		Description	Water	Water	Water	Water	Water
		Sampled Date	11-JUN-15	11-JUN-15	10-JUN-15	11-JUN-15	11-JUN-15
		Sampled Time	10:00	10:45	16:47	13:15	12:35
		Client ID	P03-06-6	P03-06-1	P96-8A	X24-96D	P09-ETA-2
Grouping	Analyte						
<b>WATER</b>							
<b>Physical Tests</b>	Conductivity (uS/cm)		4220	5300	10000	3090	9660
	Hardness (as CaCO3) (mg/L)		1010	1880	5590	1850	3110
	Hardness (as CaCO3)						
	pH (pH)		4.32	4.86	3.90	6.83	4.69
	Total Suspended Solids (mg/L)		1500	32.4	3.6	84.0	77.8
<b>Anions and Nutrients</b>	Acidity (as CaCO3) (mg/L)		1420	1820	2220	93.3	6020
	Alkalinity, Total (as CaCO3) (mg/L)		<1.0	<1.0	<1.0	296	<1.0
	Chloride (Cl) (mg/L)		<10 <sup>DLA</sup>	<10 <sup>DLA</sup>	<25 <sup>DLA</sup>	<10 <sup>DLA</sup>	<25 <sup>DLA</sup>
	Sulfate (SO4) (mg/L)		2350	3520	4380	1920	9540
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)						
	Antimony (Sb)-Total (mg/L)						
	Arsenic (As)-Total (mg/L)						
	Barium (Ba)-Total (mg/L)						
	Beryllium (Be)-Total (mg/L)						
	Bismuth (Bi)-Total (mg/L)						
	Boron (B)-Total (mg/L)						
	Cadmium (Cd)-Total (mg/L)						
	Calcium (Ca)-Total (mg/L)						
	Cesium (Cs)-Total (mg/L)						
	Chromium (Cr)-Total (mg/L)						
	Cobalt (Co)-Total (mg/L)						
	Copper (Cu)-Total (mg/L)						
	Iron (Fe)-Total (mg/L)						
	Lead (Pb)-Total (mg/L)						
	Lithium (Li)-Total (mg/L)						
	Magnesium (Mg)-Total (mg/L)						
	Manganese (Mn)-Total (mg/L)						
	Molybdenum (Mo)-Total (mg/L)						
	Nickel (Ni)-Total (mg/L)						
	Phosphorus (P)-Total (mg/L)						
	Potassium (K)-Total (mg/L)						
	Rubidium (Rb)-Total (mg/L)						
	Selenium (Se)-Total (mg/L)						
	Silicon (Si)-Total (mg/L)						
	Silver (Ag)-Total (mg/L)						
Sodium (Na)-Total (mg/L)							
Strontium (Sr)-Total (mg/L)							

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

## ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1626746-6	L1626746-7	L1626746-8	L1626746-9	L1626746-10
		Description	Water	Water	Water	Water	Water
		Sampled Date	11-JUN-15	10-JUN-15	10-JUN-15	11-JUN-15	10-JUN-15
		Sampled Time	14:45	13:10	13:10	16:40	18:00
		Client ID	P09-C2	X25-96A	DUP-1	P05-01-03	P96-8B
Grouping	Analyte						
<b>WATER</b>							
<b>Physical Tests</b>	Conductivity (uS/cm)		2770	1910	1920	3820	9660
	Hardness (as CaCO3) (mg/L)		910	1020	1010	2320	5540
	Hardness (as CaCO3)						
	pH (pH)		7.24	7.71	7.78	7.31	5.79
	Total Suspended Solids (mg/L)		30.6	17.6	18.2	29.6	23.2
<b>Anions and Nutrients</b>	Acidity (as CaCO3) (mg/L)		145	20.6	18.2	63.1	1930
	Alkalinity, Total (as CaCO3) (mg/L)		1660	312	311	453	19.8
	Chloride (Cl) (mg/L)		17.8	<2.5 <sup>DLA</sup>	<2.5 <sup>DLA</sup>	<10 <sup>DLA</sup>	12
	Sulfate (SO4) (mg/L)		23.0	855	882	2080	8460
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)						
	Antimony (Sb)-Total (mg/L)						
	Arsenic (As)-Total (mg/L)						
	Barium (Ba)-Total (mg/L)						
	Beryllium (Be)-Total (mg/L)						
	Bismuth (Bi)-Total (mg/L)						
	Boron (B)-Total (mg/L)						
	Cadmium (Cd)-Total (mg/L)						
	Calcium (Ca)-Total (mg/L)						
	Cesium (Cs)-Total (mg/L)						
	Chromium (Cr)-Total (mg/L)						
	Cobalt (Co)-Total (mg/L)						
	Copper (Cu)-Total (mg/L)						
	Iron (Fe)-Total (mg/L)						
	Lead (Pb)-Total (mg/L)						
	Lithium (Li)-Total (mg/L)						
	Magnesium (Mg)-Total (mg/L)						
	Manganese (Mn)-Total (mg/L)						
	Molybdenum (Mo)-Total (mg/L)						
	Nickel (Ni)-Total (mg/L)						
	Phosphorus (P)-Total (mg/L)						
	Potassium (K)-Total (mg/L)						
	Rubidium (Rb)-Total (mg/L)						
	Selenium (Se)-Total (mg/L)						
	Silicon (Si)-Total (mg/L)						
	Silver (Ag)-Total (mg/L)						
Sodium (Na)-Total (mg/L)							
Strontium (Sr)-Total (mg/L)							

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

## ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1626746-11	L1626746-12	L1626746-13	L1626746-14	L1626746-15
		Description	Water	Water	Water	Water	Water
		Sampled Date	10-JUN-15	11-JUN-15	11-JUN-15	10-JUN-15	11-JUN-15
		Sampled Time	16:05	16:00	18:00	13:46	13:21
		Client ID	P09-C3	P05-01-05	P01-11	PW14-6	BH13B
Grouping	Analyte						
<b>WATER</b>							
<b>Physical Tests</b>	Conductivity (uS/cm)		1550	3560	3750	18000	1120
	Hardness (as CaCO3) (mg/L)		764	2180	2300	13200	590
	Hardness (as CaCO3)						
	pH (pH)		7.84	7.28	7.00	4.55	7.49
	Total Suspended Solids (mg/L)		8.0	33.2	168	21.6	1.8
<b>Anions and Nutrients</b>	Acidity (as CaCO3) (mg/L)		18.7	69.0	123	5030	10.7
	Alkalinity, Total (as CaCO3) (mg/L)		631	430	436	<1.0	113
	Chloride (Cl) (mg/L)		5.0	<10 <sup>DLA</sup>	<10 <sup>DLA</sup>	<25 <sup>DLA</sup>	<0.50
	Sulfate (SO4) (mg/L)		304	1860	2210	19000	387
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)						
	Antimony (Sb)-Total (mg/L)						
	Arsenic (As)-Total (mg/L)						
	Barium (Ba)-Total (mg/L)						
	Beryllium (Be)-Total (mg/L)						
	Bismuth (Bi)-Total (mg/L)						
	Boron (B)-Total (mg/L)						
	Cadmium (Cd)-Total (mg/L)						
	Calcium (Ca)-Total (mg/L)						
	Cesium (Cs)-Total (mg/L)						
	Chromium (Cr)-Total (mg/L)						
	Cobalt (Co)-Total (mg/L)						
	Copper (Cu)-Total (mg/L)						
	Iron (Fe)-Total (mg/L)						
	Lead (Pb)-Total (mg/L)						
	Lithium (Li)-Total (mg/L)						
	Magnesium (Mg)-Total (mg/L)						
	Manganese (Mn)-Total (mg/L)						
	Molybdenum (Mo)-Total (mg/L)						
	Nickel (Ni)-Total (mg/L)						
	Phosphorus (P)-Total (mg/L)						
	Potassium (K)-Total (mg/L)						
	Rubidium (Rb)-Total (mg/L)						
	Selenium (Se)-Total (mg/L)						
	Silicon (Si)-Total (mg/L)						
	Silver (Ag)-Total (mg/L)						
	Sodium (Na)-Total (mg/L)						
Strontium (Sr)-Total (mg/L)							

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

## ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1626746-16	L1626746-17	L1626746-18	L1626746-19	L1626746-20
		Description	Water	Water	Water	Water	Water
		Sampled Date	11-JUN-15	11-JUN-15	11-JUN-15	11-JUN-15	11-JUN-15
		Sampled Time	14:40	14:24	11:52	10:40	09:44
		Client ID	BH14B	BH14A	SRK08-P9	SRK08-10A	SRK08-11A
Grouping	Analyte						
<b>WATER</b>							
<b>Physical Tests</b>	Conductivity (uS/cm)		4130	4430	1510	4030	939
	Hardness (as CaCO3) (mg/L)		2740	2890	904	2180	538
	Hardness (as CaCO3)						
	pH (pH)		7.89	7.62	8.20	7.27	7.93
	Total Suspended Solids (mg/L)		423	28.2	12.0	146	23.2
<b>Anions and Nutrients</b>	Acidity (as CaCO3) (mg/L)		23.9	65.1	4.7	82.0	4.7
	Alkalinity, Total (as CaCO3) (mg/L)		497	530	284	703	187
	Chloride (Cl) (mg/L)		<10 <sup>DLA</sup>	<10 <sup>DLA</sup>	<2.5 <sup>DLA</sup>	129	<1.0 <sup>DLA</sup>
	Sulfate (SO4) (mg/L)		2150	2730	617	1770	393
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)						
	Antimony (Sb)-Total (mg/L)						
	Arsenic (As)-Total (mg/L)						
	Barium (Ba)-Total (mg/L)						
	Beryllium (Be)-Total (mg/L)						
	Bismuth (Bi)-Total (mg/L)						
	Boron (B)-Total (mg/L)						
	Cadmium (Cd)-Total (mg/L)						
	Calcium (Ca)-Total (mg/L)						
	Cesium (Cs)-Total (mg/L)						
	Chromium (Cr)-Total (mg/L)						
	Cobalt (Co)-Total (mg/L)						
	Copper (Cu)-Total (mg/L)						
	Iron (Fe)-Total (mg/L)						
	Lead (Pb)-Total (mg/L)						
	Lithium (Li)-Total (mg/L)						
	Magnesium (Mg)-Total (mg/L)						
	Manganese (Mn)-Total (mg/L)						
	Molybdenum (Mo)-Total (mg/L)						
	Nickel (Ni)-Total (mg/L)						
	Phosphorus (P)-Total (mg/L)						
	Potassium (K)-Total (mg/L)						
	Rubidium (Rb)-Total (mg/L)						
	Selenium (Se)-Total (mg/L)						
	Silicon (Si)-Total (mg/L)						
Silver (Ag)-Total (mg/L)							
Sodium (Na)-Total (mg/L)							
Strontium (Sr)-Total (mg/L)							

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

## ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1626746-21	L1626746-22	L1626746-23	L1626746-24	L1626746-25
		Description	Water	Water	Water	Water	Water
		Sampled Date	11-JUN-15	11-JUN-15	11-JUN-15	11-JUN-15	10-JUN-15
		Sampled Time	09:44	09:27	09:44	17:45	13:55
		Client ID	DUP-2	SRK08-11B	FB-1	P01-01B	X25-96B
Grouping	Analyte						
<b>WATER</b>							
<b>Physical Tests</b>	Conductivity (uS/cm)		934	942	<2.0	1350	1600
	Hardness (as CaCO3) (mg/L)		552	542	<0.50	817	974
	Hardness (as CaCO3)						
	pH (pH)		7.79	7.65	5.45	7.84	8.02
	Total Suspended Solids (mg/L)		17.4	2.8	<1.0	2.8	8.4
<b>Anions and Nutrients</b>	Acidity (as CaCO3) (mg/L)		5.3	5.7	1.0	9.3	7.6
	Alkalinity, Total (as CaCO3) (mg/L)		185	149	<1.0	324	319
	Chloride (Cl) (mg/L)		<0.50	<1.0 <sup>DLA</sup>	<0.50	<2.5 <sup>DLA</sup>	<2.5 <sup>DLA</sup>
	Sulfate (SO4) (mg/L)		380	445	<0.30	611	824
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)						
	Antimony (Sb)-Total (mg/L)						
	Arsenic (As)-Total (mg/L)						
	Barium (Ba)-Total (mg/L)						
	Beryllium (Be)-Total (mg/L)						
	Bismuth (Bi)-Total (mg/L)						
	Boron (B)-Total (mg/L)						
	Cadmium (Cd)-Total (mg/L)						
	Calcium (Ca)-Total (mg/L)						
	Cesium (Cs)-Total (mg/L)						
	Chromium (Cr)-Total (mg/L)						
	Cobalt (Co)-Total (mg/L)						
	Copper (Cu)-Total (mg/L)						
	Iron (Fe)-Total (mg/L)						
	Lead (Pb)-Total (mg/L)						
	Lithium (Li)-Total (mg/L)						
	Magnesium (Mg)-Total (mg/L)						
	Manganese (Mn)-Total (mg/L)						
	Molybdenum (Mo)-Total (mg/L)						
	Nickel (Ni)-Total (mg/L)						
	Phosphorus (P)-Total (mg/L)						
	Potassium (K)-Total (mg/L)						
	Rubidium (Rb)-Total (mg/L)						
	Selenium (Se)-Total (mg/L)						
	Silicon (Si)-Total (mg/L)						
Silver (Ag)-Total (mg/L)							
Sodium (Na)-Total (mg/L)							
Strontium (Sr)-Total (mg/L)							

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

# ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1626746-26 Water 11-JUN-15 17:05 P01-01A	L1626746-27 Water  TRAVEL BLANK		
Grouping	Analyte				
<b>WATER</b>					
<b>Physical Tests</b>	Conductivity (uS/cm)	1690	<2.0		
	Hardness (as CaCO3) (mg/L)	1090			
	Hardness (as CaCO3)		<0.50		
	pH (pH)	7.53	5.76		
	Total Suspended Solids (mg/L)	2.6	<1.0		
<b>Anions and Nutrients</b>	Acidity (as CaCO3) (mg/L)	16.9	1.5		
	Alkalinity, Total (as CaCO3) (mg/L)	336	<1.0		
	Chloride (Cl) (mg/L)	<2.5 <sup>DLA</sup>	<0.50		
	Sulfate (SO4) (mg/L)	868	<0.30		
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)		<0.0030		
	Antimony (Sb)-Total (mg/L)		<0.00010		
	Arsenic (As)-Total (mg/L)		<0.00010		
	Barium (Ba)-Total (mg/L)		<0.000050		
	Beryllium (Be)-Total (mg/L)		<0.00010		
	Bismuth (Bi)-Total (mg/L)		<0.000050		
	Boron (B)-Total (mg/L)		<0.010		
	Cadmium (Cd)-Total (mg/L)		<0.0000050		
	Calcium (Ca)-Total (mg/L)		<0.050		
	Cesium (Cs)-Total (mg/L)		<0.000010		
	Chromium (Cr)-Total (mg/L)		<0.00010		
	Cobalt (Co)-Total (mg/L)		<0.00010		
	Copper (Cu)-Total (mg/L)		<0.00050		
	Iron (Fe)-Total (mg/L)		<0.010		
	Lead (Pb)-Total (mg/L)		<0.000050		
	Lithium (Li)-Total (mg/L)		<0.0010		
	Magnesium (Mg)-Total (mg/L)		<0.0050		
	Manganese (Mn)-Total (mg/L)		<0.00010		
	Molybdenum (Mo)-Total (mg/L)		<0.000050		
	Nickel (Ni)-Total (mg/L)		<0.00050		
	Phosphorus (P)-Total (mg/L)		<0.050		
	Potassium (K)-Total (mg/L)		<0.050		
	Rubidium (Rb)-Total (mg/L)		<0.00020		
	Selenium (Se)-Total (mg/L)		<0.000050		
	Silicon (Si)-Total (mg/L)		<0.050		
	Silver (Ag)-Total (mg/L)		<0.000010		
	Sodium (Na)-Total (mg/L)		<0.050		
	Strontium (Sr)-Total (mg/L)		<0.00020		

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

# ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1626746-1	L1626746-2	L1626746-3	L1626746-4	L1626746-5
		Water 11-JUN-15 10:00 P03-06-6	Water 11-JUN-15 10:45 P03-06-1	Water 10-JUN-15 16:47 P96-8A	Water 11-JUN-15 13:15 X24-96D	Water 11-JUN-15 12:35 P09-ETA-2
Grouping	Analyte					
<b>WATER</b>						
<b>Total Metals</b>	Sulfur (S)-Total (mg/L)					
	Tellurium (Te)-Total (mg/L)					
	Thallium (Tl)-Total (mg/L)					
	Thorium (Th)-Total (mg/L)					
	Tin (Sn)-Total (mg/L)					
	Titanium (Ti)-Total (mg/L)					
	Tungsten (W)-Total (mg/L)					
	Uranium (U)-Total (mg/L)					
	Vanadium (V)-Total (mg/L)					
	Zinc (Zn)-Total (mg/L)					
	Zirconium (Zr)-Total (mg/L)					
<b>Dissolved Metals</b>	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	0.015	3.59	24.8	0.0085	0.74
	Antimony (Sb)-Dissolved (mg/L)	0.0012	<0.0020 <sup>DLA</sup>	<0.010 <sup>DLA</sup>	0.00065 <sup>DLA</sup>	<0.010 <sup>DLA</sup>
	Arsenic (As)-Dissolved (mg/L)	0.0109	<0.0020 <sup>DLA</sup>	<0.010 <sup>DLA</sup>	<0.00050 <sup>DLA</sup>	0.172
	Barium (Ba)-Dissolved (mg/L)	0.00631	0.0136	0.0156	0.00839	0.0101
	Beryllium (Be)-Dissolved (mg/L)	<0.0010 <sup>DLA</sup>	0.0051	0.010	<0.00050 <sup>DLA</sup>	<0.010 <sup>DLA</sup>
	Bismuth (Bi)-Dissolved (mg/L)	<0.00050 <sup>DLA</sup>	<0.0010 <sup>DLA</sup>	<0.0050 <sup>DLA</sup>	<0.00025 <sup>DLA</sup>	<0.0050 <sup>DLA</sup>
	Boron (B)-Dissolved (mg/L)	<0.10	<0.20	<1.0	<0.050	<1.0
	Cadmium (Cd)-Dissolved (mg/L)	0.0546	0.0745	0.319	0.00597	<0.00050
	Calcium (Ca)-Dissolved (mg/L)	198	467	401	529	381
	Cesium (Cs)-Dissolved (mg/L)	0.00039	<0.00020 <sup>DLA</sup>	<0.0010 <sup>DLA</sup>	<0.000050 <sup>DLA</sup>	<0.0010 <sup>DLA</sup>
	Chromium (Cr)-Dissolved (mg/L)	<0.0010 <sup>DLA</sup>	<0.0020 <sup>DLA</sup>	<0.010 <sup>DLA</sup>	<0.00050 <sup>DLA</sup>	<0.010 <sup>DLA</sup>
	Cobalt (Co)-Dissolved (mg/L)	0.0849	2.44	1.88	0.102	1.29
	Copper (Cu)-Dissolved (mg/L)	<0.0020 <sup>DLA</sup>	0.0056	0.257	0.0012	<0.020 <sup>DLA</sup>
	Iron (Fe)-Dissolved (mg/L)	640	966	243	23.4	2390
	Lead (Pb)-Dissolved (mg/L)	0.0947	0.0100	0.103	<0.00025 <sup>DLA</sup>	<0.0050 <sup>DLA</sup>
	Lithium (Li)-Dissolved (mg/L)	0.050	0.184	0.20	0.0223	<0.10
	Magnesium (Mg)-Dissolved (mg/L)	126	174	1110	128	525
	Manganese (Mn)-Dissolved (mg/L)	33.4	176	128	34.1	69.0
	Molybdenum (Mo)-Dissolved (mg/L)	<0.00050 <sup>DLA</sup>	0.0011	<0.0050 <sup>DLA</sup>	0.00042	<0.0050 <sup>DLA</sup>
	Nickel (Ni)-Dissolved (mg/L)	0.0832	2.77	2.17	0.171	0.930
	Phosphorus (P)-Dissolved (mg/L)	<0.50 <sup>DLA</sup>	<1.0 <sup>DLA</sup>	<5.0 <sup>DLA</sup>	<0.25 <sup>DLA</sup>	<5.0 <sup>DLA</sup>
	Potassium (K)-Dissolved (mg/L)	4.57	8.0	14.7	7.38	7.8
	Rubidium (Rb)-Dissolved (mg/L)	0.0130	<0.0040 <sup>DLA</sup>	0.021	0.0014	<0.020 <sup>DLA</sup>
	Selenium (Se)-Dissolved (mg/L)	<0.00050 <sup>DLA</sup>	<0.0010 <sup>DLA</sup>	<0.0050 <sup>DLA</sup>	<0.00025 <sup>DLA</sup>	<0.0050 <sup>DLA</sup>
	Silicon (Si)-Dissolved (mg/L)	5.89	38.7	22.0	9.26	8.1

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



# ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1626746-6 Water 11-JUN-15 14:45 P09-C2	L1626746-7 Water 10-JUN-15 13:10 X25-96A	L1626746-8 Water 10-JUN-15 13:10 DUP-1	L1626746-9 Water 11-JUN-15 16:40 P05-01-03	L1626746-10 Water 10-JUN-15 18:00 P96-8B
Grouping	Analyte					
<b>WATER</b>						
<b>Total Metals</b>	Sulfur (S)-Total (mg/L)					
	Tellurium (Te)-Total (mg/L)					
	Thallium (Tl)-Total (mg/L)					
	Thorium (Th)-Total (mg/L)					
	Tin (Sn)-Total (mg/L)					
	Titanium (Ti)-Total (mg/L)					
	Tungsten (W)-Total (mg/L)					
	Uranium (U)-Total (mg/L)					
	Vanadium (V)-Total (mg/L)					
	Zinc (Zn)-Total (mg/L)					
	Zirconium (Zr)-Total (mg/L)					
<b>Dissolved Metals</b>	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	0.0127	0.0155	0.0044	0.0082	4.77
	Antimony (Sb)-Dissolved (mg/L)	<0.00020 <sup>DLA</sup>	<0.00020 <sup>DLA</sup>	<0.00020 <sup>DLA</sup>	<0.00050 <sup>DLA</sup>	<0.010 <sup>DLA</sup>
	Arsenic (As)-Dissolved (mg/L)	<0.00020 <sup>DLA</sup>	0.00041	0.00046	<0.00050 <sup>DLA</sup>	<0.010 <sup>DLA</sup>
	Barium (Ba)-Dissolved (mg/L)	0.643	0.0698 <sup>DLA</sup>	0.0692 <sup>DLA</sup>	0.0219 <sup>DLA</sup>	0.0147 <sup>DLA</sup>
	Beryllium (Be)-Dissolved (mg/L)	0.00234	<0.00020 <sup>DLA</sup>	<0.00020 <sup>DLA</sup>	<0.00050 <sup>DLA</sup>	<0.010 <sup>DLA</sup>
	Bismuth (Bi)-Dissolved (mg/L)	<0.00010 <sup>DLA</sup>	<0.00010 <sup>DLA</sup>	<0.00010 <sup>DLA</sup>	<0.00025 <sup>DLA</sup>	<0.0050 <sup>DLA</sup>
	Boron (B)-Dissolved (mg/L)	0.078 <sup>DLA</sup>	<0.020 <sup>DLA</sup>	<0.020 <sup>DLA</sup>	<0.050 <sup>DLA</sup>	<1.0 <sup>DLA</sup>
	Cadmium (Cd)-Dissolved (mg/L)	<0.000010 <sup>DLA</sup>	0.000126	0.000114	<0.000025 <sup>DLA</sup>	0.189
	Calcium (Ca)-Dissolved (mg/L)	206	304 <sup>DLA</sup>	298 <sup>DLA</sup>	690	376 <sup>DLA</sup>
	Cesium (Cs)-Dissolved (mg/L)	0.00934	<0.000020 <sup>DLA</sup>	<0.000020 <sup>DLA</sup>	0.000312 <sup>DLA</sup>	<0.0010 <sup>DLA</sup>
	Chromium (Cr)-Dissolved (mg/L)	<0.00020 <sup>DLA</sup>	<0.00020 <sup>DLA</sup>	<0.00020 <sup>DLA</sup>	<0.00050 <sup>DLA</sup>	<0.010 <sup>DLA</sup>
	Cobalt (Co)-Dissolved (mg/L)	<0.00020 <sup>DLA</sup>	0.0166 <sup>DLA</sup>	0.0168 <sup>DLA</sup>	0.00065 <sup>DLA</sup>	1.64 <sup>DLA</sup>
	Copper (Cu)-Dissolved (mg/L)	<0.00040 <sup>DLA</sup>	<0.00040 <sup>DLA</sup>	<0.00040 <sup>DLA</sup>	<0.0010 <sup>DLA</sup>	<0.020 <sup>DLA</sup>
	Iron (Fe)-Dissolved (mg/L)	2.83	9.32 <sup>DLA</sup>	9.33 <sup>DLA</sup>	37.5 <sup>DLA</sup>	278
	Lead (Pb)-Dissolved (mg/L)	<0.00010 <sup>DLA</sup>	<0.00010 <sup>DLA</sup>	<0.00010 <sup>DLA</sup>	<0.00025 <sup>DLA</sup>	0.0833
	Lithium (Li)-Dissolved (mg/L)	0.773	0.0052	0.0045	0.0322	0.20
	Magnesium (Mg)-Dissolved (mg/L)	96.2	63.2	65.7	144	1120
	Manganese (Mn)-Dissolved (mg/L)	0.168	19.9 <sup>DLA</sup>	20.0	49.9	114 <sup>DLA</sup>
	Molybdenum (Mo)-Dissolved (mg/L)	<0.00010 <sup>DLA</sup>	0.00097	0.00103	0.00034 <sup>DLA</sup>	<0.0050 <sup>DLA</sup>
	Nickel (Ni)-Dissolved (mg/L)	<0.0010 <sup>DLA</sup>	0.0114 <sup>DLA</sup>	0.0114 <sup>DLA</sup>	<0.0025 <sup>DLA</sup>	1.81 <sup>DLA</sup>
	Phosphorus (P)-Dissolved (mg/L)	<0.10 <sup>DLA</sup>	<0.10 <sup>DLA</sup>	<0.10 <sup>DLA</sup>	<0.25 <sup>DLA</sup>	<5.0 <sup>DLA</sup>
	Potassium (K)-Dissolved (mg/L)	11.2	5.27	5.34	7.72	17.4
	Rubidium (Rb)-Dissolved (mg/L)	0.0284	0.00095 <sup>DLA</sup>	0.00094 <sup>DLA</sup>	0.0112 <sup>DLA</sup>	0.027 <sup>DLA</sup>
	Selenium (Se)-Dissolved (mg/L)	<0.00010 <sup>DLA</sup>	<0.00010 <sup>DLA</sup>	<0.00010 <sup>DLA</sup>	<0.00025 <sup>DLA</sup>	<0.0050 <sup>DLA</sup>
	Silicon (Si)-Dissolved (mg/L)	10.7	9.05	9.22	11.4	16.0

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

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	Description	Sampled Date	Sampled Time	Client ID	L1626746-11	L1626746-12	L1626746-13	L1626746-14	L1626746-15
					Water	Water	Water	Water	Water
		10-JUN-15	16:05	P09-C3	10-JUN-15	11-JUN-15	11-JUN-15	10-JUN-15	11-JUN-15
					16:05	16:00	18:00	13:46	13:21
					P09-C3	P05-01-05	P01-11	PW14-6	BH13B
Grouping	Analyte								
<b>WATER</b>									
<b>Total Metals</b>	Sulfur (S)-Total (mg/L)								
	Tellurium (Te)-Total (mg/L)								
	Thallium (Tl)-Total (mg/L)								
	Thorium (Th)-Total (mg/L)								
	Tin (Sn)-Total (mg/L)								
	Titanium (Ti)-Total (mg/L)								
	Tungsten (W)-Total (mg/L)								
	Uranium (U)-Total (mg/L)								
	Vanadium (V)-Total (mg/L)								
	Zinc (Zn)-Total (mg/L)								
	Zirconium (Zr)-Total (mg/L)								
<b>Dissolved Metals</b>	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	0.0043	<0.0050 <sup>DLA</sup>	<0.0050 <sup>DLA</sup>	48.2	0.0067			
	Antimony (Sb)-Dissolved (mg/L)	<0.00010	<0.00050 <sup>DLA</sup>	<0.00050 <sup>DLA</sup>	<0.020 <sup>DLA</sup>	<0.00010			
	Arsenic (As)-Dissolved (mg/L)	0.00092	0.00513	0.0429	0.045	<0.00010			
	Barium (Ba)-Dissolved (mg/L)	0.0809	0.0167	0.0238	0.026	0.0231			
	Beryllium (Be)-Dissolved (mg/L)	0.00018	<0.00050 <sup>DLA</sup>	<0.00050 <sup>DLA</sup>	0.023	<0.00010			
	Bismuth (Bi)-Dissolved (mg/L)	<0.000050	<0.00025 <sup>DLA</sup>	<0.00025 <sup>DLA</sup>	<0.010 <sup>DLA</sup>	<0.000050			
	Boron (B)-Dissolved (mg/L)	0.019	<0.050 <sup>DLA</sup>	<0.050 <sup>DLA</sup>	<2.0 <sup>DLA</sup>	<0.010			
	Cadmium (Cd)-Dissolved (mg/L)	<0.0000050	0.000447	<0.000025 <sup>DLA</sup>	1.01	0.0000373			
	Calcium (Ca)-Dissolved (mg/L)	192	650	687	426	130			
	Cesium (Cs)-Dissolved (mg/L)	0.000871	<0.000050 <sup>DLA</sup>	0.000087	0.0160	0.000028			
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.00050 <sup>DLA</sup>	<0.00050 <sup>DLA</sup>	<0.020 <sup>DLA</sup>	<0.00010			
	Cobalt (Co)-Dissolved (mg/L)	0.00013	0.0277	0.0144	4.72	0.00109			
	Copper (Cu)-Dissolved (mg/L)	<0.00020	0.0010	<0.0010 <sup>DLA</sup>	<0.040 <sup>DLA</sup>	0.00386			
	Iron (Fe)-Dissolved (mg/L)	3.59	35.0	87.3	452	<0.010			
	Lead (Pb)-Dissolved (mg/L)	<0.000050	<0.00025 <sup>DLA</sup>	0.00030	0.664	<0.000050			
	Lithium (Li)-Dissolved (mg/L)	0.104	0.0289	0.0233	0.42	0.0176			
	Magnesium (Mg)-Dissolved (mg/L)	69.2	136	142	2940	64.5			
	Manganese (Mn)-Dissolved (mg/L)	0.435	46.5	47.9	320	0.00161			
	Molybdenum (Mo)-Dissolved (mg/L)	0.000144	0.00067	0.00058	<0.010 <sup>DLA</sup>	0.00375			
	Nickel (Ni)-Dissolved (mg/L)	<0.00050	0.0241	0.0347	7.50	0.00521			
	Phosphorus (P)-Dissolved (mg/L)	<0.050	<0.25 <sup>DLA</sup>	<0.25 <sup>DLA</sup>	<10 <sup>DLA</sup>	<0.050			
	Potassium (K)-Dissolved (mg/L)	3.91	7.94	8.12	12	2.92			
	Rubidium (Rb)-Dissolved (mg/L)	0.00482	0.0042	0.0104	0.064	0.00132			
	Selenium (Se)-Dissolved (mg/L)	<0.000050	<0.00025 <sup>DLA</sup>	<0.00025 <sup>DLA</sup>	<0.010 <sup>DLA</sup>	0.00216			
	Silicon (Si)-Dissolved (mg/L)	9.57	11.1	12.4	14	3.58			

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

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID	L1626746-16 Water 11-JUN-15 14:40 BH14B	L1626746-17 Water 11-JUN-15 14:24 BH14A	L1626746-18 Water 11-JUN-15 11:52 SRK08-P9	L1626746-19 Water 11-JUN-15 10:40 SRK08-10A	L1626746-20 Water 11-JUN-15 09:44 SRK08-11A
Grouping	Analyte				
<b>WATER</b>					
<b>Total Metals</b>	Sulfur (S)-Total (mg/L)				
	Tellurium (Te)-Total (mg/L)				
	Thallium (Tl)-Total (mg/L)				
	Thorium (Th)-Total (mg/L)				
	Tin (Sn)-Total (mg/L)				
	Titanium (Ti)-Total (mg/L)				
	Tungsten (W)-Total (mg/L)				
	Uranium (U)-Total (mg/L)				
	Vanadium (V)-Total (mg/L)				
	Zinc (Zn)-Total (mg/L)				
	Zirconium (Zr)-Total (mg/L)				
<b>Dissolved Metals</b>	Dissolved Metals Filtration Location				
	FIELD	FIELD	FIELD	FIELD	FIELD
Aluminum (Al)-Dissolved (mg/L)	0.0033	0.0280	<0.0010	0.0084	0.0011
Antimony (Sb)-Dissolved (mg/L)	<0.00020 <sup>DLA</sup>	<0.00050 <sup>DLA</sup>	<0.00010	<0.00050 <sup>DLA</sup>	<0.00010
Arsenic (As)-Dissolved (mg/L)	<0.00020 <sup>DLA</sup>	<0.00050 <sup>DLA</sup>	0.00025	<0.00050 <sup>DLA</sup>	0.00013
Barium (Ba)-Dissolved (mg/L)	0.0179 <sup>DLA</sup>	0.0131 <sup>DLA</sup>	0.0203	0.0206 <sup>DLA</sup>	0.101
Beryllium (Be)-Dissolved (mg/L)	<0.00020 <sup>DLA</sup>	<0.00050 <sup>DLA</sup>	<0.00010	<0.00050 <sup>DLA</sup>	<0.00010
Bismuth (Bi)-Dissolved (mg/L)	<0.00010 <sup>DLA</sup>	<0.00025 <sup>DLA</sup>	<0.000050	<0.00025 <sup>DLA</sup>	<0.000050
Boron (B)-Dissolved (mg/L)	<0.020 <sup>DLA</sup>	<0.050 <sup>DLA</sup>	<0.010	<0.050 <sup>DLA</sup>	<0.010
Cadmium (Cd)-Dissolved (mg/L)	0.000157	0.00445	0.0000249	0.000610	0.0000161
Calcium (Ca)-Dissolved (mg/L)	568	533	279	719	156
Cesium (Cs)-Dissolved (mg/L)	0.00351 <sup>DLA</sup>	0.00291 <sup>DLA</sup>	0.000057	<0.000050 <sup>DLA</sup>	0.000087
Chromium (Cr)-Dissolved (mg/L)	<0.00020 <sup>DLA</sup>	<0.00050 <sup>DLA</sup>	0.00027	<0.00050 <sup>DLA</sup>	<0.00010
Cobalt (Co)-Dissolved (mg/L)	<0.00020 <sup>DLA</sup>	0.00399	0.00048	0.00122	<0.00010
Copper (Cu)-Dissolved (mg/L)	0.00067 <sup>DLA</sup>	0.0068 <sup>DLA</sup>	0.00090	0.0023 <sup>DLA</sup>	0.00110
Iron (Fe)-Dissolved (mg/L)	<0.020 <sup>DLA</sup>	<0.050 <sup>DLA</sup>	0.019	<0.050 <sup>DLA</sup>	<0.010
Lead (Pb)-Dissolved (mg/L)	0.00761	0.00831	<0.000050	0.00031	0.000068
Lithium (Li)-Dissolved (mg/L)	0.0791	0.108	0.0123	0.0104	0.0145
Magnesium (Mg)-Dissolved (mg/L)	322	379	50.5	94.5	35.9
Manganese (Mn)-Dissolved (mg/L)	0.0174	0.288	0.0343	0.0190	0.00049
Molybdenum (Mo)-Dissolved (mg/L)	0.00021	0.00045	0.00145	0.00037	0.000179
Nickel (Ni)-Dissolved (mg/L)	0.0072 <sup>DLA</sup>	0.308 <sup>DLA</sup>	0.0216	0.0154 <sup>DLA</sup>	0.00172
Phosphorus (P)-Dissolved (mg/L)	<0.10 <sup>DLA</sup>	<0.25 <sup>DLA</sup>	<0.050	<0.25 <sup>DLA</sup>	<0.050
Potassium (K)-Dissolved (mg/L)	4.50	3.97	4.94	14.4	3.51
Rubidium (Rb)-Dissolved (mg/L)	0.0183	0.0171	0.00267	0.0029 <sup>DLA</sup>	0.00396
Selenium (Se)-Dissolved (mg/L)	0.00059	0.00074	0.00114	<0.00025 <sup>DLA</sup>	0.000223
Silicon (Si)-Dissolved (mg/L)	9.80	10.1	6.65	10.1	6.76

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

# ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1626746-21 Water 11-JUN-15 09:44 DUP-2	L1626746-22 Water 11-JUN-15 09:27 SRK08-11B	L1626746-23 Water 11-JUN-15 09:44 FB-1	L1626746-24 Water 11-JUN-15 17:45 P01-01B	L1626746-25 Water 10-JUN-15 13:55 X25-96B
Grouping	Analyte					
<b>WATER</b>						
<b>Total Metals</b>	Sulfur (S)-Total (mg/L)					
	Tellurium (Te)-Total (mg/L)					
	Thallium (Tl)-Total (mg/L)					
	Thorium (Th)-Total (mg/L)					
	Tin (Sn)-Total (mg/L)					
	Titanium (Ti)-Total (mg/L)					
	Tungsten (W)-Total (mg/L)					
	Uranium (U)-Total (mg/L)					
	Vanadium (V)-Total (mg/L)					
	Zinc (Zn)-Total (mg/L)					
	Zirconium (Zr)-Total (mg/L)					
<b>Dissolved Metals</b>	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	0.0013	0.0038	<0.0010	<0.0010	<0.0020 <sup>DLA</sup>
	Antimony (Sb)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020 <sup>DLA</sup>
	Arsenic (As)-Dissolved (mg/L)	0.00014	<0.00010	<0.00010	0.00181	0.00114
	Barium (Ba)-Dissolved (mg/L)	0.0988	0.0294	<0.000050	0.0498	0.0281 <sup>DLA</sup>
	Beryllium (Be)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020 <sup>DLA</sup>
	Bismuth (Bi)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.00010 <sup>DLA</sup>
	Boron (B)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.020 <sup>DLA</sup>
	Cadmium (Cd)-Dissolved (mg/L)	0.0000151	0.000408	<0.000050	<0.000050	<0.00010 <sup>DLA</sup>
	Calcium (Ca)-Dissolved (mg/L)	162	143	<0.050	248	316
	Cesium (Cs)-Dissolved (mg/L)	0.000086	<0.000010	<0.000010	0.000466	0.000026 <sup>DLA</sup>
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020 <sup>DLA</sup>
	Cobalt (Co)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	0.00021	<0.00020 <sup>DLA</sup>
	Copper (Cu)-Dissolved (mg/L)	0.00113	0.00125	<0.00020	<0.00020	<0.00040 <sup>DLA</sup>
	Iron (Fe)-Dissolved (mg/L)	<0.010	<0.010	<0.010	0.670	2.71 <sup>DLA</sup>
	Lead (Pb)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	0.000063	<0.00010 <sup>DLA</sup>
	Lithium (Li)-Dissolved (mg/L)	0.0164	0.0130	<0.0010	0.0118	0.0103
	Magnesium (Mg)-Dissolved (mg/L)	35.9	45.1	<0.0050	48.2	45.0
	Manganese (Mn)-Dissolved (mg/L)	0.00054	0.208	<0.00010	0.195	0.341
	Molybdenum (Mo)-Dissolved (mg/L)	0.000196	0.000095	<0.000050	0.000771	0.00035 <sup>DLA</sup>
	Nickel (Ni)-Dissolved (mg/L)	0.00171	0.0110	<0.00050	0.00075	<0.0010 <sup>DLA</sup>
	Phosphorus (P)-Dissolved (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.10 <sup>DLA</sup>
	Potassium (K)-Dissolved (mg/L)	3.48	3.11	<0.050	4.38	4.50
	Rubidium (Rb)-Dissolved (mg/L)	0.00391	0.00192	<0.00020	0.00209	0.00581 <sup>DLA</sup>
	Selenium (Se)-Dissolved (mg/L)	0.000217	0.000106	<0.000050	<0.000050	<0.00010 <sup>DLA</sup>
	Silicon (Si)-Dissolved (mg/L)	6.99	6.66	<0.050	5.89	4.94

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

# ALS ENVIRONMENTAL ANALYTICAL REPORT

	<b>Sample ID</b> <b>Description</b> <b>Sampled Date</b> <b>Sampled Time</b> <b>Client ID</b>	L1626746-26 Water 11-JUN-15 17:05 P01-01A	L1626746-27 Water  TRAVEL BLANK		
Grouping	Analyte				
<b>WATER</b>					
<b>Total Metals</b>	Sulfur (S)-Total (mg/L)		<0.50		
	Tellurium (Te)-Total (mg/L)		<0.00020		
	Thallium (Tl)-Total (mg/L)		<0.000010		
	Thorium (Th)-Total (mg/L)		<0.00010		
	Tin (Sn)-Total (mg/L)		<0.00010		
	Titanium (Ti)-Total (mg/L)		<0.00030		
	Tungsten (W)-Total (mg/L)		<0.00010		
	Uranium (U)-Total (mg/L)		<0.000010		
	Vanadium (V)-Total (mg/L)		<0.00050		
	Zinc (Zn)-Total (mg/L)		<0.0030		
	Zirconium (Zr)-Total (mg/L)		<0.00030		
<b>Dissolved Metals</b>	Dissolved Metals Filtration Location	FIELD			
	Aluminum (Al)-Dissolved (mg/L)	<0.0020 <sup>DLA</sup>			
	Antimony (Sb)-Dissolved (mg/L)	<0.00020 <sup>DLA</sup>			
	Arsenic (As)-Dissolved (mg/L)	<0.00020 <sup>DLA</sup>			
	Barium (Ba)-Dissolved (mg/L)	0.0434			
	Beryllium (Be)-Dissolved (mg/L)	<0.00020 <sup>DLA</sup>			
	Bismuth (Bi)-Dissolved (mg/L)	<0.00010 <sup>DLA</sup>			
	Boron (B)-Dissolved (mg/L)	<0.020 <sup>DLA</sup>			
	Cadmium (Cd)-Dissolved (mg/L)	0.00108			
	Calcium (Ca)-Dissolved (mg/L)	325			
	Cesium (Cs)-Dissolved (mg/L)	<0.000020 <sup>DLA</sup>			
	Chromium (Cr)-Dissolved (mg/L)	<0.00020 <sup>DLA</sup>			
	Cobalt (Co)-Dissolved (mg/L)	0.00258			
	Copper (Cu)-Dissolved (mg/L)	<0.00040 <sup>DLA</sup>			
	Iron (Fe)-Dissolved (mg/L)	<0.020 <sup>DLA</sup>			
	Lead (Pb)-Dissolved (mg/L)	<0.00010 <sup>DLA</sup>			
	Lithium (Li)-Dissolved (mg/L)	0.0131			
	Magnesium (Mg)-Dissolved (mg/L)	68.9			
	Manganese (Mn)-Dissolved (mg/L)	8.98			
	Molybdenum (Mo)-Dissolved (mg/L)	0.00071			
	Nickel (Ni)-Dissolved (mg/L)	0.0136			
	Phosphorus (P)-Dissolved (mg/L)	<0.10 <sup>DLA</sup>			
	Potassium (K)-Dissolved (mg/L)	6.36			
	Rubidium (Rb)-Dissolved (mg/L)	0.00100			
	Selenium (Se)-Dissolved (mg/L)	<0.00010 <sup>DLA</sup>			
	Silicon (Si)-Dissolved (mg/L)	7.27			

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

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	Description	Sampled Date	Sampled Time	Client ID	L1626746-1	L1626746-2	L1626746-3	L1626746-4	L1626746-5
					Water	Water	Water	Water	Water
					11-JUN-15	11-JUN-15	10-JUN-15	11-JUN-15	11-JUN-15
					10:00	10:45	16:47	13:15	12:35
					P03-06-6	P03-06-1	P96-8A	X24-96D	P09-ETA-2
Grouping	Analyte								
<b>WATER</b>									
<b>Dissolved Metals</b>	Silver (Ag)-Dissolved (mg/L)				<0.00010 <sup>DLA</sup>	<0.00020 <sup>DLA</sup>	<0.0010 <sup>DLA</sup>	<0.000050 <sup>DLA</sup>	<0.0010 <sup>DLA</sup>
	Sodium (Na)-Dissolved (mg/L)				27.4	24.7	54.3	46.6	34.8
	Strontium (Sr)-Dissolved (mg/L)				0.465	2.04	3.49	1.65	2.46
	Sulfur (S)-Dissolved (mg/L)				829	1440	2890	628	2880
	Tellurium (Te)-Dissolved (mg/L)				<0.0020 <sup>DLA</sup>	<0.0040 <sup>DLA</sup>	<0.020 <sup>DLA</sup>	<0.0010 <sup>DLA</sup>	<0.020 <sup>DLA</sup>
	Thallium (Tl)-Dissolved (mg/L)				0.00047 <sup>DLA</sup>	<0.00020 <sup>DLA</sup>	<0.0010 <sup>DLA</sup>	0.000177 <sup>DLA</sup>	<0.0010 <sup>DLA</sup>
	Thorium (Th)-Dissolved (mg/L)				<0.0010 <sup>DLA</sup>	<0.0020 <sup>DLA</sup>	<0.010 <sup>DLA</sup>	<0.00050 <sup>DLA</sup>	<0.010 <sup>DLA</sup>
	Tin (Sn)-Dissolved (mg/L)				<0.0010 <sup>DLA</sup>	<0.0020 <sup>DLA</sup>	<0.010 <sup>DLA</sup>	<0.00050 <sup>DLA</sup>	<0.010 <sup>DLA</sup>
	Titanium (Ti)-Dissolved (mg/L)				<0.0030 <sup>DLA</sup>	<0.0060 <sup>DLA</sup>	<0.030 <sup>DLA</sup>	<0.0015 <sup>DLA</sup>	<0.030 <sup>DLA</sup>
	Tungsten (W)-Dissolved (mg/L)				<0.0010 <sup>DLA</sup>	<0.0020 <sup>DLA</sup>	<0.010 <sup>DLA</sup>	<0.00050 <sup>DLA</sup>	<0.010 <sup>DLA</sup>
	Uranium (U)-Dissolved (mg/L)				0.00868	0.00286	0.0256	0.00263	0.0021
	Vanadium (V)-Dissolved (mg/L)				<0.0050 <sup>DLA</sup>	<0.010 <sup>DLA</sup>	<0.050 <sup>DLA</sup>	<0.0025 <sup>DLA</sup>	<0.050 <sup>DLA</sup>
	Zinc (Zn)-Dissolved (mg/L)				69.7	33.9	874	0.209	536
	Zirconium (Zr)-Dissolved (mg/L)				<0.0030 <sup>DLA</sup>	<0.0060 <sup>DLA</sup>	<0.030 <sup>DLA</sup>	<0.0015 <sup>DLA</sup>	<0.030 <sup>DLA</sup>

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

# ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1626746-6 Water 11-JUN-15 14:45 P09-C2	L1626746-7 Water 10-JUN-15 13:10 X25-96A	L1626746-8 Water 10-JUN-15 13:10 DUP-1	L1626746-9 Water 11-JUN-15 16:40 P05-01-03	L1626746-10 Water 10-JUN-15 18:00 P96-8B
Grouping	Analyte					
<b>WATER</b>						
<b>Dissolved Metals</b>	Silver (Ag)-Dissolved (mg/L)	0.000296	<sup>DLA</sup> <0.000020	<sup>DLA</sup> <0.000020	<sup>DLA</sup> <0.000050	<sup>DLA</sup> <0.0010
	Sodium (Na)-Dissolved (mg/L)	300	20.1	21.6	35.0	57.2
	Strontium (Sr)-Dissolved (mg/L)	4.25	0.807	0.784	1.71	3.66
	Sulfur (S)-Dissolved (mg/L)	11.4	301	310	761	2670
	Tellurium (Te)-Dissolved (mg/L)	<sup>DLA</sup> <0.00040	<sup>DLA</sup> <0.00040	<sup>DLA</sup> <0.00040	<sup>DLA</sup> <0.0010	<sup>DLA</sup> <0.020
	Thallium (Tl)-Dissolved (mg/L)	<sup>DLA</sup> <0.000020	<sup>DLA</sup> <0.000020	<sup>DLA</sup> 0.000028	<sup>DLA</sup> <0.000050	<sup>DLA</sup> <0.0010
	Thorium (Th)-Dissolved (mg/L)	<sup>DLA</sup> <0.00020	<sup>DLA</sup> <0.00020	<sup>DLA</sup> <0.00020	<sup>DLA</sup> <0.00050	<sup>DLA</sup> <0.010
	Tin (Sn)-Dissolved (mg/L)	<sup>DLA</sup> <0.00020	<sup>DLA</sup> <0.00020	<sup>DLA</sup> <0.00020	<sup>DLA</sup> <0.00050	<sup>DLA</sup> <0.010
	Titanium (Ti)-Dissolved (mg/L)	<sup>DLA</sup> <0.00060	<sup>DLA</sup> <0.00060	<sup>DLA</sup> <0.00060	<sup>DLA</sup> <0.0015	<sup>DLA</sup> <0.030
	Tungsten (W)-Dissolved (mg/L)	0.00114	<sup>DLA</sup> <0.00020	<sup>DLA</sup> <0.00020	<sup>DLA</sup> <0.00050	<sup>DLA</sup> <0.010
	Uranium (U)-Dissolved (mg/L)	0.000378	0.0112	0.0113	0.000718	0.0020
	Vanadium (V)-Dissolved (mg/L)	<sup>DLA</sup> <0.0010	<sup>DLA</sup> <0.0010	<sup>DLA</sup> <0.0010	<sup>DLA</sup> <0.0025	<sup>DLA</sup> <0.050
	Zinc (Zn)-Dissolved (mg/L)	<sup>DLA</sup> <0.0020	0.0032	0.0032	<sup>DLA</sup> <0.0050	821
	Zirconium (Zr)-Dissolved (mg/L)	0.139	0.00102	<sup>DLA</sup> <0.00060	0.0027	<sup>DLA</sup> <0.030

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

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	Description	Sampled Date	Sampled Time	Client ID	L1626746-11	L1626746-12	L1626746-13	L1626746-14	L1626746-15
					Water	Water	Water	Water	Water
					10-JUN-15	11-JUN-15	11-JUN-15	10-JUN-15	11-JUN-15
					16:05	16:00	18:00	13:46	13:21
					P09-C3	P05-01-05	P01-11	PW14-6	BH13B
Grouping	Analyte								
<b>WATER</b>									
<b>Dissolved Metals</b>	Silver (Ag)-Dissolved (mg/L)	0.000073	<0.000050 <sup>DLA</sup>	<0.000050 <sup>DLA</sup>	<0.00020 <sup>DLA</sup>	<0.000010			
	Sodium (Na)-Dissolved (mg/L)	62.9	31.6	34.6	149	4.86			
	Strontium (Sr)-Dissolved (mg/L)	2.30	1.64	1.68	2.48	0.692			
	Sulfur (S)-Dissolved (mg/L)	116	709	753	6110	182			
	Tellurium (Te)-Dissolved (mg/L)	<0.00020	<0.0010 <sup>DLA</sup>	<0.0010 <sup>DLA</sup>	<0.040 <sup>DLA</sup>	<0.00020			
	Thallium (Tl)-Dissolved (mg/L)	<0.000010	<0.000050 <sup>DLA</sup>	<0.000050 <sup>DLA</sup>	0.0181 <sup>DLA</sup>	<0.000010			
	Thorium (Th)-Dissolved (mg/L)	<0.00010	<0.00050 <sup>DLA</sup>	<0.00050 <sup>DLA</sup>	<0.020 <sup>DLA</sup>	<0.00010			
	Tin (Sn)-Dissolved (mg/L)	<0.00010	<0.00050 <sup>DLA</sup>	<0.00050 <sup>DLA</sup>	<0.020 <sup>DLA</sup>	<0.00010			
	Titanium (Ti)-Dissolved (mg/L)	0.00061	<0.0015 <sup>DLA</sup>	<0.0015 <sup>DLA</sup>	<0.060 <sup>DLA</sup>	<0.00030			
	Tungsten (W)-Dissolved (mg/L)	0.00075	<0.00050 <sup>DLA</sup>	<0.00050 <sup>DLA</sup>	<0.020 <sup>DLA</sup>	<0.00010			
	Uranium (U)-Dissolved (mg/L)	0.000883	0.00608 <sup>DLA</sup>	0.0101 <sup>DLA</sup>	0.203 <sup>DLA</sup>	0.00130			
	Vanadium (V)-Dissolved (mg/L)	<0.00050	<0.0025 <sup>DLA</sup>	<0.0025 <sup>DLA</sup>	<0.10 <sup>DLA</sup>	<0.00050			
	Zinc (Zn)-Dissolved (mg/L)	<0.0010	0.0061 <sup>DLA</sup>	0.0084 <sup>DLA</sup>	1720 <sup>DLA</sup>	0.0016			
	Zirconium (Zr)-Dissolved (mg/L)	0.0296	<0.0015 <sup>DLA</sup>	<0.0015 <sup>DLA</sup>	<0.060 <sup>DLA</sup>	<0.00030			

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



## ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1626746-16	L1626746-17	L1626746-18	L1626746-19	L1626746-20
		Description	Water	Water	Water	Water	Water
		Sampled Date	11-JUN-15	11-JUN-15	11-JUN-15	11-JUN-15	11-JUN-15
		Sampled Time	14:40	14:24	11:52	10:40	09:44
		Client ID	BH14B	BH14A	SRK08-P9	SRK08-10A	SRK08-11A
Grouping	Analyte						
<b>WATER</b>							
Dissolved Metals	Silver (Ag)-Dissolved (mg/L)		<sup>DLA</sup> <0.000020	<sup>DLA</sup> <0.000050	<0.000010	<sup>DLA</sup> <0.000050	<0.000010
	Sodium (Na)-Dissolved (mg/L)		17.1	18.1	9.04	156	7.00
	Strontium (Sr)-Dissolved (mg/L)		3.48	3.29	3.41	1.65	0.623
	Sulfur (S)-Dissolved (mg/L)		854	892	244	629	139
	Tellurium (Te)-Dissolved (mg/L)		<sup>DLA</sup> <0.00040	<sup>DLA</sup> <0.0010	<0.00020	<sup>DLA</sup> <0.0010	<0.00020
	Thallium (Tl)-Dissolved (mg/L)		<sup>DLA</sup> <0.000020	<sup>DLA</sup> <0.000050	<0.000010	<sup>DLA</sup> <0.000050	<0.000010
	Thorium (Th)-Dissolved (mg/L)		<sup>DLA</sup> <0.00020	<sup>DLA</sup> <0.00050	<0.00010	<sup>DLA</sup> <0.00050	<0.00010
	Tin (Sn)-Dissolved (mg/L)		<sup>DLA</sup> <0.00020	<sup>DLA</sup> <0.00050	<0.00010	<sup>DLA</sup> <0.00050	<0.00010
	Titanium (Ti)-Dissolved (mg/L)		<sup>DLA</sup> <0.00060	<sup>DLA</sup> <0.0015	<0.00030	<sup>DLA</sup> <0.0015	<0.00030
	Tungsten (W)-Dissolved (mg/L)		<sup>DLA</sup> <0.00020	<sup>DLA</sup> <0.00050	<0.00010	<sup>DLA</sup> <0.00050	<0.00010
	Uranium (U)-Dissolved (mg/L)		0.200	0.134	0.00654	0.0372	0.00189
	Vanadium (V)-Dissolved (mg/L)		<sup>DLA</sup> <0.0010	<sup>DLA</sup> <0.0025	<0.00050	<sup>DLA</sup> <0.0025	<0.00050
	Zinc (Zn)-Dissolved (mg/L)		0.587	27.8	0.0025	0.676	0.0107
	Zirconium (Zr)-Dissolved (mg/L)		<sup>DLA</sup> <0.00060	<sup>DLA</sup> <0.0015	0.00035	0.0022	<0.00030

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

# ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1626746-21 Water 11-JUN-15 09:44 DUP-2	L1626746-22 Water 11-JUN-15 09:27 SRK08-11B	L1626746-23 Water 11-JUN-15 09:44 FB-1	L1626746-24 Water 11-JUN-15 17:45 P01-01B	L1626746-25 Water 10-JUN-15 13:55 X25-96B
Grouping	Analyte					
<b>WATER</b>						
<b>Dissolved Metals</b>	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000020 <sup>DLA</sup>
	Sodium (Na)-Dissolved (mg/L)	7.00	7.29	<0.050	23.5	49.8
	Strontium (Sr)-Dissolved (mg/L)	0.614	0.547	<0.00020	0.858	0.638
	Sulfur (S)-Dissolved (mg/L)	146	153	<0.50	212	286
	Tellurium (Te)-Dissolved (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00040 <sup>DLA</sup>
	Thallium (Tl)-Dissolved (mg/L)	<0.000010	0.000021	<0.000010	<0.000010	<0.000020 <sup>DLA</sup>
	Thorium (Th)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020 <sup>DLA</sup>
	Tin (Sn)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020 <sup>DLA</sup>
	Titanium (Ti)-Dissolved (mg/L)	<0.00030	<0.00030	<0.00030	<0.00030	<0.00060 <sup>DLA</sup>
	Tungsten (W)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020 <sup>DLA</sup>
	Uranium (U)-Dissolved (mg/L)	0.00192	0.00116	<0.000010	0.00969	0.00653 <sup>DLA</sup>
	Vanadium (V)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.0010 <sup>DLA</sup>
	Zinc (Zn)-Dissolved (mg/L)	0.0111	0.130	<0.0010	0.0021	<0.0020 <sup>DLA</sup>
	Zirconium (Zr)-Dissolved (mg/L)	<0.00030	<0.00030	<0.00030	0.00102	<0.00060 <sup>DLA</sup>

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

# ALS ENVIRONMENTAL ANALYTICAL REPORT

	<b>Sample ID</b> <b>Description</b> <b>Sampled Date</b> <b>Sampled Time</b> <b>Client ID</b>	L1626746-26 Water 11-JUN-15 17:05 P01-01A	L1626746-27 Water  TRAVEL BLANK		
Grouping	Analyte				
<b>WATER</b>					
<b>Dissolved Metals</b>	Silver (Ag)-Dissolved (mg/L)	<sup>DLA</sup> <0.000020			
	Sodium (Na)-Dissolved (mg/L)	18.5			
	Strontium (Sr)-Dissolved (mg/L)	1.02			
	Sulfur (S)-Dissolved (mg/L)	311			
	Tellurium (Te)-Dissolved (mg/L)	<sup>DLA</sup> <0.00040			
	Thallium (Tl)-Dissolved (mg/L)	<sup>DLA</sup> <0.000020			
	Thorium (Th)-Dissolved (mg/L)	<sup>DLA</sup> <0.00020			
	Tin (Sn)-Dissolved (mg/L)	<sup>DLA</sup> <0.00020			
	Titanium (Ti)-Dissolved (mg/L)	<sup>DLA</sup> <0.00060			
	Tungsten (W)-Dissolved (mg/L)	<sup>DLA</sup> <0.00020			
	Uranium (U)-Dissolved (mg/L)	0.00761			
	Vanadium (V)-Dissolved (mg/L)	<sup>DLA</sup> <0.0010			
	Zinc (Zn)-Dissolved (mg/L)	0.0037			
	Zirconium (Zr)-Dissolved (mg/L)	<sup>DLA</sup> <0.00060			

\* 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	Acidity (as CaCO3)	B	L1626746-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -3, -4, -6, -7, -8, -9
Matrix Spike	Sulfate (SO4)	MS-B	L1626746-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sulfate (SO4)	MS-B	L1626746-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1626746-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1626746-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Iron (Fe)-Dissolved	MS-B	L1626746-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L1626746-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1626746-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1626746-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1626746-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -3, -4, -5, -6, -7, -8, -9

### Qualifiers for Individual Parameters Listed:

Qualifier	Description
B	Method Blank exceeds ALS DQO. All associated sample results are at least 5 times greater than blank levels and are considered reliable.
DLA	Detection Limit adjusted for required dilution
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

### Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
<b>ACY-PCT-VA</b>	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.			
Samples of industrial wastes, acid mine drainage, or other solutions that contain appreciable amounts of hydrolyzable metal ions such as aluminum, iron, and manganese may require hot peroxide treatment to ensure oxidation and hydrolysis of reduced forms of polyvalent cations. Acidity results may be highly variable if this procedure is not followed. Results in this report for 'Acidity (as CaCO3)' have not been peroxide treated.			
<b>ACY-PCT-VA</b>	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.			
Samples of industrial wastes, acid mine drainage, or other solutions that contain appreciable amounts of hydrolyzable metal ions such as aluminum, iron, and manganese may require hot peroxide treatment to ensure oxidation and hydrolysis of reduced forms of polyvalent cations. Acidity results may be highly variable if this procedure is not followed. Results in this report for 'Acidity (as CaCO3)' have not been peroxide treated.			
<b>ALK-PCT-VA</b>	Water	Alkalinity by Auto. Titration	APHA 2320 "Alkalinity"
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.			
<b>ALK-PCT-VA</b>	Water	Alkalinity by Auto. Titration	APHA 2320 Alkalinity
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.			
<b>CL-IC-N-WR</b>	Water	Chloride in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
<b>EC-PCT-VA</b>	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.
This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.			
<b>HARDNESS-CALC-VA</b>	Water	Hardness	APHA 2340B
Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.			

## Reference Information

**MET-D-CCMS-VA**          Water          Dissolved Metals in Water by CRC ICPMS          APHA 3030B/6020A (mod)

Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

**MET-T-CCMS-VA**          Water          Total Metals in Water by CRC ICPMS          EPA 200.2/6020A (mod)

Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

**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.

**SO4-IC-N-WR**                Water          Sulfate in Water by IC          EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

**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.

---

\*\* 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

**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.*



# Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

www.alsglobal.com



L1626746-COFC

COC Number: 1 -

Page 1 of 3

<b>Report To</b>		<b>Report Format / Distrib</b>			<b>Analysis Request</b>														
Company: Hemmera Environchem Inc.		Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input type="checkbox"/> EDD (DIGITAL)			Turnaround Time (TAT) is not available for all tests														
Contact: Natasha Sandys		Quality Control (QC) Report with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			y 3 pm - business days														
Address: 230 - 2237 2nd Avenue Whitehorse, YT		<input type="checkbox"/> Criteria on Report - provide details below if box checked			P <input type="checkbox"/> Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT														
Phone: 867-456-4865		Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX			E <input type="checkbox"/> Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT														
		Email 1 or Fax nsandys@hemmera.com, jhains@hemmera.com, j			E2 <input type="checkbox"/> Same day or weekend emergency - contact ALS to confirm TAT and surcharge														
		Email 2 chris@elr.ca			Specify Date Required for E2, E or P:														
<b>Invoice To</b>		<b>Invoice Distribution</b>			Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below														
Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input checked="" type="checkbox"/> MAIL <input type="checkbox"/> FAX																	
Copy of Invoice with Report <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Email 1 or Fax nsandys@hemmera.com																	
Company: Hemmera Environchem Inc.		Email 2 chris@elr.ca																	
Contact: Natasha Sandys																			
<b>Project Information</b>		<b>Oil and Gas Required Fields (client use)</b>																	
ALS Quote #: Q50399		Approver ID: _____ Cost Center: _____																	
Job #: 1343-005.08		GL Account: _____ Routing Code: _____																	
PO / AFE:		Activity Code: _____																	
LSD:		Location: _____																	
ALS Lab Work Order # (lab use only)		ALS Contact: Sean Slugget			Sampler: JC, JH, MM, AN														
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)			Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	acidity (to pH 8.3)	alkalinity	chloride	conductivity	pH	sulphate	suspended solids, total (TSS)	dissolved metals	Number of Containers				
	P03-06-6			11-Jun-15	10:00	Water	R	R	R	R	R	R	R	R		2			
	P03-06-1			11-Jun-15	10:45	Water	R	R	R	R	R	R	R	R		2			
	P96-8A			10-Jun-15	16:57	Water	R	R	R	R	R	R	R	R		2			
	X24-98D			11-Jun-15	13:35	Water	R	R	R	R	R	R	R	R		2			
	P09-ETA-2			11-Jun-15	12:35	Water	R	R	R	R	R	R	R	R		2			
	P09-C2			11-Jun-15	14:45	Water	R	R	R	R	R	R	R	R		2			
	X25-96A			10-Jun-15	13:10	Water	R	R	R	R	R	R	R	R		2			
	Dup-1			10-Jun-15	13:10	Water	R	R	R	R	R	R	R	R		2			
	P05-01-03			11-Jun-15	16:40	Water	R	R	R	R	R	R	R	R		2			
	P96-8B			10-Jun-15	18:00	Water	R	R	R	R	R	R	R	R		2			
	P09-C3			10-Jun-15	16:05	Water	R	R	R	R	R	R	R	R		2			
	P05-01-05			11-Jun-15	16:00	Water	R	R	R	R	R	R	R	R		2			
<b>Drinking Water (DW) Samples<sup>1</sup> (client use)</b>				<b>Special Instructions / Specify Criteria to add on report (client Use)</b>				<b>SAMPLE CONDITION AS RECEIVED (lab use only)</b>											
Are samples taken from a Regulated DW System? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				- EDD must be in EQUIS format common to Faro Mine Remediation Project. Contact client if clarification is required. - See attached parameter sheet for required detection limits.				Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/>											
Are samples for human drinking water use? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No								Ice packs Yes <input type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/>											
								Cooling Initiated <input type="checkbox"/>											
								INITIAL COOLER TEMPERATURES °C					FINAL COOLER TEMPERATURES °C						
								1.2 2.7					7°C 8°C						
<b>SHIPMENT RELEASE (client use)</b>				<b>INITIAL SHIPMENT RECEPTION (lab use only)</b>				<b>FINAL SHIPMENT RECEPTION (lab use only)</b>											
Released by: <i>Cef</i>		Date: June 15/15		Time: 10:45		Received by: <i>[Signature]</i>		Date: 15-Jun-15		Time: 10:45		Received by: <i>[Signature]</i>		Date: June 16		Time: 15:00			

**Short Holding Time**  
Fast Processing

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

NA-FM-0329a v03 Form 04 January 2014

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 specified on the back page of the white - report copy.



Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878



L1626746-COFC

COC Number: 1 -

Page 2 of 3

www.alsglobal.com

Report To		Report Format / Distribution			Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)														
Company: Hemmera Environchem Inc.		Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input checked="" type="checkbox"/> EDD (DIGITAL)			R <input checked="" type="checkbox"/> Regular (Standard TAT if received by 3 pm - business days)														
Contact: Natasha Sandys		Quality Control (QC) Report with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			P <input type="checkbox"/> Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT														
Address: 230 - 2237 2nd Avenue Whitehorse, YT		<input type="checkbox"/> Criteria on Report - provide details below if box checked			E <input type="checkbox"/> Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT														
Phone: 867-456-4865		Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX			E2 <input type="checkbox"/> Same day or weekend emergency - contact ALS to confirm TAT and surcharge														
		Email 1 or Fax nsandys@hemmera.com, jhains@hemmera.com, jchris@elr.ca			Specify Date Required for E2, E or P:														
		Email 2 chris@elr.ca			Analysis Request														
Invoice To Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Invoice Distribution			Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below														
Copy of Invoice with Report <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input checked="" type="checkbox"/> MAIL <input type="checkbox"/> FAX																	
Company: Hemmera Environchem Inc.		Email 1 or Fax nsandys@hemmera.com																	
Contact: Natasha Sandys		Email 2 chris@elr.ca																	
Project Information		Oil and Gas Required Fields (client use)																	
ALS Quote #: Q50399		Approver ID: _____ Cost Center: _____																	
Job #: 1343-005.08		GL Account: _____ Routing Code: _____																	
PO / AFE:		Activity Code: _____																	
LSD:		Location: _____																	
ALS Lab Work Order # (lab use only)		ALS Contact: Sean Slugget			Sampler: JC, JH, MM, AN														
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)			Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	acidity (to pH 8.3)	alkalinity	chloride	conductivity	pH	sulphate	suspended solids, total (TSS)	dissolved metals	Number of Containers				
P01-11				11-Jun-15	18:00	Water	R	R	R	R	R	R	R	R	2				
PW14-06				10-Jun-15	13:46	Water	R	R	R	R	R	R	R	R	2				
BH13B				11-Jun-15	13:21	Water	R	R	R	R	R	R	R	R	2				
BH14B				11-Jun-15	14:40	Water	R	R	R	R	R	R	R	R	2				
BH14A				11-Jun-15	14:24	Water	R	R	R	R	R	R	R	R	2				
SRK08-P9				11-Jun-15	11:52	Water	R	R	R	R	R	R	R	R	2				
SRK08-10A				11-Jun-15	10:40	Water	R	R	R	R	R	R	R	R	2				
SRK08-11A				11-Jun-15	9:44	Water	R	R	R	R	R	R	R	R	2				
Dup-2				11-Jun-15	9:44	Water	R	R	R	R	R	R	R	R	2				
SRK08-11B				11-Jun-15	9:27	Water	R	R	R	R	R	R	R	R	2				
FB-1				11-Jun-15	9:44	Water	R	R	R	R	R	R	R	R	2				
P01-01B				11-Jun-15	17:45	Water	R	R	R	R	R	R	R	R	2				
Drinking Water (DW) Samples <sup>1</sup> (client use)		Special Instructions / Specify Criteria to add on report (client use)			SAMPLE CONDITION AS RECEIVED (lab use only)														
Are samples taken from a Regulated DW System? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		- EDD must be in EQUIS format common to Faro Mine Remediation Project. Contact client if clarification is required. - See attached parameter sheet for required detection limits.			Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/>														
Are samples for human drinking water use? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					Ice packs Yes <input type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/>														
					Cooling Initiated <input type="checkbox"/>														
					INITIAL COOLER TEMPERATURES °C						FINAL COOLER TEMPERATURES °C								
											7°C 8°C								
SHIPMENT RELEASE (client use)				INITIAL SHIPMENT RECEPTION (lab use only)				FINAL SHIPMENT RECEPTION (lab use only)											
Released by:		Date:		Time:		Received by:		Date:		Time:		Received by: <i>Shafiq</i>		Date: <i>June</i>		Time: <i>15:00</i>			

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

NA-FM-0325a v06 Form 04 January 2014

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 specified on the back page of the white - report copy.



# Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878



COC Number: 1 -

Page 3 of 3

www.alsglobal.com

Report To					Report Format / Distribution										Turnaround Time (TAT)		
Company: Hemmera Environchem Inc.					Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input checked="" type="checkbox"/> EDD (DIGITAL)					R <input type="checkbox"/> Rush Turnaround Time (TAT) is not available for all tests					Push Turnaround Time (TAT) is not available for all tests		
Contact: Natasha Sandys					Quality Control (QC) Report with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					P <input type="checkbox"/> Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT							
Address: 230 - 2237 2nd Avenue Whitehorse, YT					<input type="checkbox"/> Criteria on Report - provide details below if box checked					E <input type="checkbox"/> Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT							
Phone: 867-456-4885					Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX					E2 <input type="checkbox"/> Same day or weekend emergency - contact ALS to confirm TAT and surcharge							
Invoice To: Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					Invoice Distribution					Specify Date Required for E2, E or P:							
Copy of Invoice with Report <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input checked="" type="checkbox"/> MAIL <input type="checkbox"/> FAX					Analysis Request							
Company: Hemmera Environchem Inc.					Email 1 or Fax nsandys@hemmera.com					Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below							
Contact: Natasha Sandys					Email 2 chris@elr.ca												
Project Information					Oil and Gas Required Fields (client use)												
ALS Quote #: Q50399					Approver ID: _____ Cost Center: _____												
Job #: 1343-005.08					GL Account: _____ Routing Code: _____												
PO / AFE:					Activity Code:												
LSD:					Location:												
ALS Lab Work Order # (lab use only)			ALS Contact: Sean Slugget		Sampler: JC,JH,MM,AN												
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)			Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	acidify (to pH 8.3)	alkalinity	chloride	conductivity	pH	sulphate	suspended solids, total (TSS)	dissolved metals			Number of Containers
	X25-96B			10-Jun-15	13:55	Water	R	R	R	R	R	R	R	R			2
	P01-01A			11-Jun-15	17:05	Water	R	R	R	R	R	R	R	R			2
	Travel Blank					Water	R	R	R	R	R	R	R	R			2
						Water											
						Water											
						Water											
						Water											
						Water											
						Water											
						Water											
						Water											
						Water											
						Water											
						Water											
Drinking Water (DW) Samples <sup>1</sup> (client use)				Special Instructions / Specify Criteria to add on report (client Use)				SAMPLE CONDITION AS RECEIVED (lab use only)									
Are samples taken from a Regulated DW System? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				- EDD must be in EQUiS format common to Faro Mine Remediation Project. Contact client if clarification is required. - See attached parameter sheet for required detection limits.				Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/>									
Are samples for human drinking water use? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No								Ice packs Yes <input type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/>									
								Cooling Initiated <input type="checkbox"/>									
								INITIAL COOLER TEMPERATURES °C					FINAL COOLER TEMPERATURES °C				
													7°C 8°C				
SHIPMENT RELEASE (client use)				INITIAL SHIPMENT RECEPTION (lab use only)				FINAL SHIPMENT RECEPTION (lab use only)									
Released by:		Date:		Time:		Received by:		Date:		Time:		Received by: Shafiq		Date: June 16		Time: 15:00	

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

NA FM 03/06 (REV. F) 01/04 January 2014

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 specified on the back page of the white - report copy.





HEMMERA ENVIROCHEM INC.  
ATTN: Natasha Sandys  
230 - 2237 2nd Avenue  
Whitehorse YK Y1A 0K7

Date Received: 16-JUN-15  
Report Date: 30-JUN-15 11:08 (MT)  
Version: FINAL

Client Phone: 867-456-4865

## Certificate of Analysis

Lab Work Order #: L1627328  
Project P.O. #: NOT SUBMITTED  
Job Reference: 1343-005.08  
C of C Numbers: 1, 2, 3, 4, 5  
Legal Site Desc:

---

Brent Mack, B.Sc.  
Account Manager

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

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

## ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1627328-1	L1627328-2	L1627328-3	L1627328-4	L1627328-5
		Description	Water	Water	Water	Water	Water
		Sampled Date	13-JUN-15	12-JUN-15	12-JUN-15	12-JUN-15	12-JUN-15
		Sampled Time	11:08	17:05	16:50	15:03	14:00
		Client ID	V37	P09-VC1	P09-VC2	SRK05-9	SRK05-5C
Grouping	Analyte						
<b>WATER</b>							
<b>Physical Tests</b>	Conductivity (uS/cm)		1240	346	364	1510	771
	Hardness (as CaCO3) (mg/L)		654	143	188	1020	385
	pH (pH)		7.73	8.09	7.58	7.68	7.84
	Total Suspended Solids (mg/L)		91.6	73.8	622	68.2	12.0
<b>Anions and Nutrients</b>	Acidity (as CaCO3) (mg/L)		6.1	<1.0	2.7	6.1	1.8
	Alkalinity, Total (as CaCO3) (mg/L)		516	129	167	307	185
	Chloride (Cl) (mg/L)		<1.0 <sup>DLA</sup>	<0.50	<0.50	<2.5 <sup>DLA</sup>	<0.50
	Sulfate (SO4) (mg/L)		276	58.5	37.0	698	253
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)						
	Antimony (Sb)-Total (mg/L)						
	Arsenic (As)-Total (mg/L)						
	Barium (Ba)-Total (mg/L)						
	Beryllium (Be)-Total (mg/L)						
	Bismuth (Bi)-Total (mg/L)						
	Boron (B)-Total (mg/L)						
	Cadmium (Cd)-Total (mg/L)						
	Calcium (Ca)-Total (mg/L)						
	Cesium (Cs)-Total (mg/L)						
	Chromium (Cr)-Total (mg/L)						
	Cobalt (Co)-Total (mg/L)						
	Copper (Cu)-Total (mg/L)						
	Iron (Fe)-Total (mg/L)						
	Lead (Pb)-Total (mg/L)						
	Lithium (Li)-Total (mg/L)						
	Magnesium (Mg)-Total (mg/L)						
	Manganese (Mn)-Total (mg/L)						
	Molybdenum (Mo)-Total (mg/L)						
	Nickel (Ni)-Total (mg/L)						
	Phosphorus (P)-Total (mg/L)						
	Potassium (K)-Total (mg/L)						
	Rubidium (Rb)-Total (mg/L)						
	Selenium (Se)-Total (mg/L)						
	Silicon (Si)-Total (mg/L)						
Silver (Ag)-Total (mg/L)							
Sodium (Na)-Total (mg/L)							
Strontium (Sr)-Total (mg/L)							
Sulfur (S)-Total (mg/L)							

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

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	Description	Sampled Date	Sampled Time	Client ID	L1627328-6	L1627328-7	L1627328-8	L1627328-9	L1627328-10
					Water	Water	Water	Water	Water
		12-JUN-15	12:30	P96-9A	12-JUN-15	11:15	12-JUN-15	09:40	13-JUN-15
					P96-9A	SRK05-8	BH05-9B-R	SRK05-07	P09-GSIA
Grouping	Analyte								
<b>WATER</b>									
<b>Physical Tests</b>	Conductivity (uS/cm)	2610	2560	592	2980	1540			
	Hardness (as CaCO3) (mg/L)	1980	1930	212	2350	973			
	pH (pH)	7.47	7.21	7.99	7.33	7.47			
	Total Suspended Solids (mg/L)	9.8	1.6	428	2.0	2.2			
<b>Anions and Nutrients</b>	Acidity (as CaCO3) (mg/L)	19.7	33.2	1.3	28.2	15.9			
	Alkalinity, Total (as CaCO3) (mg/L)	456	586	148	532	347			
	Chloride (Cl) (mg/L)	<5.0 <sup>DLA</sup>	<5.0 <sup>DLA</sup>	1.04	<10 <sup>DLA</sup>	<2.5 <sup>DLA</sup>			
	Sulfate (SO4) (mg/L)	1520	1270	166	1850	694			
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)								
	Antimony (Sb)-Total (mg/L)								
	Arsenic (As)-Total (mg/L)								
	Barium (Ba)-Total (mg/L)								
	Beryllium (Be)-Total (mg/L)								
	Bismuth (Bi)-Total (mg/L)								
	Boron (B)-Total (mg/L)								
	Cadmium (Cd)-Total (mg/L)								
	Calcium (Ca)-Total (mg/L)								
	Cesium (Cs)-Total (mg/L)								
	Chromium (Cr)-Total (mg/L)								
	Cobalt (Co)-Total (mg/L)								
	Copper (Cu)-Total (mg/L)								
	Iron (Fe)-Total (mg/L)								
	Lead (Pb)-Total (mg/L)								
	Lithium (Li)-Total (mg/L)								
	Magnesium (Mg)-Total (mg/L)								
	Manganese (Mn)-Total (mg/L)								
	Molybdenum (Mo)-Total (mg/L)								
	Nickel (Ni)-Total (mg/L)								
	Phosphorus (P)-Total (mg/L)								
	Potassium (K)-Total (mg/L)								
	Rubidium (Rb)-Total (mg/L)								
	Selenium (Se)-Total (mg/L)								
	Silicon (Si)-Total (mg/L)								
Silver (Ag)-Total (mg/L)									
Sodium (Na)-Total (mg/L)									
Strontium (Sr)-Total (mg/L)									
Sulfur (S)-Total (mg/L)									

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

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID	L1627328-11 Water 13-JUN-15 10:10 P09-GSIB	L1627328-12 Water 13-JUN-15 16:15 S1A	L1627328-13 Water 13-JUN-15 15:47 SRK08-SP-7A	L1627328-14 Water 13-JUN-15 15:25 SRK05-SP-5	L1627328-15 Water 13-JUN-15 14:36 SRK05-SP-4A	
Grouping	Analyte					
<b>WATER</b>						
<b>Physical Tests</b>	Conductivity (uS/cm)	1480	1640	710	9450	1220
	Hardness (as CaCO3) (mg/L)	927	980	355	8500	668
	pH (pH)	7.20	6.10	6.52	6.20	6.18
	Total Suspended Solids (mg/L)	28.0	438	218	124	26.3
<b>Anions and Nutrients</b>	Acidity (as CaCO3) (mg/L)	15.2	150	29.6	1220	117
	Alkalinity, Total (as CaCO3) (mg/L)	255	276	108	171	288
	Chloride (Cl) (mg/L)	<2.5 <sup>DLA</sup>	<2.5 <sup>DLA</sup>	<0.50	<25 <sup>DLA</sup>	<1.0 <sup>DLA</sup>
	Sulfate (SO4) (mg/L)	721	821	280	10200	218
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)					
	Antimony (Sb)-Total (mg/L)					
	Arsenic (As)-Total (mg/L)					
	Barium (Ba)-Total (mg/L)					
	Beryllium (Be)-Total (mg/L)					
	Bismuth (Bi)-Total (mg/L)					
	Boron (B)-Total (mg/L)					
	Cadmium (Cd)-Total (mg/L)					
	Calcium (Ca)-Total (mg/L)					
	Cesium (Cs)-Total (mg/L)					
	Chromium (Cr)-Total (mg/L)					
	Cobalt (Co)-Total (mg/L)					
	Copper (Cu)-Total (mg/L)					
	Iron (Fe)-Total (mg/L)					
	Lead (Pb)-Total (mg/L)					
	Lithium (Li)-Total (mg/L)					
	Magnesium (Mg)-Total (mg/L)					
	Manganese (Mn)-Total (mg/L)					
	Molybdenum (Mo)-Total (mg/L)					
	Nickel (Ni)-Total (mg/L)					
	Phosphorus (P)-Total (mg/L)					
	Potassium (K)-Total (mg/L)					
	Rubidium (Rb)-Total (mg/L)					
	Selenium (Se)-Total (mg/L)					
	Silicon (Si)-Total (mg/L)					
Silver (Ag)-Total (mg/L)						
Sodium (Na)-Total (mg/L)						
Strontium (Sr)-Total (mg/L)						
Sulfur (S)-Total (mg/L)						

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

# ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1627328-16 Water 13-JUN-15 14:30 P09-LCD6	L1627328-17 Water 13-JUN-15 10:15 P2001-3	L1627328-18 Water 13-JUN-15 10:10 V36	L1627328-19 Water 13-JUN-15 15:30 P09-LCD1	L1627328-20 Water 13-JUN-15 16:10 V34
Grouping	Analyte					
<b>WATER</b>						
<b>Physical Tests</b>	Conductivity (uS/cm)	987	909	2770	935	2010
	Hardness (as CaCO3) (mg/L)	585	470	2190	519	1450
	pH (pH)	7.49	7.78	7.16	7.63	7.17
	Total Suspended Solids (mg/L)	28.0	90.4	11.2	10.8	16.0
<b>Anions and Nutrients</b>	Acidity (as CaCO3) (mg/L)	9.3	5.6	36.4	5.7	42.5
	Alkalinity, Total (as CaCO3) (mg/L)	271	467	615	299	940
	Chloride (Cl) (mg/L)	<1.0 <sup>DLA</sup>	<1.0 <sup>DLA</sup>	<5.0 <sup>DLA</sup>	<1.0 <sup>DLA</sup>	<5.0 <sup>DLA</sup>
	Sulfate (SO4) (mg/L)	238	111	1620	86.1	577
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)					
	Antimony (Sb)-Total (mg/L)					
	Arsenic (As)-Total (mg/L)					
	Barium (Ba)-Total (mg/L)					
	Beryllium (Be)-Total (mg/L)					
	Bismuth (Bi)-Total (mg/L)					
	Boron (B)-Total (mg/L)					
	Cadmium (Cd)-Total (mg/L)					
	Calcium (Ca)-Total (mg/L)					
	Cesium (Cs)-Total (mg/L)					
	Chromium (Cr)-Total (mg/L)					
	Cobalt (Co)-Total (mg/L)					
	Copper (Cu)-Total (mg/L)					
	Iron (Fe)-Total (mg/L)					
	Lead (Pb)-Total (mg/L)					
	Lithium (Li)-Total (mg/L)					
	Magnesium (Mg)-Total (mg/L)					
	Manganese (Mn)-Total (mg/L)					
	Molybdenum (Mo)-Total (mg/L)					
	Nickel (Ni)-Total (mg/L)					
	Phosphorus (P)-Total (mg/L)					
	Potassium (K)-Total (mg/L)					
	Rubidium (Rb)-Total (mg/L)					
	Selenium (Se)-Total (mg/L)					
	Silicon (Si)-Total (mg/L)					
	Silver (Ag)-Total (mg/L)					
Sodium (Na)-Total (mg/L)						
Strontium (Sr)-Total (mg/L)						
Sulfur (S)-Total (mg/L)						

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

# ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1627328-21	L1627328-22	L1627328-23	L1627328-24	L1627328-25
		Water 13-JUN-15 17:35 V35	Water 14-JUN-15 17:15 P09-SIS1	Water 14-JUN-15 16:40 S2B	Water 14-JUN-15 16:00 S2A	Water 14-JUN-15 14:10 SRK08-SP7B
Grouping	Analyte					
<b>WATER</b>						
<b>Physical Tests</b>	Conductivity (uS/cm)	3420	9230	8270	1620	250
	Hardness (as CaCO3) (mg/L)	2980	8460	7220	1020	114
	pH (pH)	7.46	6.34	6.28	6.13	6.94
	Total Suspended Solids (mg/L)	8.4	112	67.6	103	<1.0
<b>Anions and Nutrients</b>	Acidity (as CaCO3) (mg/L)	39.3	1070	1090	126	17.5
	Alkalinity, Total (as CaCO3) (mg/L)	734	151	182	301	88.4
	Chloride (Cl) (mg/L)	<10 <sup>DLA</sup>	<25 <sup>DLA</sup>	<25 <sup>DLA</sup>	<2.5 <sup>DLA</sup>	<0.50
	Sulfate (SO4) (mg/L)	2220	12500	10500	836	49.4
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)					
	Antimony (Sb)-Total (mg/L)					
	Arsenic (As)-Total (mg/L)					
	Barium (Ba)-Total (mg/L)					
	Beryllium (Be)-Total (mg/L)					
	Bismuth (Bi)-Total (mg/L)					
	Boron (B)-Total (mg/L)					
	Cadmium (Cd)-Total (mg/L)					
	Calcium (Ca)-Total (mg/L)					
	Cesium (Cs)-Total (mg/L)					
	Chromium (Cr)-Total (mg/L)					
	Cobalt (Co)-Total (mg/L)					
	Copper (Cu)-Total (mg/L)					
	Iron (Fe)-Total (mg/L)					
	Lead (Pb)-Total (mg/L)					
	Lithium (Li)-Total (mg/L)					
	Magnesium (Mg)-Total (mg/L)					
	Manganese (Mn)-Total (mg/L)					
	Molybdenum (Mo)-Total (mg/L)					
	Nickel (Ni)-Total (mg/L)					
	Phosphorus (P)-Total (mg/L)					
	Potassium (K)-Total (mg/L)					
	Rubidium (Rb)-Total (mg/L)					
	Selenium (Se)-Total (mg/L)					
	Silicon (Si)-Total (mg/L)					
Silver (Ag)-Total (mg/L)						
Sodium (Na)-Total (mg/L)						
Strontium (Sr)-Total (mg/L)						
Sulfur (S)-Total (mg/L)						

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

# ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1627328-26 Water 14-JUN-15 13:10 MW14-08	L1627328-27 Water 14-JUN-15 12:30 MW14-10	L1627328-28 Water 14-JUN-15 11:10 MW14-11	L1627328-29 Water 14-JUN-15 10:00 SRK08-SP-8A	L1627328-30 Water 14-JUN-15 10:15 SRK08-SP-8B
Grouping	Analyte					
<b>WATER</b>						
<b>Physical Tests</b>	Conductivity (uS/cm)	551	911	534	1970	2130
	Hardness (as CaCO3) (mg/L)	251	342	275	671	1470
	pH (pH)	7.46	7.80	7.16	6.46	6.47
	Total Suspended Solids (mg/L)	204	7.0	30.0	224	192
<b>Anions and Nutrients</b>	Acidity (as CaCO3) (mg/L)	10.6	5.1	15.9	84.3	70.3
	Alkalinity, Total (as CaCO3) (mg/L)	314	300	241	349	317
	Chloride (Cl) (mg/L)	5.62	<1.0 <sup>DLA</sup>	<0.50	<2.5 <sup>DLA</sup>	<5.0 <sup>DLA</sup>
	Sulfate (SO4) (mg/L)	14.1	240	70.5	1050	1250
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)					
	Antimony (Sb)-Total (mg/L)					
	Arsenic (As)-Total (mg/L)					
	Barium (Ba)-Total (mg/L)					
	Beryllium (Be)-Total (mg/L)					
	Bismuth (Bi)-Total (mg/L)					
	Boron (B)-Total (mg/L)					
	Cadmium (Cd)-Total (mg/L)					
	Calcium (Ca)-Total (mg/L)					
	Cesium (Cs)-Total (mg/L)					
	Chromium (Cr)-Total (mg/L)					
	Cobalt (Co)-Total (mg/L)					
	Copper (Cu)-Total (mg/L)					
	Iron (Fe)-Total (mg/L)					
	Lead (Pb)-Total (mg/L)					
	Lithium (Li)-Total (mg/L)					
	Magnesium (Mg)-Total (mg/L)					
	Manganese (Mn)-Total (mg/L)					
	Molybdenum (Mo)-Total (mg/L)					
	Nickel (Ni)-Total (mg/L)					
	Phosphorus (P)-Total (mg/L)					
	Potassium (K)-Total (mg/L)					
	Rubidium (Rb)-Total (mg/L)					
	Selenium (Se)-Total (mg/L)					
	Silicon (Si)-Total (mg/L)					
Silver (Ag)-Total (mg/L)						
Sodium (Na)-Total (mg/L)						
Strontium (Sr)-Total (mg/L)						
Sulfur (S)-Total (mg/L)						

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

# ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1627328-31	L1627328-32	L1627328-33	L1627328-34	L1627328-35
	Water 14-JUN-15 09:10 P96-7	Water 14-JUN-15 18:00 P09-SIS2	Water 14-JUN-15 17:50 SRK05-SP-4B	Water 14-JUN-15 17:10 P09-SIS3	Water 14-JUN-15 11:20 MW14-13	
Grouping	Analyte					
<b>WATER</b>						
<b>Physical Tests</b>	Conductivity (uS/cm)	2670	8800	7020	9170	1380
	Hardness (as CaCO3) (mg/L)	2250	8750	7350	9570	911
	pH (pH)	7.76	5.96	6.46	6.26	6.05
	Total Suspended Solids (mg/L)	<1.0	14.2	18.0	13.4	4.0
<b>Anions and Nutrients</b>	Acidity (as CaCO3) (mg/L)	8.6	1210	778	1510	159
	Alkalinity, Total (as CaCO3) (mg/L)	231	70.8	151	167	410
	Chloride (Cl) (mg/L)	<5.0 <sup>DLA</sup>	<25 <sup>DLA</sup>	21	<25 <sup>DLA</sup>	<2.5 <sup>DLA</sup>
	Sulfate (SO4) (mg/L)	1710	12400	5830	1670	510
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)					
	Antimony (Sb)-Total (mg/L)					
	Arsenic (As)-Total (mg/L)					
	Barium (Ba)-Total (mg/L)					
	Beryllium (Be)-Total (mg/L)					
	Bismuth (Bi)-Total (mg/L)					
	Boron (B)-Total (mg/L)					
	Cadmium (Cd)-Total (mg/L)					
	Calcium (Ca)-Total (mg/L)					
	Cesium (Cs)-Total (mg/L)					
	Chromium (Cr)-Total (mg/L)					
	Cobalt (Co)-Total (mg/L)					
	Copper (Cu)-Total (mg/L)					
	Iron (Fe)-Total (mg/L)					
	Lead (Pb)-Total (mg/L)					
	Lithium (Li)-Total (mg/L)					
	Magnesium (Mg)-Total (mg/L)					
	Manganese (Mn)-Total (mg/L)					
	Molybdenum (Mo)-Total (mg/L)					
	Nickel (Ni)-Total (mg/L)					
	Phosphorus (P)-Total (mg/L)					
	Potassium (K)-Total (mg/L)					
	Rubidium (Rb)-Total (mg/L)					
	Selenium (Se)-Total (mg/L)					
	Silicon (Si)-Total (mg/L)					
Silver (Ag)-Total (mg/L)						
Sodium (Na)-Total (mg/L)						
Strontium (Sr)-Total (mg/L)						
Sulfur (S)-Total (mg/L)						

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



# ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1627328-36 Water 14-JUN-15 12:10 MW14-16	L1627328-37 Water 14-JUN-15 13:05 MW14-12D	L1627328-38 Water 14-JUN-15 14:05 MW14-15	L1627328-39 Water 14-JUN-15 14:45 P96-06	L1627328-40 Water 15-JUN-15 09:30 S1B
Grouping	Analyte					
<b>WATER</b>						
<b>Physical Tests</b>	Conductivity (uS/cm)	923	560	846	1220	773
	Hardness (as CaCO3) (mg/L)	556	322	431	821	411
	pH (pH)	6.31	6.28	7.14	6.99	6.85
	Total Suspended Solids (mg/L)	1.6	8.8	393	6.6	19.4
<b>Anions and Nutrients</b>	Acidity (as CaCO3) (mg/L)	48.9	37.3	14.6	28.2	17.0
	Alkalinity, Total (as CaCO3) (mg/L)	203	181	95.9	303	295
	Chloride (Cl) (mg/L)	<0.50	<0.50	<0.50	<1.0 <sup>DLA</sup>	<0.50
	Sulfate (SO4) (mg/L)	342	138	379	505	165
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)					
	Antimony (Sb)-Total (mg/L)					
	Arsenic (As)-Total (mg/L)					
	Barium (Ba)-Total (mg/L)					
	Beryllium (Be)-Total (mg/L)					
	Bismuth (Bi)-Total (mg/L)					
	Boron (B)-Total (mg/L)					
	Cadmium (Cd)-Total (mg/L)					
	Calcium (Ca)-Total (mg/L)					
	Cesium (Cs)-Total (mg/L)					
	Chromium (Cr)-Total (mg/L)					
	Cobalt (Co)-Total (mg/L)					
	Copper (Cu)-Total (mg/L)					
	Iron (Fe)-Total (mg/L)					
	Lead (Pb)-Total (mg/L)					
	Lithium (Li)-Total (mg/L)					
	Magnesium (Mg)-Total (mg/L)					
	Manganese (Mn)-Total (mg/L)					
	Molybdenum (Mo)-Total (mg/L)					
	Nickel (Ni)-Total (mg/L)					
	Phosphorus (P)-Total (mg/L)					
	Potassium (K)-Total (mg/L)					
	Rubidium (Rb)-Total (mg/L)					
	Selenium (Se)-Total (mg/L)					
	Silicon (Si)-Total (mg/L)					
Silver (Ag)-Total (mg/L)						
Sodium (Na)-Total (mg/L)						
Strontium (Sr)-Total (mg/L)						
Sulfur (S)-Total (mg/L)						

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

# ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1627328-41	L1627328-42	L1627328-43	L1627328-44	L1627328-45
		Water 15-JUN-15 08:30 MW14-14	Water 15-JUN-15 09:05 P03-06-02	Water 12-JUN-15 11:15 DUP-3	Water 13-JUN-15 14:36 DUP-4	Water 13-JUN-15 14:36 FB-2
Grouping	Analyte					
<b>WATER</b>						
<b>Physical Tests</b>	Conductivity (uS/cm)	1230	4270	2480	1210	<2.0
	Hardness (as CaCO3) (mg/L)	847	1880	1960	752	<0.50
	pH (pH)	6.94	4.56	7.42	6.18	5.58
	Total Suspended Solids (mg/L)	117	1320	6.4	30.0	<1.0
<b>Anions and Nutrients</b>	Acidity (as CaCO3) (mg/L)	29.6	1520	31.8	125	1.1
	Alkalinity, Total (as CaCO3) (mg/L)	72.9	<1.0 <sup>DLA</sup>	602 <sup>DLA</sup>	291 <sup>DLA</sup>	<1.0
	Chloride (Cl) (mg/L)	<2.5 <sup>DLA</sup>	<10 <sup>DLA</sup>	<5.0 <sup>DLA</sup>	<2.5 <sup>DLA</sup>	<0.50
	Sulfate (SO4) (mg/L)	709	4150	1270	444	<0.30
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)					
	Antimony (Sb)-Total (mg/L)					
	Arsenic (As)-Total (mg/L)					
	Barium (Ba)-Total (mg/L)					
	Beryllium (Be)-Total (mg/L)					
	Bismuth (Bi)-Total (mg/L)					
	Boron (B)-Total (mg/L)					
	Cadmium (Cd)-Total (mg/L)					
	Calcium (Ca)-Total (mg/L)					
	Cesium (Cs)-Total (mg/L)					
	Chromium (Cr)-Total (mg/L)					
	Cobalt (Co)-Total (mg/L)					
	Copper (Cu)-Total (mg/L)					
	Iron (Fe)-Total (mg/L)					
	Lead (Pb)-Total (mg/L)					
	Lithium (Li)-Total (mg/L)					
	Magnesium (Mg)-Total (mg/L)					
	Manganese (Mn)-Total (mg/L)					
	Molybdenum (Mo)-Total (mg/L)					
	Nickel (Ni)-Total (mg/L)					
	Phosphorus (P)-Total (mg/L)					
	Potassium (K)-Total (mg/L)					
	Rubidium (Rb)-Total (mg/L)					
	Selenium (Se)-Total (mg/L)					
	Silicon (Si)-Total (mg/L)					
Silver (Ag)-Total (mg/L)						
Sodium (Na)-Total (mg/L)						
Strontium (Sr)-Total (mg/L)						
Sulfur (S)-Total (mg/L)						

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

# ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1627328-46	L1627328-47	L1627328-48	L1627328-49	L1627328-50
	Water 13-JUN-15 14:30 DUP-5	Water 14-JUN-15 11:10 DUP-6	Water 14-JUN-15 11:10 FB-3	Water 14-JUN-15 11:20 DUP-7	Water 14-JUN-15 18:00 FB-4	
Grouping	Analyte					
<b>WATER</b>						
<b>Physical Tests</b>	Conductivity (uS/cm)	970	537	<2.0	1380	<2.0
	Hardness (as CaCO3) (mg/L)	626	296	<0.50	809	<0.50
	pH (pH)	7.69	7.15	5.55	6.07	5.61
	Total Suspended Solids (mg/L)	22.8	48.8	<1.0	4.6	<1.0
<b>Anions and Nutrients</b>	Acidity (as CaCO3) (mg/L)	8.7	14.5	<1.0	108	<1.0
	Alkalinity, Total (as CaCO3) (mg/L)	276	236	<1.0	416	<1.0
	Chloride (Cl) (mg/L)	<1.0 <sup>DLA</sup>	<0.50	<0.50	<2.5 <sup>DLA</sup>	<0.50
	Sulfate (SO4) (mg/L)	341	81.0	<0.30	492	<0.30
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)					
	Antimony (Sb)-Total (mg/L)					
	Arsenic (As)-Total (mg/L)					
	Barium (Ba)-Total (mg/L)					
	Beryllium (Be)-Total (mg/L)					
	Bismuth (Bi)-Total (mg/L)					
	Boron (B)-Total (mg/L)					
	Cadmium (Cd)-Total (mg/L)					
	Calcium (Ca)-Total (mg/L)					
	Cesium (Cs)-Total (mg/L)					
	Chromium (Cr)-Total (mg/L)					
	Cobalt (Co)-Total (mg/L)					
	Copper (Cu)-Total (mg/L)					
	Iron (Fe)-Total (mg/L)					
	Lead (Pb)-Total (mg/L)					
	Lithium (Li)-Total (mg/L)					
	Magnesium (Mg)-Total (mg/L)					
	Manganese (Mn)-Total (mg/L)					
	Molybdenum (Mo)-Total (mg/L)					
	Nickel (Ni)-Total (mg/L)					
	Phosphorus (P)-Total (mg/L)					
	Potassium (K)-Total (mg/L)					
	Rubidium (Rb)-Total (mg/L)					
	Selenium (Se)-Total (mg/L)					
	Silicon (Si)-Total (mg/L)					
Silver (Ag)-Total (mg/L)						
Sodium (Na)-Total (mg/L)						
Strontium (Sr)-Total (mg/L)						
Sulfur (S)-Total (mg/L)						

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

# ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1627328-51	L1627328-52	L1627328-53	L1627328-54	L1627328-55
	Water	Water	Water	Water	Water	Water
	15-JUN-15	15-JUN-15	15-JUN-15	14-JUN-15	14-JUN-15	14-JUN-15
	13:25	13:25	13:15	09:30	08:40	08:50
	P09-SIS4	P09-SIS4	P09-SIS5	P09-LCD4	P2001-2A	P2001-2B
Grouping	Analyte					
<b>WATER</b>						
<b>Physical Tests</b>	Conductivity (uS/cm)	6220	4530	795	2970	2860
	Hardness (as CaCO3) (mg/L)	6290	3910	335	2580	2260
	pH (pH)	7.04	7.11	8.13	6.99	7.13
	Total Suspended Solids (mg/L)	33.6	162	311	61.0	33.4
<b>Anions and Nutrients</b>	Acidity (as CaCO3) (mg/L)	228	60.7	<1.0	62.8	50.4
	Alkalinity, Total (as CaCO3) (mg/L)	267	473	365	823	804
	Chloride (Cl) (mg/L)	<10 <sup>DLA</sup>	<10 <sup>DLA</sup>	<0.50	<10 <sup>DLA</sup>	<10 <sup>DLA</sup>
	Sulfate (SO4) (mg/L)	5440	4160	117	1830	1740
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)					
	Antimony (Sb)-Total (mg/L)					
	Arsenic (As)-Total (mg/L)					
	Barium (Ba)-Total (mg/L)					
	Beryllium (Be)-Total (mg/L)					
	Bismuth (Bi)-Total (mg/L)					
	Boron (B)-Total (mg/L)					
	Cadmium (Cd)-Total (mg/L)					
	Calcium (Ca)-Total (mg/L)					
	Cesium (Cs)-Total (mg/L)					
	Chromium (Cr)-Total (mg/L)					
	Cobalt (Co)-Total (mg/L)					
	Copper (Cu)-Total (mg/L)					
	Iron (Fe)-Total (mg/L)					
	Lead (Pb)-Total (mg/L)					
	Lithium (Li)-Total (mg/L)					
	Magnesium (Mg)-Total (mg/L)					
	Manganese (Mn)-Total (mg/L)					
	Molybdenum (Mo)-Total (mg/L)					
	Nickel (Ni)-Total (mg/L)					
	Phosphorus (P)-Total (mg/L)					
	Potassium (K)-Total (mg/L)					
	Rubidium (Rb)-Total (mg/L)					
	Selenium (Se)-Total (mg/L)					
	Silicon (Si)-Total (mg/L)					
Silver (Ag)-Total (mg/L)						
Sodium (Na)-Total (mg/L)						
Strontium (Sr)-Total (mg/L)						
Sulfur (S)-Total (mg/L)						

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

# ALS ENVIRONMENTAL ANALYTICAL REPORT

	<b>Sample ID</b> <b>Description</b> <b>Sampled Date</b> <b>Sampled Time</b> <b>Client ID</b>	L1627328-56 Water	TRAVEL BLANK 2		
<b>Grouping</b>	<b>Analyte</b>				
<b>WATER</b>					
<b>Physical Tests</b>	Conductivity (uS/cm)	<2.0			
	Hardness (as CaCO3) (mg/L)	<0.50			
	pH (pH)	5.82			
	Total Suspended Solids (mg/L)	<1.0			
<b>Anions and Nutrients</b>	Acidity (as CaCO3) (mg/L)	<1.0			
	Alkalinity, Total (as CaCO3) (mg/L)	<1.0			
	Chloride (Cl) (mg/L)	<0.50			
	Sulfate (SO4) (mg/L)	<0.30			
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)	<0.0030			
	Antimony (Sb)-Total (mg/L)	<0.00010			
	Arsenic (As)-Total (mg/L)	<0.00010			
	Barium (Ba)-Total (mg/L)	<0.000050			
	Beryllium (Be)-Total (mg/L)	<0.00010			
	Bismuth (Bi)-Total (mg/L)	<0.000050			
	Boron (B)-Total (mg/L)	<0.010			
	Cadmium (Cd)-Total (mg/L)	<0.0000050			
	Calcium (Ca)-Total (mg/L)	<0.050			
	Cesium (Cs)-Total (mg/L)	<0.000010			
	Chromium (Cr)-Total (mg/L)	<0.00010			
	Cobalt (Co)-Total (mg/L)	<0.00010			
	Copper (Cu)-Total (mg/L)	<0.00050			
	Iron (Fe)-Total (mg/L)	<0.010			
	Lead (Pb)-Total (mg/L)	<0.000050			
	Lithium (Li)-Total (mg/L)	<0.0010			
	Magnesium (Mg)-Total (mg/L)	<0.0050			
	Manganese (Mn)-Total (mg/L)	<0.00010			
	Molybdenum (Mo)-Total (mg/L)	<0.000050			
	Nickel (Ni)-Total (mg/L)	<0.00050			
	Phosphorus (P)-Total (mg/L)	<0.050			
	Potassium (K)-Total (mg/L)	<0.050			
	Rubidium (Rb)-Total (mg/L)	<0.00020			
	Selenium (Se)-Total (mg/L)	<0.000050			
	Silicon (Si)-Total (mg/L)	<0.050			
	Silver (Ag)-Total (mg/L)	<0.000010			
	Sodium (Na)-Total (mg/L)	<0.050			
	Strontium (Sr)-Total (mg/L)	<0.00020			
	Sulfur (S)-Total (mg/L)	<0.50			

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

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID	L1627328-1 Water 13-JUN-15 11:08 V37	L1627328-2 Water 12-JUN-15 17:05 P09-VC1	L1627328-3 Water 12-JUN-15 16:50 P09-VC2	L1627328-4 Water 12-JUN-15 15:03 SRK05-9	L1627328-5 Water 12-JUN-15 14:00 SRK05-5C
Grouping	Analyte				
<b>WATER</b>					
<b>Total Metals</b>	Tellurium (Te)-Total (mg/L)				
	Thallium (Tl)-Total (mg/L)				
	Thorium (Th)-Total (mg/L)				
	Tin (Sn)-Total (mg/L)				
	Titanium (Ti)-Total (mg/L)				
	Tungsten (W)-Total (mg/L)				
	Uranium (U)-Total (mg/L)				
	Vanadium (V)-Total (mg/L)				
	Zinc (Zn)-Total (mg/L)				
	Zirconium (Zr)-Total (mg/L)				
<b>Dissolved Metals</b>	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	<0.0010	0.0027	0.0023	0.0019
	Antimony (Sb)-Dissolved (mg/L)	0.00022	<0.00010	0.00055	0.00027
	Arsenic (As)-Dissolved (mg/L)	0.00810	0.00154	0.116	0.00072
	Barium (Ba)-Dissolved (mg/L)	0.0360	0.0190	0.0430	0.0362
	Beryllium (Be)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010
	Bismuth (Bi)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050
	Boron (B)-Dissolved (mg/L)	0.038	<0.010	<0.010	<0.010
	Cadmium (Cd)-Dissolved (mg/L)	0.0000096	<0.0000050	<0.0000050	0.000147
	Calcium (Ca)-Dissolved (mg/L)	93.0	42.9	56.8	186
	Cesium (Cs)-Dissolved (mg/L)	0.000014	0.000547	0.000034	<0.000010
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	0.00028
	Cobalt (Co)-Dissolved (mg/L)	0.00024	<0.00010	0.00027	<0.00010
	Copper (Cu)-Dissolved (mg/L)	0.00022	<0.00020	<0.00020	0.00166
	Iron (Fe)-Dissolved (mg/L)	0.068	0.340	1.73	<0.010
	Lead (Pb)-Dissolved (mg/L)	<0.000050	0.000151	0.000367	0.000325
	Lithium (Li)-Dissolved (mg/L)	0.0283	0.0032	0.0074	0.0059
	Magnesium (Mg)-Dissolved (mg/L)	102	8.64	11.1	134
	Manganese (Mn)-Dissolved (mg/L)	0.0764	0.0132	0.0960	0.00032
	Molybdenum (Mo)-Dissolved (mg/L)	0.0233	0.000379	0.00971	0.00138
	Nickel (Ni)-Dissolved (mg/L)	0.00167	0.00654	<0.00050	0.00105
	Phosphorus (P)-Dissolved (mg/L)	2.81	<0.050	<0.050	<0.050
	Potassium (K)-Dissolved (mg/L)	6.03	0.998	1.16	2.99
	Rubidium (Rb)-Dissolved (mg/L)	0.00257	0.00160	0.00193	<0.00020
	Selenium (Se)-Dissolved (mg/L)	0.00128	<0.000050	<0.000050	0.000676
	Silicon (Si)-Dissolved (mg/L)	4.85	6.00	6.73	3.99
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010

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

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	Description	Sampled Date	Sampled Time	Client ID	L1627328-6	L1627328-7	L1627328-8	L1627328-9	L1627328-10
					Water	Water	Water	Water	Water
		12-JUN-15	12:30	P96-9A	12-JUN-15	11:15	12-JUN-15	12-JUN-15	13-JUN-15
					P96-9A	SRK05-8	BH05-9B-R	SRK05-07	P09-GSIA
Grouping	Analyte								
<b>WATER</b>									
<b>Total Metals</b>	Tellurium (Te)-Total (mg/L)								
	Thallium (Tl)-Total (mg/L)								
	Thorium (Th)-Total (mg/L)								
	Tin (Sn)-Total (mg/L)								
	Titanium (Ti)-Total (mg/L)								
	Tungsten (W)-Total (mg/L)								
	Uranium (U)-Total (mg/L)								
	Vanadium (V)-Total (mg/L)								
	Zinc (Zn)-Total (mg/L)								
	Zirconium (Zr)-Total (mg/L)								
<b>Dissolved Metals</b>	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	0.0032	<0.0020 <sup>DLA</sup>	0.0027	<0.0020 <sup>DLA</sup>	0.0016			
	Antimony (Sb)-Dissolved (mg/L)	<0.00020 <sup>DLA</sup>	<0.00020 <sup>DLA</sup>	<0.00010	0.00025	0.00974			
	Arsenic (As)-Dissolved (mg/L)	0.00046	0.00025	0.0178	0.00139	0.100			
	Barium (Ba)-Dissolved (mg/L)	0.0392	0.0108	0.0167	0.0443	0.00933			
	Beryllium (Be)-Dissolved (mg/L)	<0.00020 <sup>DLA</sup>	<0.00020 <sup>DLA</sup>	<0.00010	<0.00020 <sup>DLA</sup>	<0.00010			
	Bismuth (Bi)-Dissolved (mg/L)	<0.00010 <sup>DLA</sup>	<0.00010 <sup>DLA</sup>	<0.000050	<0.00010 <sup>DLA</sup>	<0.000050			
	Boron (B)-Dissolved (mg/L)	<0.020	<0.020	0.040	<0.020	<0.010			
	Cadmium (Cd)-Dissolved (mg/L)	0.000536	0.000028	<0.0000050	0.000089	0.00111			
	Calcium (Ca)-Dissolved (mg/L)	315	410	48.6	472	236			
	Cesium (Cs)-Dissolved (mg/L)	<0.000020 <sup>DLA</sup>	<0.000020 <sup>DLA</sup>	0.000156	0.000020	0.00235			
	Chromium (Cr)-Dissolved (mg/L)	0.00033	0.00046	<0.00010	0.00053	<0.00010			
	Cobalt (Co)-Dissolved (mg/L)	<0.00020 <sup>DLA</sup>	<0.00020 <sup>DLA</sup>	<0.00010	0.00046	0.0602			
	Copper (Cu)-Dissolved (mg/L)	0.00253	0.00258	<0.00020	0.00091	<0.00020			
	Iron (Fe)-Dissolved (mg/L)	0.021	<0.020 <sup>DLA</sup>	0.762	<0.020 <sup>DLA</sup>	1.13			
	Lead (Pb)-Dissolved (mg/L)	<0.00010 <sup>DLA</sup>	0.00011	0.000185	0.00011	0.0323			
	Lithium (Li)-Dissolved (mg/L)	0.0109	0.0181	0.0220	0.0103	0.0069			
	Magnesium (Mg)-Dissolved (mg/L)	289	220	22.1	286	93.0			
	Manganese (Mn)-Dissolved (mg/L)	0.0157	<0.00020 <sup>DLA</sup>	0.106	0.00598	1.74			
	Molybdenum (Mo)-Dissolved (mg/L)	0.00084	0.00042	0.0106	0.00049	0.00250			
	Nickel (Ni)-Dissolved (mg/L)	0.0148	0.0015	<0.00050	0.0136	0.120			
	Phosphorus (P)-Dissolved (mg/L)	<0.10 <sup>DLA</sup>	<0.10 <sup>DLA</sup>	<0.050	<0.10 <sup>DLA</sup>	<0.050			
	Potassium (K)-Dissolved (mg/L)	4.62	1.95	1.87	2.61	4.32			
	Rubidium (Rb)-Dissolved (mg/L)	<0.00040 <sup>DLA</sup>	0.00089	0.00319	0.00189	0.00561			
	Selenium (Se)-Dissolved (mg/L)	0.00023	0.00027	<0.000050	0.00071	<0.000050			
	Silicon (Si)-Dissolved (mg/L)	5.40	6.61	6.41	6.61	2.23			
	Silver (Ag)-Dissolved (mg/L)	<0.000020 <sup>DLA</sup>	<0.000020 <sup>DLA</sup>	<0.000010	<0.000020 <sup>DLA</sup>	<0.000010			

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

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID	L1627328-11 Water 13-JUN-15 10:10 P09-GSIB	L1627328-12 Water 13-JUN-15 16:15 S1A	L1627328-13 Water 13-JUN-15 15:47 SRK08-SP-7A	L1627328-14 Water 13-JUN-15 15:25 SRK05-SP-5	L1627328-15 Water 13-JUN-15 14:36 SRK05-SP-4A
Grouping	Analyte				
<b>WATER</b>					
<b>Total Metals</b>	Tellurium (Te)-Total (mg/L)				
	Thallium (Tl)-Total (mg/L)				
	Thorium (Th)-Total (mg/L)				
	Tin (Sn)-Total (mg/L)				
	Titanium (Ti)-Total (mg/L)				
	Tungsten (W)-Total (mg/L)				
	Uranium (U)-Total (mg/L)				
	Vanadium (V)-Total (mg/L)				
	Zinc (Zn)-Total (mg/L)				
	Zirconium (Zr)-Total (mg/L)				
<b>Dissolved Metals</b>	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	0.0022	0.0201	0.0048	<0.10 <sup>DLA</sup>
	Antimony (Sb)-Dissolved (mg/L)	0.00079	<0.00020 <sup>DLA</sup>	<0.00010	<0.010 <sup>DLA</sup>
	Arsenic (As)-Dissolved (mg/L)	1.57	<0.00020 <sup>DLA</sup>	0.00439	<0.010 <sup>DLA</sup>
	Barium (Ba)-Dissolved (mg/L)	0.0225	0.0151	0.0161	0.0183
	Beryllium (Be)-Dissolved (mg/L)	<0.00010	<0.00020 <sup>DLA</sup>	0.00024	<0.010 <sup>DLA</sup>
	Bismuth (Bi)-Dissolved (mg/L)	<0.000050	<0.00010 <sup>DLA</sup>	<0.000050	<0.0050 <sup>DLA</sup>
	Boron (B)-Dissolved (mg/L)	0.015	<0.020 <sup>DLA</sup>	<0.010	<1.0 <sup>DLA</sup>
	Cadmium (Cd)-Dissolved (mg/L)	<0.0000050	0.00194	0.0000269	0.396
	Calcium (Ca)-Dissolved (mg/L)	236	189	89.0	427
	Cesium (Cs)-Dissolved (mg/L)	0.000889	0.000115 <sup>DLA</sup>	0.000192	<0.0010 <sup>DLA</sup>
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.00020 <sup>DLA</sup>	<0.00010	<0.010 <sup>DLA</sup>
	Cobalt (Co)-Dissolved (mg/L)	0.00177	0.0190	0.00446	2.50
	Copper (Cu)-Dissolved (mg/L)	<0.00020	0.00040	<0.00020	<0.020 <sup>DLA</sup>
	Iron (Fe)-Dissolved (mg/L)	3.64	18.9	11.6	2.4
	Lead (Pb)-Dissolved (mg/L)	0.000129	<0.00010 <sup>DLA</sup>	0.000053	<0.0050 <sup>DLA</sup>
	Lithium (Li)-Dissolved (mg/L)	0.0127	0.0547	0.0381	0.23
	Magnesium (Mg)-Dissolved (mg/L)	81.9	123	32.3	1810
	Manganese (Mn)-Dissolved (mg/L)	0.517	8.95	0.988	186
	Molybdenum (Mo)-Dissolved (mg/L)	0.00299	0.00013	0.000113	<0.0050 <sup>DLA</sup>
	Nickel (Ni)-Dissolved (mg/L)	0.0161	0.0855 <sup>DLA</sup>	0.0109	3.84
	Phosphorus (P)-Dissolved (mg/L)	0.063	<0.10 <sup>DLA</sup>	<0.050	<5.0 <sup>DLA</sup>
	Potassium (K)-Dissolved (mg/L)	2.73	5.74	4.06	15.7
	Rubidium (Rb)-Dissolved (mg/L)	0.00552	0.00157 <sup>DLA</sup>	0.00692	<0.020 <sup>DLA</sup>
	Selenium (Se)-Dissolved (mg/L)	<0.000050	<0.00010 <sup>DLA</sup>	<0.000050	<0.0050 <sup>DLA</sup>
	Silicon (Si)-Dissolved (mg/L)	7.39	14.5	12.3	13.1
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000020 <sup>DLA</sup>	<0.000010	<0.0010 <sup>DLA</sup>

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



# ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1627328-16 Water 13-JUN-15 14:30 P09-LCD6	L1627328-17 Water 13-JUN-15 10:15 P2001-3	L1627328-18 Water 13-JUN-15 10:10 V36	L1627328-19 Water 13-JUN-15 15:30 P09-LCD1	L1627328-20 Water 13-JUN-15 16:10 V34
Grouping	Analyte					
<b>WATER</b>						
<b>Total Metals</b>	Tellurium (Te)-Total (mg/L)					
	Thallium (Tl)-Total (mg/L)					
	Thorium (Th)-Total (mg/L)					
	Tin (Sn)-Total (mg/L)					
	Titanium (Ti)-Total (mg/L)					
	Tungsten (W)-Total (mg/L)					
	Uranium (U)-Total (mg/L)					
	Vanadium (V)-Total (mg/L)					
	Zinc (Zn)-Total (mg/L)					
	Zirconium (Zr)-Total (mg/L)					
<b>Dissolved Metals</b>	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	<0.0010	0.0013	0.0025	0.0012	0.0012
	Antimony (Sb)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00020 <sup>DLA</sup>	0.00015	<0.00010
	Arsenic (As)-Dissolved (mg/L)	0.130	0.00283	0.00205	0.111	0.00172
	Barium (Ba)-Dissolved (mg/L)	0.0458	0.0278	0.00786	0.0401	0.0402
	Beryllium (Be)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00020 <sup>DLA</sup>	<0.00010	<0.00010
	Bismuth (Bi)-Dissolved (mg/L)	<0.000050	<0.000050	<0.00010 <sup>DLA</sup>	<0.000050	<0.000050
	Boron (B)-Dissolved (mg/L)	0.012	0.023	<0.020 <sup>DLA</sup>	0.013	0.023
	Cadmium (Cd)-Dissolved (mg/L)	0.0000207	0.000521	0.000233	0.0000414	<0.0000050
	Calcium (Ca)-Dissolved (mg/L)	160	90.9	422	144	219
	Cesium (Cs)-Dissolved (mg/L)	0.000026	0.000530	0.000048	0.000017	0.000012
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00020 <sup>DLA</sup>	<0.00010	<0.00010
	Cobalt (Co)-Dissolved (mg/L)	0.00131	0.00073	0.00107	0.00057	0.00191
	Copper (Cu)-Dissolved (mg/L)	<0.00020	0.00150	<0.00040 <sup>DLA</sup>	<0.00020	<0.00020
	Iron (Fe)-Dissolved (mg/L)	7.83	0.026	<0.020 <sup>DLA</sup>	4.80	2.19
	Lead (Pb)-Dissolved (mg/L)	0.00865	<0.000050	0.00062	0.0254	0.000084
	Lithium (Li)-Dissolved (mg/L)	0.0095	0.0100	0.0457	0.0102	0.0326
	Magnesium (Mg)-Dissolved (mg/L)	45.2	59.1	277	38.6	218
	Manganese (Mn)-Dissolved (mg/L)	0.575	0.758	0.0971	0.682	0.0703
	Molybdenum (Mo)-Dissolved (mg/L)	0.00226	0.0108	0.00163	0.00487	0.00136
	Nickel (Ni)-Dissolved (mg/L)	0.00128	0.00182	0.0113	0.00077	0.00449
	Phosphorus (P)-Dissolved (mg/L)	0.069	<0.050	<0.10 <sup>DLA</sup>	0.061	<0.050
	Potassium (K)-Dissolved (mg/L)	2.54	3.20	5.79	2.86	4.97
	Rubidium (Rb)-Dissolved (mg/L)	0.00118	0.00281	0.00218	0.00118	0.00310
	Selenium (Se)-Dissolved (mg/L)	<0.000050	<0.000050	0.00054	<0.000050	<0.000050
	Silicon (Si)-Dissolved (mg/L)	7.70	6.97	7.60	7.38	7.75
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000020 <sup>DLA</sup>	<0.000010	<0.000010

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

# ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1627328-21 Water 13-JUN-15 17:35 V35	L1627328-22 Water 14-JUN-15 17:15 P09-SIS1	L1627328-23 Water 14-JUN-15 16:40 S2B	L1627328-24 Water 14-JUN-15 16:00 S2A	L1627328-25 Water 14-JUN-15 14:10 SRK08-SP7B
Grouping	Analyte					
<b>WATER</b>						
<b>Total Metals</b>	Tellurium (Te)-Total (mg/L)					
	Thallium (Tl)-Total (mg/L)					
	Thorium (Th)-Total (mg/L)					
	Tin (Sn)-Total (mg/L)					
	Titanium (Ti)-Total (mg/L)					
	Tungsten (W)-Total (mg/L)					
	Uranium (U)-Total (mg/L)					
	Vanadium (V)-Total (mg/L)					
	Zinc (Zn)-Total (mg/L)					
	Zirconium (Zr)-Total (mg/L)					
<b>Dissolved Metals</b>	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	<0.0020 <sup>DLA</sup>	0.21	<0.10 <sup>DLA</sup>	0.0138	0.0179
	Antimony (Sb)-Dissolved (mg/L)	0.00038	<0.010 <sup>DLA</sup>	<0.010 <sup>DLA</sup>	<0.00010	<0.00010
	Arsenic (As)-Dissolved (mg/L)	0.00075	<0.010 <sup>DLA</sup>	<0.010 <sup>DLA</sup>	0.00024	0.00261
	Barium (Ba)-Dissolved (mg/L)	0.0110	0.0191	0.0147	0.0166	0.0556
	Beryllium (Be)-Dissolved (mg/L)	<0.00020 <sup>DLA</sup>	<0.010 <sup>DLA</sup>	<0.010 <sup>DLA</sup>	0.00010	<0.00010
	Bismuth (Bi)-Dissolved (mg/L)	<0.00010 <sup>DLA</sup>	<0.0050 <sup>DLA</sup>	<0.0050 <sup>DLA</sup>	<0.000050	<0.000050
	Boron (B)-Dissolved (mg/L)	<0.020 <sup>DLA</sup>	<1.0	<1.0	<0.010	<0.010
	Cadmium (Cd)-Dissolved (mg/L)	0.000195	0.287	0.145	0.000895	0.0000059
	Calcium (Ca)-Dissolved (mg/L)	588	475	455	229	13.4
	Cesium (Cs)-Dissolved (mg/L)	<0.000020 <sup>DLA</sup>	<0.0010 <sup>DLA</sup>	<0.0010 <sup>DLA</sup>	<0.000010	<0.000010
	Chromium (Cr)-Dissolved (mg/L)	<0.00020 <sup>DLA</sup>	<0.010 <sup>DLA</sup>	<0.010 <sup>DLA</sup>	<0.00010	0.00027
	Cobalt (Co)-Dissolved (mg/L)	<0.00020 <sup>DLA</sup>	1.84	1.85	0.0254	0.00093
	Copper (Cu)-Dissolved (mg/L)	0.00086 <sup>DLA</sup>	<0.020 <sup>DLA</sup>	<0.020 <sup>DLA</sup>	0.00038	0.00044
	Iron (Fe)-Dissolved (mg/L)	<0.020 <sup>DLA</sup>	16.9	14.1	21.5	3.27
	Lead (Pb)-Dissolved (mg/L)	0.00011	<0.0050 <sup>DLA</sup>	<0.0050 <sup>DLA</sup>	0.000421	0.000063
	Lithium (Li)-Dissolved (mg/L)	0.0366	0.27	0.17	0.0581	0.0171
	Magnesium (Mg)-Dissolved (mg/L)	366	1770	1480	108	19.4
	Manganese (Mn)-Dissolved (mg/L)	0.0175	158	152	5.05	1.45
	Molybdenum (Mo)-Dissolved (mg/L)	0.00137	<0.0050 <sup>DLA</sup>	<0.0050 <sup>DLA</sup>	0.000085	0.000278
	Nickel (Ni)-Dissolved (mg/L)	0.0079	2.89	2.78	0.0479	0.00682
	Phosphorus (P)-Dissolved (mg/L)	<0.10 <sup>DLA</sup>	<5.0 <sup>DLA</sup>	<5.0 <sup>DLA</sup>	<0.050	<0.050
	Potassium (K)-Dissolved (mg/L)	5.70	14.7	13.0	5.89	1.82
	Rubidium (Rb)-Dissolved (mg/L)	0.00170	<0.020 <sup>DLA</sup>	<0.020 <sup>DLA</sup>	0.00302	0.00089
	Selenium (Se)-Dissolved (mg/L)	0.00041	<0.0050 <sup>DLA</sup>	<0.0050 <sup>DLA</sup>	<0.000050	0.000105
	Silicon (Si)-Dissolved (mg/L)	6.91	12.0	11.0	15.3	7.82
	Silver (Ag)-Dissolved (mg/L)	<0.000020 <sup>DLA</sup>	<0.0010 <sup>DLA</sup>	<0.0010 <sup>DLA</sup>	<0.000010	<0.000010

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

# ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID	L1627328-26 Water 14-JUN-15 13:10 MW14-08	L1627328-27 Water 14-JUN-15 12:30 MW14-10	L1627328-28 Water 14-JUN-15 11:10 MW14-11	L1627328-29 Water 14-JUN-15 10:00 SRK08-SP-8A	L1627328-30 Water 14-JUN-15 10:15 SRK08-SP-8B
Grouping	Analyte				
<b>WATER</b>					
<b>Total Metals</b>	Tellurium (Te)-Total (mg/L) Thallium (Tl)-Total (mg/L) Thorium (Th)-Total (mg/L) Tin (Sn)-Total (mg/L) Titanium (Ti)-Total (mg/L) Tungsten (W)-Total (mg/L) Uranium (U)-Total (mg/L) Vanadium (V)-Total (mg/L) Zinc (Zn)-Total (mg/L) Zirconium (Zr)-Total (mg/L)				
<b>Dissolved Metals</b>	Dissolved Metals Filtration Location Aluminum (Al)-Dissolved (mg/L) Antimony (Sb)-Dissolved (mg/L) Arsenic (As)-Dissolved (mg/L) Barium (Ba)-Dissolved (mg/L) Beryllium (Be)-Dissolved (mg/L) Bismuth (Bi)-Dissolved (mg/L) Boron (B)-Dissolved (mg/L) Cadmium (Cd)-Dissolved (mg/L) Calcium (Ca)-Dissolved (mg/L) Cesium (Cs)-Dissolved (mg/L) Chromium (Cr)-Dissolved (mg/L) Cobalt (Co)-Dissolved (mg/L) Copper (Cu)-Dissolved (mg/L) Iron (Fe)-Dissolved (mg/L) Lead (Pb)-Dissolved (mg/L) Lithium (Li)-Dissolved (mg/L) Magnesium (Mg)-Dissolved (mg/L) Manganese (Mn)-Dissolved (mg/L) Molybdenum (Mo)-Dissolved (mg/L) Nickel (Ni)-Dissolved (mg/L) Phosphorus (P)-Dissolved (mg/L) Potassium (K)-Dissolved (mg/L) Rubidium (Rb)-Dissolved (mg/L) Selenium (Se)-Dissolved (mg/L) Silicon (Si)-Dissolved (mg/L) Silver (Ag)-Dissolved (mg/L)				
	FIELD	FIELD	FIELD	FIELD	FIELD
	0.0143	0.0034	0.0067	0.0037	0.0119
	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020 <sup>DLA</sup>
	0.00548	0.00029	0.00258	0.00431	0.00515
	0.217	0.0234	0.191	0.00574	0.0130
	<0.00010	<0.00010	<0.00010	0.00019	0.00022 <sup>DLA</sup>
	<0.000050	<0.000050	<0.000050	<0.000050	<0.00010 <sup>DLA</sup>
	<0.010	<0.010	0.010	<0.010	<0.020 <sup>DLA</sup>
	0.0000080	0.0000649	<0.0000050	0.0000104	0.000045
	78.1	107	69.8	160	307
	0.000023	<0.000010	<0.000010	0.000657	0.000450 <sup>DLA</sup>
	0.00021	0.00055	0.00030	<0.00010	<0.00020 <sup>DLA</sup>
	0.00376	0.00068	0.00111	0.00309	0.00714 <sup>DLA</sup>
	0.00021	0.00049	<0.00020	<0.00020	<0.00040 <sup>DLA</sup>
	11.7	<0.010	20.2	14.8	27.2 <sup>DLA</sup>
	0.000618	<0.000050	<0.000050	0.000129	<0.00010 <sup>DLA</sup>
	0.0054	0.0178	0.0118	0.0526	0.0757
	13.5	18.4	24.5	65.8	172
	3.04	0.206	1.23	1.25	6.01
	0.000657	0.000906	0.000892	0.000079	0.00021
	0.00216	0.00482	0.00164	0.00932	0.0150 <sup>DLA</sup>
	0.118	<0.050	0.263	<0.050	<0.10 <sup>DLA</sup>
	1.78	3.95	2.35	2.74	5.40
	0.00217	0.00068	0.00110	0.00493	0.00698 <sup>DLA</sup>
	0.000170	0.00753	0.000082	<0.000050	<0.00010 <sup>DLA</sup>
	6.91	5.35	7.70	7.43	13.9 <sup>DLA</sup>
	<0.000010	<0.000010	<0.000010	<0.000010	<0.000020 <sup>DLA</sup>

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

# ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1627328-31 Water 14-JUN-15 09:10 P96-7	L1627328-32 Water 14-JUN-15 18:00 P09-SIS2	L1627328-33 Water 14-JUN-15 17:50 SRK05-SP-4B	L1627328-34 Water 14-JUN-15 17:10 P09-SIS3	L1627328-35 Water 14-JUN-15 11:20 MW14-13
Grouping	Analyte					
<b>WATER</b>						
<b>Total Metals</b>	Tellurium (Te)-Total (mg/L)					
	Thallium (Tl)-Total (mg/L)					
	Thorium (Th)-Total (mg/L)					
	Tin (Sn)-Total (mg/L)					
	Titanium (Ti)-Total (mg/L)					
	Tungsten (W)-Total (mg/L)					
	Uranium (U)-Total (mg/L)					
	Vanadium (V)-Total (mg/L)					
	Zinc (Zn)-Total (mg/L)					
	Zirconium (Zr)-Total (mg/L)					
<b>Dissolved Metals</b>	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	<0.0020 <sup>DLA</sup>	1.00	<0.050 <sup>DLA</sup>	0.16	0.0484
	Antimony (Sb)-Dissolved (mg/L)	<0.00020 <sup>DLA</sup>	<0.010 <sup>DLA</sup>	<0.0050 <sup>DLA</sup>	<0.010 <sup>DLA</sup>	<0.00010
	Arsenic (As)-Dissolved (mg/L)	<0.00020 <sup>DLA</sup>	<0.010 <sup>DLA</sup>	<0.0050 <sup>DLA</sup>	<0.010 <sup>DLA</sup>	0.00018
	Barium (Ba)-Dissolved (mg/L)	0.00932	0.0213	0.0134	0.0161	0.0477
	Beryllium (Be)-Dissolved (mg/L)	<0.00020 <sup>DLA</sup>	<0.010 <sup>DLA</sup>	<0.0050 <sup>DLA</sup>	<0.010 <sup>DLA</sup>	<0.00010
	Bismuth (Bi)-Dissolved (mg/L)	<0.00010 <sup>DLA</sup>	<0.0050 <sup>DLA</sup>	<0.0025 <sup>DLA</sup>	<0.0050 <sup>DLA</sup>	<0.000050
	Boron (B)-Dissolved (mg/L)	<0.020	<1.0	<0.50	<1.0	<0.010
	Cadmium (Cd)-Dissolved (mg/L)	0.000029	0.535	0.110	0.565	0.00345
	Calcium (Ca)-Dissolved (mg/L)	596	478	521	448	249
	Cesium (Cs)-Dissolved (mg/L)	0.000043	<0.0010 <sup>DLA</sup>	<0.00050 <sup>DLA</sup>	<0.0010 <sup>DLA</sup>	0.000014
	Chromium (Cr)-Dissolved (mg/L)	0.00041	<0.010 <sup>DLA</sup>	<0.0050 <sup>DLA</sup>	<0.010 <sup>DLA</sup>	0.00026
	Cobalt (Co)-Dissolved (mg/L)	<0.00020 <sup>DLA</sup>	2.58	0.0462	2.87	0.00025
	Copper (Cu)-Dissolved (mg/L)	<0.00040 <sup>DLA</sup>	0.023	0.013	0.025	0.00263
	Iron (Fe)-Dissolved (mg/L)	<0.020	<1.0 <sup>DLA</sup>	4.16	<1.0 <sup>DLA</sup>	0.021
	Lead (Pb)-Dissolved (mg/L)	<0.00010 <sup>DLA</sup>	<0.0050 <sup>DLA</sup>	<0.0025 <sup>DLA</sup>	<0.0050 <sup>DLA</sup>	<0.000050
	Lithium (Li)-Dissolved (mg/L)	0.0263	0.24	0.169	0.23	0.0311
	Magnesium (Mg)-Dissolved (mg/L)	185	1840	1470	2050	70.2
	Manganese (Mn)-Dissolved (mg/L)	<0.00020 <sup>DLA</sup>	181	96.2	222	1.05
	Molybdenum (Mo)-Dissolved (mg/L)	0.00081	<0.0050 <sup>DLA</sup>	<0.0025 <sup>DLA</sup>	<0.0050 <sup>DLA</sup>	0.000074
	Nickel (Ni)-Dissolved (mg/L)	<0.0010 <sup>DLA</sup>	4.11	2.94	4.70	0.146
	Phosphorus (P)-Dissolved (mg/L)	<0.10 <sup>DLA</sup>	<5.0 <sup>DLA</sup>	<2.5 <sup>DLA</sup>	<5.0 <sup>DLA</sup>	<0.050
	Potassium (K)-Dissolved (mg/L)	5.21	18.4	11.9	16.9	4.40
	Rubidium (Rb)-Dissolved (mg/L)	<0.00040 <sup>DLA</sup>	0.029	<0.010 <sup>DLA</sup>	0.022	0.00286
	Selenium (Se)-Dissolved (mg/L)	0.00079	<0.0050 <sup>DLA</sup>	<0.0025 <sup>DLA</sup>	<0.0050 <sup>DLA</sup>	0.000226
	Silicon (Si)-Dissolved (mg/L)	6.37	12.5	12.5	13.6	11.0
	Silver (Ag)-Dissolved (mg/L)	<0.000020 <sup>DLA</sup>	<0.0010 <sup>DLA</sup>	<0.00050 <sup>DLA</sup>	<0.0010 <sup>DLA</sup>	<0.000010

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

## ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1627328-36	L1627328-37	L1627328-38	L1627328-39	L1627328-40
		Description	Water	Water	Water	Water	Water
		Sampled Date	14-JUN-15	14-JUN-15	14-JUN-15	14-JUN-15	15-JUN-15
		Sampled Time	12:10	13:05	14:05	14:45	09:30
		Client ID	MW14-16	MW14-12D	MW14-15	P96-06	S1B
Grouping	Analyte						
<b>WATER</b>							
<b>Total Metals</b>	Tellurium (Te)-Total (mg/L)						
	Thallium (Tl)-Total (mg/L)						
	Thorium (Th)-Total (mg/L)						
	Tin (Sn)-Total (mg/L)						
	Titanium (Ti)-Total (mg/L)						
	Tungsten (W)-Total (mg/L)						
	Uranium (U)-Total (mg/L)						
	Vanadium (V)-Total (mg/L)						
	Zinc (Zn)-Total (mg/L)						
	Zirconium (Zr)-Total (mg/L)						
<b>Dissolved Metals</b>	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	0.0169	0.0157	0.0045	0.0011	0.0066	
	Antimony (Sb)-Dissolved (mg/L)	<0.00010	<0.00010	0.00011	<0.00010	0.00019	
	Arsenic (As)-Dissolved (mg/L)	0.00012	0.00018	0.00020	<0.00010	0.00025	
	Barium (Ba)-Dissolved (mg/L)	0.0613	0.264	0.0206	0.0148	0.0417	
	Beryllium (Be)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
	Bismuth (Bi)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
	Boron (B)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010	
	Cadmium (Cd)-Dissolved (mg/L)	0.00105	0.000369	0.000662	0.000211	0.000132	
	Calcium (Ca)-Dissolved (mg/L)	161	96.3	68.6	213	118	
	Cesium (Cs)-Dissolved (mg/L)	<0.000010	0.000015	<0.000010	0.000246	<0.000010	
	Chromium (Cr)-Dissolved (mg/L)	0.00013	<0.00010	0.00017	<0.00010	0.0153	
	Cobalt (Co)-Dissolved (mg/L)	0.00017	<0.00010	0.00017	<0.00010	0.00011	
	Copper (Cu)-Dissolved (mg/L)	0.00138	0.00089	0.00144	0.00022	0.00333	
	Iron (Fe)-Dissolved (mg/L)	<0.010	0.012	<0.010	<0.010	0.020	
	Lead (Pb)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	0.000068	
	Lithium (Li)-Dissolved (mg/L)	0.0177	0.0094	0.0218	0.0301	0.0120	
	Magnesium (Mg)-Dissolved (mg/L)	37.3	19.8	63.1	70.0	28.4	
	Manganese (Mn)-Dissolved (mg/L)	0.0123	0.0191	0.124	0.00307	0.00707	
	Molybdenum (Mo)-Dissolved (mg/L)	<0.000050	0.000054	0.000330	0.000053	0.000619	
	Nickel (Ni)-Dissolved (mg/L)	0.0432	0.0155	0.0303	0.00828	0.00490	
	Phosphorus (P)-Dissolved (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050	
	Potassium (K)-Dissolved (mg/L)	3.14	2.00	1.55	3.61	2.65	
	Rubidium (Rb)-Dissolved (mg/L)	0.00133	0.00323	0.00028	0.00152	0.00127	
	Selenium (Se)-Dissolved (mg/L)	0.000366	0.000548	0.000172	0.00533	0.000193	
	Silicon (Si)-Dissolved (mg/L)	8.53	9.01	7.31	8.98	6.31	
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	

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

# ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID	L1627328-41 Water 15-JUN-15 08:30 MW14-14	L1627328-42 Water 15-JUN-15 09:05 P03-06-02	L1627328-43 Water 12-JUN-15 11:15 DUP-3	L1627328-44 Water 13-JUN-15 14:36 DUP-4	L1627328-45 Water 13-JUN-15 14:36 FB-2
Grouping	Analyte				
<b>WATER</b>					
<b>Total Metals</b>	Tellurium (Te)-Total (mg/L)				
	Thallium (Tl)-Total (mg/L)				
	Thorium (Th)-Total (mg/L)				
	Tin (Sn)-Total (mg/L)				
	Titanium (Ti)-Total (mg/L)				
	Tungsten (W)-Total (mg/L)				
	Uranium (U)-Total (mg/L)				
	Vanadium (V)-Total (mg/L)				
	Zinc (Zn)-Total (mg/L)				
	Zirconium (Zr)-Total (mg/L)				
<b>Dissolved Metals</b>	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD <sup>DLA</sup>	FIELD
	Aluminum (Al)-Dissolved (mg/L)	0.0179	2.53	<0.0020	0.0239
	Antimony (Sb)-Dissolved (mg/L)	<0.00020 <sup>DLA</sup>	<0.0020 <sup>DLA</sup>	<0.00020 <sup>DLA</sup>	<0.00020 <sup>DLA</sup>
	Arsenic (As)-Dissolved (mg/L)	0.00023	<0.0020 <sup>DLA</sup>	0.00021	0.00031
	Barium (Ba)-Dissolved (mg/L)	0.0306	0.0132	0.0108	0.0106
	Beryllium (Be)-Dissolved (mg/L)	<0.00020 <sup>DLA</sup>	0.0033 <sup>DLA</sup>	<0.00020 <sup>DLA</sup>	0.00071 <sup>DLA</sup>
	Bismuth (Bi)-Dissolved (mg/L)	<0.00010 <sup>DLA</sup>	<0.0010 <sup>DLA</sup>	<0.00010 <sup>DLA</sup>	<0.00010 <sup>DLA</sup>
	Boron (B)-Dissolved (mg/L)	<0.020 <sup>DLA</sup>	<0.20 <sup>DLA</sup>	<0.020 <sup>DLA</sup>	<0.020 <sup>DLA</sup>
	Cadmium (Cd)-Dissolved (mg/L)	0.000976	0.0595	0.000026	0.00192
	Calcium (Ca)-Dissolved (mg/L)	141	501	442	161
	Cesium (Cs)-Dissolved (mg/L)	<0.000020 <sup>DLA</sup>	<0.00020 <sup>DLA</sup>	<0.000020 <sup>DLA</sup>	0.000362 <sup>DLA</sup>
	Chromium (Cr)-Dissolved (mg/L)	0.00080	<0.0020 <sup>DLA</sup>	0.00048 <sup>DLA</sup>	<0.00020 <sup>DLA</sup>
	Cobalt (Co)-Dissolved (mg/L)	0.0109	2.14	<0.00020 <sup>DLA</sup>	0.0387 <sup>DLA</sup>
	Copper (Cu)-Dissolved (mg/L)	0.00102	0.0098	0.00255 <sup>DLA</sup>	<0.00040 <sup>DLA</sup>
	Iron (Fe)-Dissolved (mg/L)	0.039	965	<0.020 <sup>DLA</sup>	18.0
	Lead (Pb)-Dissolved (mg/L)	<0.00010 <sup>DLA</sup>	0.0146	0.00011	0.00023
	Lithium (Li)-Dissolved (mg/L)	0.0072	0.152	0.0177	0.0681
	Magnesium (Mg)-Dissolved (mg/L)	120	153	208	84.7
	Manganese (Mn)-Dissolved (mg/L)	2.93	157	0.00230	3.91
	Molybdenum (Mo)-Dissolved (mg/L)	0.00094	<0.0010 <sup>DLA</sup>	0.00039	<0.00010 <sup>DLA</sup>
	Nickel (Ni)-Dissolved (mg/L)	0.0509	2.43	0.0014	0.0946
	Phosphorus (P)-Dissolved (mg/L)	<0.10 <sup>DLA</sup>	<1.0 <sup>DLA</sup>	<0.10 <sup>DLA</sup>	<0.10 <sup>DLA</sup>
	Potassium (K)-Dissolved (mg/L)	2.05	7.9	1.88	5.41
	Rubidium (Rb)-Dissolved (mg/L)	0.00091	<0.0040 <sup>DLA</sup>	0.00099	0.00904 <sup>DLA</sup>
	Selenium (Se)-Dissolved (mg/L)	<0.00010 <sup>DLA</sup>	<0.0010 <sup>DLA</sup>	0.00027	<0.00010 <sup>DLA</sup>
	Silicon (Si)-Dissolved (mg/L)	9.49	34.2	6.48	15.4
	Silver (Ag)-Dissolved (mg/L)	<0.000020 <sup>DLA</sup>	<0.00020 <sup>DLA</sup>	<0.000020 <sup>DLA</sup>	<0.000020 <sup>DLA</sup>

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

## ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1627328-46	L1627328-47	L1627328-48	L1627328-49	L1627328-50
		Description	Water	Water	Water	Water	Water
		Sampled Date	13-JUN-15	14-JUN-15	14-JUN-15	14-JUN-15	14-JUN-15
		Sampled Time	14:30	11:10	11:10	11:20	18:00
		Client ID	DUP-5	DUP-6	FB-3	DUP-7	FB-4
Grouping	Analyte						
<b>WATER</b>							
<b>Total Metals</b>	Tellurium (Te)-Total (mg/L)						
	Thallium (Tl)-Total (mg/L)						
	Thorium (Th)-Total (mg/L)						
	Tin (Sn)-Total (mg/L)						
	Titanium (Ti)-Total (mg/L)						
	Tungsten (W)-Total (mg/L)						
	Uranium (U)-Total (mg/L)						
	Vanadium (V)-Total (mg/L)						
	Zinc (Zn)-Total (mg/L)						
	Zirconium (Zr)-Total (mg/L)						
<b>Dissolved Metals</b>	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	<0.0010	0.0075	0.0020	0.0488	<0.0010	
	Antimony (Sb)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
	Arsenic (As)-Dissolved (mg/L)	0.128	0.00271	<0.00010	0.00018	<0.00010	
	Barium (Ba)-Dissolved (mg/L)	0.0474	0.194	<0.000050	0.0488	<0.000050	
	Beryllium (Be)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
	Bismuth (Bi)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
	Boron (B)-Dissolved (mg/L)	0.012	<0.010	<0.010	<0.010	<0.010	
	Cadmium (Cd)-Dissolved (mg/L)	0.0000268	<0.0000050	<0.0000050	0.00380	<0.0000050	
	Calcium (Ca)-Dissolved (mg/L)	178	77.8	<0.050	217	<0.050	
	Cesium (Cs)-Dissolved (mg/L)	0.000036	<0.000010	<0.000010	0.000014	<0.000010	
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	0.00023	<0.00010	0.00027	<0.00010	
	Cobalt (Co)-Dissolved (mg/L)	0.00131	0.00110	<0.00010	0.00025	<0.00010	
	Copper (Cu)-Dissolved (mg/L)	<0.00020	<0.00020	<0.00020	0.00265	<0.00020	
	Iron (Fe)-Dissolved (mg/L)	7.59	20.0	<0.010	0.022	<0.010	
	Lead (Pb)-Dissolved (mg/L)	0.00805	0.000052	<0.000050	<0.000050	<0.000050	
	Lithium (Li)-Dissolved (mg/L)	0.0083	0.0118	<0.0010	0.0287	<0.0010	
	Magnesium (Mg)-Dissolved (mg/L)	44.1	24.6	<0.0050	64.9	<0.0050	
	Manganese (Mn)-Dissolved (mg/L)	0.539	1.17	<0.00010	1.04	<0.00010	
	Molybdenum (Mo)-Dissolved (mg/L)	0.00220	0.000884	<0.000050	0.000082	<0.000050	
	Nickel (Ni)-Dissolved (mg/L)	0.00123	0.00169	<0.00050	0.146	<0.00050	
	Phosphorus (P)-Dissolved (mg/L)	0.077	0.261	<0.050	<0.050	<0.050	
	Potassium (K)-Dissolved (mg/L)	2.42	2.31	<0.050	4.45	<0.050	
	Rubidium (Rb)-Dissolved (mg/L)	0.00118	0.00105	<0.00020	0.00285	<0.00020	
	Selenium (Se)-Dissolved (mg/L)	<0.000050	0.000091	<0.000050	0.000235	<0.000050	
	Silicon (Si)-Dissolved (mg/L)	7.71	7.89	<0.050	10.5	<0.050	
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	0.000010	<0.000010	

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

# ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID	L1627328-51 Water 15-JUN-15 13:25 P09-SIS4	L1627328-52 Water 15-JUN-15 13:15 P09-SIS5	L1627328-53 Water 14-JUN-15 09:30 P09-LCD4	L1627328-54 Water 14-JUN-15 08:40 P2001-2A	L1627328-55 Water 14-JUN-15 08:50 P2001-2B
Grouping	Analyte				
<b>WATER</b>					
<b>Total Metals</b>	Tellurium (Te)-Total (mg/L)				
	Thallium (Tl)-Total (mg/L)				
	Thorium (Th)-Total (mg/L)				
	Tin (Sn)-Total (mg/L)				
	Titanium (Ti)-Total (mg/L)				
	Tungsten (W)-Total (mg/L)				
	Uranium (U)-Total (mg/L)				
	Vanadium (V)-Total (mg/L)				
	Zinc (Zn)-Total (mg/L)				
	Zirconium (Zr)-Total (mg/L)				
<b>Dissolved Metals</b>	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	<0.020 <sup>DLA</sup>	0.0094	0.0036	<0.0020 <sup>DLA</sup>
	Antimony (Sb)-Dissolved (mg/L)	<0.0020 <sup>DLA</sup>	<0.00050 <sup>DLA</sup>	0.00103	<0.00020 <sup>DLA</sup>
	Arsenic (As)-Dissolved (mg/L)	<0.0020 <sup>DLA</sup>	<0.00050 <sup>DLA</sup>	0.00562	0.00163
	Barium (Ba)-Dissolved (mg/L)	0.0151	0.0167	0.0781	0.0329
	Beryllium (Be)-Dissolved (mg/L)	<0.0020 <sup>DLA</sup>	<0.00050 <sup>DLA</sup>	<0.00010	<0.00020 <sup>DLA</sup>
	Bismuth (Bi)-Dissolved (mg/L)	<0.0010 <sup>DLA</sup>	<0.00025 <sup>DLA</sup>	<0.000050	<0.00010 <sup>DLA</sup>
	Boron (B)-Dissolved (mg/L)	<0.20 <sup>DLA</sup>	<0.050 <sup>DLA</sup>	0.011	<0.020 <sup>DLA</sup>
	Cadmium (Cd)-Dissolved (mg/L)	0.0211	0.00103	0.0000606	<0.000010 <sup>DLA</sup>
	Calcium (Ca)-Dissolved (mg/L)	578	544	96.3	613
	Cesium (Cs)-Dissolved (mg/L)	<0.00020 <sup>DLA</sup>	<0.000050 <sup>DLA</sup>	0.000015	<0.000020 <sup>DLA</sup>
	Chromium (Cr)-Dissolved (mg/L)	0.0028	0.00077	0.00014	<0.00020 <sup>DLA</sup>
	Cobalt (Co)-Dissolved (mg/L)	<0.0020 <sup>DLA</sup>	0.0345	0.00064	0.00046
	Copper (Cu)-Dissolved (mg/L)	0.0074	0.0010	0.00235	<0.00040 <sup>DLA</sup>
	Iron (Fe)-Dissolved (mg/L)	<0.20 <sup>DLA</sup>	5.86	0.016	3.97
	Lead (Pb)-Dissolved (mg/L)	<0.0010 <sup>DLA</sup>	<0.00025 <sup>DLA</sup>	0.00125	<0.00010 <sup>DLA</sup>
	Lithium (Li)-Dissolved (mg/L)	0.091	0.0411	0.0071	0.0368
	Magnesium (Mg)-Dissolved (mg/L)	1180	619	22.9	255
	Manganese (Mn)-Dissolved (mg/L)	1.60	43.6	0.438	0.206
	Molybdenum (Mo)-Dissolved (mg/L)	<0.0010 <sup>DLA</sup>	0.00072	0.00510	0.00040
	Nickel (Ni)-Dissolved (mg/L)	0.723	0.149	0.00544	0.0038
	Phosphorus (P)-Dissolved (mg/L)	<1.0 <sup>DLA</sup>	<0.25 <sup>DLA</sup>	<0.050	<0.10 <sup>DLA</sup>
	Potassium (K)-Dissolved (mg/L)	9.8	8.35	1.81	5.30
	Rubidium (Rb)-Dissolved (mg/L)	<0.0040 <sup>DLA</sup>	0.0012	0.00085	0.00126
	Selenium (Se)-Dissolved (mg/L)	<0.0010 <sup>DLA</sup>	<0.00025 <sup>DLA</sup>	0.000208	<0.00010 <sup>DLA</sup>
	Silicon (Si)-Dissolved (mg/L)	11.5	9.97	4.75	7.90
	Silver (Ag)-Dissolved (mg/L)	<0.00020 <sup>DLA</sup>	<0.000050 <sup>DLA</sup>	<0.000010	<0.000020 <sup>DLA</sup>

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



# ALS ENVIRONMENTAL ANALYTICAL REPORT

	<b>Sample ID</b> <b>Description</b> <b>Sampled Date</b> <b>Sampled Time</b> <b>Client ID</b>	L1627328-56 Water	TRAVEL BLANK 2		
Grouping	Analyte				
<b>WATER</b>					
<b>Total Metals</b>	Tellurium (Te)-Total (mg/L)	<0.00020			
	Thallium (Tl)-Total (mg/L)	<0.000010			
	Thorium (Th)-Total (mg/L)	<0.00010			
	Tin (Sn)-Total (mg/L)	<0.00010			
	Titanium (Ti)-Total (mg/L)	<0.00030			
	Tungsten (W)-Total (mg/L)	<0.00010			
	Uranium (U)-Total (mg/L)	<0.000010			
	Vanadium (V)-Total (mg/L)	<0.00050			
	Zinc (Zn)-Total (mg/L)	<0.0030			
	Zirconium (Zr)-Total (mg/L)	<0.00030			
<b>Dissolved Metals</b>	Dissolved Metals Filtration Location				
	Aluminum (Al)-Dissolved (mg/L)				
	Antimony (Sb)-Dissolved (mg/L)				
	Arsenic (As)-Dissolved (mg/L)				
	Barium (Ba)-Dissolved (mg/L)				
	Beryllium (Be)-Dissolved (mg/L)				
	Bismuth (Bi)-Dissolved (mg/L)				
	Boron (B)-Dissolved (mg/L)				
	Cadmium (Cd)-Dissolved (mg/L)				
	Calcium (Ca)-Dissolved (mg/L)				
	Cesium (Cs)-Dissolved (mg/L)				
	Chromium (Cr)-Dissolved (mg/L)				
	Cobalt (Co)-Dissolved (mg/L)				
	Copper (Cu)-Dissolved (mg/L)				
	Iron (Fe)-Dissolved (mg/L)				
	Lead (Pb)-Dissolved (mg/L)				
	Lithium (Li)-Dissolved (mg/L)				
	Magnesium (Mg)-Dissolved (mg/L)				
	Manganese (Mn)-Dissolved (mg/L)				
	Molybdenum (Mo)-Dissolved (mg/L)				
	Nickel (Ni)-Dissolved (mg/L)				
	Phosphorus (P)-Dissolved (mg/L)				
	Potassium (K)-Dissolved (mg/L)				
	Rubidium (Rb)-Dissolved (mg/L)				
	Selenium (Se)-Dissolved (mg/L)				
	Silicon (Si)-Dissolved (mg/L)				
	Silver (Ag)-Dissolved (mg/L)				

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

## ALS ENVIRONMENTAL ANALYTICAL REPORT

30-JUN-15 11:08 (MT)

Version: FINAL

		Sample ID	L1627328-1	L1627328-2	L1627328-3	L1627328-4	L1627328-5
		Description	Water	Water	Water	Water	Water
		Sampled Date	13-JUN-15	12-JUN-15	12-JUN-15	12-JUN-15	12-JUN-15
		Sampled Time	11:08	17:05	16:50	15:03	14:00
		Client ID	V37	P09-VC1	P09-VC2	SRK05-9	SRK05-5C
Grouping	Analyte						
<b>WATER</b>							
<b>Dissolved Metals</b>	Sodium (Na)-Dissolved (mg/L)		56.9	19.8	5.78	8.28	19.5
	Strontium (Sr)-Dissolved (mg/L)		0.669	0.552	0.814	0.573	1.13
	Sulfur (S)-Dissolved (mg/L)		100	20.7	12.9	262	88.4
	Tellurium (Te)-Dissolved (mg/L)		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	Thallium (Tl)-Dissolved (mg/L)		<0.000010	<0.000010	<0.000010	<0.000010	0.000011
	Thorium (Th)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Tin (Sn)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Titanium (Ti)-Dissolved (mg/L)		<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
	Tungsten (W)-Dissolved (mg/L)		0.00054	0.00057	<0.00010	<0.00010	<0.00010
	Uranium (U)-Dissolved (mg/L)		0.00222	0.00530	0.00349	0.0206	0.00282
	Vanadium (V)-Dissolved (mg/L)		0.00084	<0.00050	<0.00050	<0.00050	<0.00050
	Zinc (Zn)-Dissolved (mg/L)		0.0028	0.0016	0.0772	0.0034	<0.0010
	Zirconium (Zr)-Dissolved (mg/L)		<0.00030	<0.00030	<0.00030	<0.00030	<0.00030

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

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	Description	Sampled Date	Sampled Time	Client ID	L1627328-6	L1627328-7	L1627328-8	L1627328-9	L1627328-10
					Water	Water	Water	Water	Water
					12-JUN-15	12-JUN-15	12-JUN-15	12-JUN-15	13-JUN-15
					12:30	11:15	12:30	09:40	09:56
					P96-9A	SRK05-8	BH05-9B-R	SRK05-07	P09-GSIA
Grouping	Analyte								
<b>WATER</b>									
<b>Dissolved Metals</b>	Sodium (Na)-Dissolved (mg/L)				11.6	11.0	50.0	12.8	19.2
	Strontium (Sr)-Dissolved (mg/L)				1.06	1.43	1.14	1.40	0.794
	Sulfur (S)-Dissolved (mg/L)				560	491	60.4	677	257
	Tellurium (Te)-Dissolved (mg/L)				<0.00040 <sup>DLA</sup>	<0.00040 <sup>DLA</sup>	<0.00020	<0.00040 <sup>DLA</sup>	<0.00020
	Thallium (Tl)-Dissolved (mg/L)				<0.000020 <sup>DLA</sup>	<0.000020 <sup>DLA</sup>	<0.000010	<0.000020 <sup>DLA</sup>	0.00382
	Thorium (Th)-Dissolved (mg/L)				<0.00020 <sup>DLA</sup>	<0.00020 <sup>DLA</sup>	<0.00010	<0.00020 <sup>DLA</sup>	<0.00010
	Tin (Sn)-Dissolved (mg/L)				<0.00020 <sup>DLA</sup>	<0.00020 <sup>DLA</sup>	<0.00010	<0.00020 <sup>DLA</sup>	<0.00010
	Titanium (Ti)-Dissolved (mg/L)				<0.00060 <sup>DLA</sup>	<0.00060 <sup>DLA</sup>	<0.00030	<0.00060 <sup>DLA</sup>	<0.00030
	Tungsten (W)-Dissolved (mg/L)				<0.00020 <sup>DLA</sup>	<0.00020 <sup>DLA</sup>	<0.00010	<0.00020 <sup>DLA</sup>	<0.00010
	Uranium (U)-Dissolved (mg/L)				0.0374	0.0275	0.000773	0.0310	0.0325
	Vanadium (V)-Dissolved (mg/L)				<0.0010 <sup>DLA</sup>	<0.0010 <sup>DLA</sup>	<0.00050	<0.0010 <sup>DLA</sup>	<0.00050
	Zinc (Zn)-Dissolved (mg/L)				0.119	<0.0020 <sup>DLA</sup>	0.0072	0.0087	4.23
	Zirconium (Zr)-Dissolved (mg/L)				<0.00060 <sup>DLA</sup>	<0.00060 <sup>DLA</sup>	<0.00030	<0.00060 <sup>DLA</sup>	<0.00030

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

## ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1627328-11	L1627328-12	L1627328-13	L1627328-14	L1627328-15
		Description	Water	Water	Water	Water	Water
		Sampled Date	13-JUN-15	13-JUN-15	13-JUN-15	13-JUN-15	13-JUN-15
		Sampled Time	10:10	16:15	15:47	15:25	14:36
		Client ID	P09-GSIB	S1A	SRK08-SP-7A	SRK05-SP-5	SRK05-SP-4A
Grouping	Analyte						
<b>WATER</b>							
<b>Dissolved Metals</b>	Sodium (Na)-Dissolved (mg/L)		18.4	11.8	7.43	54.2	10.8
	Strontium (Sr)-Dissolved (mg/L)		1.73	0.678	0.369	2.07	0.585
	Sulfur (S)-Dissolved (mg/L)		265	299	104	3480	174
	Tellurium (Te)-Dissolved (mg/L)		<0.00020	<0.00040 <sup>DLA</sup>	<0.00020	<0.020 <sup>DLA</sup>	<0.00040 <sup>DLA</sup>
	Thallium (Tl)-Dissolved (mg/L)		0.000046	<0.000020 <sup>DLA</sup>	<0.000010	<0.0010 <sup>DLA</sup>	<0.000020 <sup>DLA</sup>
	Thorium (Th)-Dissolved (mg/L)		<0.00010	<0.00020 <sup>DLA</sup>	<0.00010	<0.010 <sup>DLA</sup>	<0.00020 <sup>DLA</sup>
	Tin (Sn)-Dissolved (mg/L)		<0.00010	<0.00020 <sup>DLA</sup>	<0.00010	<0.010 <sup>DLA</sup>	<0.00020 <sup>DLA</sup>
	Titanium (Ti)-Dissolved (mg/L)		<0.00030	<0.00060 <sup>DLA</sup>	<0.00030	<0.030 <sup>DLA</sup>	<0.00060 <sup>DLA</sup>
	Tungsten (W)-Dissolved (mg/L)		0.00046	<0.00020 <sup>DLA</sup>	<0.00010	<0.010 <sup>DLA</sup>	<0.00020 <sup>DLA</sup>
	Uranium (U)-Dissolved (mg/L)		0.00350	0.00244	0.000219	0.0031	0.00160
	Vanadium (V)-Dissolved (mg/L)		<0.00050	<0.0010 <sup>DLA</sup>	<0.00050	<0.050 <sup>DLA</sup>	<0.0010 <sup>DLA</sup>
	Zinc (Zn)-Dissolved (mg/L)		0.379	20.8	0.354	722	12.7
	Zirconium (Zr)-Dissolved (mg/L)		<0.00030	<0.00060 <sup>DLA</sup>	<0.00030	<0.030 <sup>DLA</sup>	<0.00060 <sup>DLA</sup>

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

# ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1627328-16 Water 13-JUN-15 14:30 P09-LCD6	L1627328-17 Water 13-JUN-15 10:15 P2001-3	L1627328-18 Water 13-JUN-15 10:10 V36	L1627328-19 Water 13-JUN-15 15:30 P09-LCD1	L1627328-20 Water 13-JUN-15 16:10 V34
Grouping	Analyte					
<b>WATER</b>						
<b>Dissolved Metals</b>	Sodium (Na)-Dissolved (mg/L)	6.97	32.7	9.44	16.7	8.25
	Strontium (Sr)-Dissolved (mg/L)	0.862	0.632	1.86	0.891	1.69
	Sulfur (S)-Dissolved (mg/L)	121	41.6	609	102	220
	Tellurium (Te)-Dissolved (mg/L)	<0.00020	<0.00020	<0.00040 <sup>DLA</sup>	<0.00020	<0.00020
	Thallium (Tl)-Dissolved (mg/L)	<0.000010	0.000011	0.000073	0.000011	<0.000010
	Thorium (Th)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00020 <sup>DLA</sup>	<0.00010	<0.00010
	Tin (Sn)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00020 <sup>DLA</sup>	<0.00010	<0.00010
	Titanium (Ti)-Dissolved (mg/L)	<0.00030	<0.00030	<0.00060 <sup>DLA</sup>	<0.00030	0.00033
	Tungsten (W)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00020 <sup>DLA</sup>	<0.00010	<0.00010
	Uranium (U)-Dissolved (mg/L)	0.00372	0.0122	0.0642	0.00780	0.0220
	Vanadium (V)-Dissolved (mg/L)	<0.00050	<0.00050	<0.0010 <sup>DLA</sup>	<0.00050	<0.00050
	Zinc (Zn)-Dissolved (mg/L)	0.0024	0.0052	0.119	0.0066	0.0012
	Zirconium (Zr)-Dissolved (mg/L)	<0.00030	0.00051	<0.00060 <sup>DLA</sup>	<0.00030	0.00184

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

## ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1627328-21	L1627328-22	L1627328-23	L1627328-24	L1627328-25
		Description	Water	Water	Water	Water	Water
		Sampled Date	13-JUN-15	14-JUN-15	14-JUN-15	14-JUN-15	14-JUN-15
		Sampled Time	17:35	17:15	16:40	16:00	14:10
		Client ID	V35	P09-SIS1	S2B	S2A	SRK08-SP7B
Grouping	Analyte						
<b>WATER</b>							
<b>Dissolved Metals</b>	Sodium (Na)-Dissolved (mg/L)		11.0	58.5	44.7	12.4	2.62
	Strontium (Sr)-Dissolved (mg/L)		1.55	2.26	2.00	0.814	0.109
	Sulfur (S)-Dissolved (mg/L)		890	3450	2930	304	17.1
	Tellurium (Te)-Dissolved (mg/L)		<0.00040 <sup>DLA</sup>	<0.020 <sup>DLA</sup>	<0.020 <sup>DLA</sup>	<0.00020	<0.00020
	Thallium (Tl)-Dissolved (mg/L)		0.000026 <sup>DLA</sup>	<0.0010 <sup>DLA</sup>	<0.0010 <sup>DLA</sup>	<0.000010	<0.000010
	Thorium (Th)-Dissolved (mg/L)		<0.00020 <sup>DLA</sup>	<0.010 <sup>DLA</sup>	<0.010 <sup>DLA</sup>	<0.00010	<0.00010
	Tin (Sn)-Dissolved (mg/L)		<0.00020 <sup>DLA</sup>	<0.010 <sup>DLA</sup>	<0.010 <sup>DLA</sup>	<0.00010	<0.00010
	Titanium (Ti)-Dissolved (mg/L)		<0.00060 <sup>DLA</sup>	<0.030 <sup>DLA</sup>	<0.030 <sup>DLA</sup>	<0.00030	<0.00030
	Tungsten (W)-Dissolved (mg/L)		<0.00020 <sup>DLA</sup>	<0.010 <sup>DLA</sup>	<0.010 <sup>DLA</sup>	<0.00010	<0.00010
	Uranium (U)-Dissolved (mg/L)		0.129	0.0065	0.0016	0.00255	0.000146
	Vanadium (V)-Dissolved (mg/L)		<0.0010 <sup>DLA</sup>	<0.050 <sup>DLA</sup>	<0.050 <sup>DLA</sup>	<0.00050	<0.00050
	Zinc (Zn)-Dissolved (mg/L)		0.0063	573	570	6.99	1.75
	Zirconium (Zr)-Dissolved (mg/L)		0.00106	<0.030 <sup>DLA</sup>	<0.030 <sup>DLA</sup>	<0.00030	<0.00030

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

# ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1627328-26 Water 14-JUN-15 13:10 MW14-08	L1627328-27 Water 14-JUN-15 12:30 MW14-10	L1627328-28 Water 14-JUN-15 11:10 MW14-11	L1627328-29 Water 14-JUN-15 10:00 SRK08-SP-8A	L1627328-30 Water 14-JUN-15 10:15 SRK08-SP-8B
Grouping	Analyte					
<b>WATER</b>						
<b>Dissolved Metals</b>	Sodium (Na)-Dissolved (mg/L)	32.6	80.4	8.48	11.1	19.4
	Strontium (Sr)-Dissolved (mg/L)	0.398	0.469	0.411	0.729	1.18
	Sulfur (S)-Dissolved (mg/L)	5.07	88.2	29.2	206	465
	Tellurium (Te)-Dissolved (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00040 <sup>DLA</sup>
	Thallium (Tl)-Dissolved (mg/L)	<0.000010	0.000012	<0.000010	<0.000010	<0.000020 <sup>DLA</sup>
	Thorium (Th)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020 <sup>DLA</sup>
	Tin (Sn)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020 <sup>DLA</sup>
	Titanium (Ti)-Dissolved (mg/L)	0.00089	<0.00030	0.00031	<0.00030	<0.00060 <sup>DLA</sup>
	Tungsten (W)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00020 <sup>DLA</sup>
	Uranium (U)-Dissolved (mg/L)	0.00455	0.0104	0.000528	0.000704	0.00291 <sup>DLA</sup>
	Vanadium (V)-Dissolved (mg/L)	0.00058	<0.00050	<0.00050	<0.00050	<0.0010 <sup>DLA</sup>
	Zinc (Zn)-Dissolved (mg/L)	0.0030	0.0044	0.0056	0.176	0.518 <sup>DLA</sup>
	Zirconium (Zr)-Dissolved (mg/L)	0.00034	<0.00030	<0.00030	0.00043	<0.00060 <sup>DLA</sup>

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

## ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1627328-31	L1627328-32	L1627328-33	L1627328-34	L1627328-35
		Description	Water	Water	Water	Water	Water
		Sampled Date	14-JUN-15	14-JUN-15	14-JUN-15	14-JUN-15	14-JUN-15
		Sampled Time	09:10	18:00	17:50	17:10	11:20
		Client ID	P96-7	P09-SIS2	SRK05-SP-4B	P09-SIS3	MW14-13
Grouping	Analyte						
<b>WATER</b>							
<b>Dissolved Metals</b>	Sodium (Na)-Dissolved (mg/L)		13.8	69.8	39.7	52.7	11.0
	Strontium (Sr)-Dissolved (mg/L)		0.567	2.02	2.24	2.12	0.801
	Sulfur (S)-Dissolved (mg/L)		720	3790	2780	3880	182
	Tellurium (Te)-Dissolved (mg/L)		<0.00040 <sup>DLA</sup>	<0.020 <sup>DLA</sup>	<0.010 <sup>DLA</sup>	<0.020 <sup>DLA</sup>	<0.00020
	Thallium (Tl)-Dissolved (mg/L)		<0.000020 <sup>DLA</sup>	<0.0010 <sup>DLA</sup>	<0.00050 <sup>DLA</sup>	<0.0010 <sup>DLA</sup>	0.000011
	Thorium (Th)-Dissolved (mg/L)		<0.00020 <sup>DLA</sup>	<0.010 <sup>DLA</sup>	<0.0050 <sup>DLA</sup>	<0.010 <sup>DLA</sup>	<0.00010
	Tin (Sn)-Dissolved (mg/L)		<0.00020 <sup>DLA</sup>	<0.010 <sup>DLA</sup>	<0.0050 <sup>DLA</sup>	<0.010 <sup>DLA</sup>	<0.00010
	Titanium (Ti)-Dissolved (mg/L)		<0.00060 <sup>DLA</sup>	<0.030 <sup>DLA</sup>	<0.015 <sup>DLA</sup>	<0.030 <sup>DLA</sup>	<0.00030
	Tungsten (W)-Dissolved (mg/L)		<0.00020 <sup>DLA</sup>	<0.010 <sup>DLA</sup>	<0.0050 <sup>DLA</sup>	<0.010 <sup>DLA</sup>	<0.00010
	Uranium (U)-Dissolved (mg/L)		0.0236	0.0012	0.00320	0.0033	0.00539
	Vanadium (V)-Dissolved (mg/L)		<0.0010 <sup>DLA</sup>	<0.050 <sup>DLA</sup>	<0.025 <sup>DLA</sup>	<0.050 <sup>DLA</sup>	<0.00050
	Zinc (Zn)-Dissolved (mg/L)		<0.0020 <sup>DLA</sup>	742	467	865	9.98
	Zirconium (Zr)-Dissolved (mg/L)		<0.00060 <sup>DLA</sup>	<0.030 <sup>DLA</sup>	<0.015 <sup>DLA</sup>	<0.030 <sup>DLA</sup>	<0.00030

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



## ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1627328-36	L1627328-37	L1627328-38	L1627328-39	L1627328-40
		Description	Water	Water	Water	Water	Water
		Sampled Date	14-JUN-15	14-JUN-15	14-JUN-15	14-JUN-15	15-JUN-15
		Sampled Time	12:10	13:05	14:05	14:45	09:30
		Client ID	MW14-16	MW14-12D	MW14-15	P96-06	S1B
Grouping	Analyte						
<b>WATER</b>							
<b>Dissolved Metals</b>	Sodium (Na)-Dissolved (mg/L)		5.29	5.01	24.8	4.55	26.5
	Strontium (Sr)-Dissolved (mg/L)		0.513	0.392	0.328	0.506	0.335
	Sulfur (S)-Dissolved (mg/L)		129	51.5	141	181	58.6
	Tellurium (Te)-Dissolved (mg/L)		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	Thallium (Tl)-Dissolved (mg/L)		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Thorium (Th)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Tin (Sn)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Titanium (Ti)-Dissolved (mg/L)		<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
	Tungsten (W)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	0.00012
	Uranium (U)-Dissolved (mg/L)		0.00223	0.00139	0.000483	0.0287	0.00268
	Vanadium (V)-Dissolved (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Zinc (Zn)-Dissolved (mg/L)		2.29	0.983	4.02	0.264	0.0175
	Zirconium (Zr)-Dissolved (mg/L)		<0.00030	<0.00030	<0.00030	<0.00030	<0.00030

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

# ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1627328-41 Water 15-JUN-15 08:30 MW14-14	L1627328-42 Water 15-JUN-15 09:05 P03-06-02	L1627328-43 Water 12-JUN-15 11:15 DUP-3	L1627328-44 Water 13-JUN-15 14:36 DUP-4	L1627328-45 Water 13-JUN-15 14:36 FB-2
Grouping	Analyte					
<b>WATER</b>						
<b>Dissolved Metals</b>	Sodium (Na)-Dissolved (mg/L)	6.17	23.3	10.2	10.9	<0.050
	Strontium (Sr)-Dissolved (mg/L)	0.541	1.88	1.39	0.589	<0.00020
	Sulfur (S)-Dissolved (mg/L)	284	1360	469	175	<0.50
	Tellurium (Te)-Dissolved (mg/L)	<0.00040 <sup>DLA</sup>	<0.0040 <sup>DLA</sup>	<0.00040 <sup>DLA</sup>	<0.00040 <sup>DLA</sup>	<0.00020
	Thallium (Tl)-Dissolved (mg/L)	<0.000020 <sup>DLA</sup>	<0.00020 <sup>DLA</sup>	<0.000020 <sup>DLA</sup>	<0.000020 <sup>DLA</sup>	<0.000010
	Thorium (Th)-Dissolved (mg/L)	<0.00020 <sup>DLA</sup>	<0.0020 <sup>DLA</sup>	<0.00020 <sup>DLA</sup>	<0.00020 <sup>DLA</sup>	<0.00010
	Tin (Sn)-Dissolved (mg/L)	<0.00020 <sup>DLA</sup>	<0.0020 <sup>DLA</sup>	<0.00020 <sup>DLA</sup>	<0.00020 <sup>DLA</sup>	<0.00010
	Titanium (Ti)-Dissolved (mg/L)	<0.00060 <sup>DLA</sup>	<0.0060 <sup>DLA</sup>	<0.00060 <sup>DLA</sup>	<0.00060 <sup>DLA</sup>	<0.00030
	Tungsten (W)-Dissolved (mg/L)	<0.00020 <sup>DLA</sup>	<0.0020 <sup>DLA</sup>	<0.00020 <sup>DLA</sup>	<0.00020 <sup>DLA</sup>	<0.00010
	Uranium (U)-Dissolved (mg/L)	0.000227	0.00170	0.0268	0.00163	<0.000010
	Vanadium (V)-Dissolved (mg/L)	<0.0010 <sup>DLA</sup>	<0.010 <sup>DLA</sup>	<0.0010 <sup>DLA</sup>	<0.0010 <sup>DLA</sup>	<0.00050
	Zinc (Zn)-Dissolved (mg/L)	14.6	35.7	0.0149	12.5	<0.0010
	Zirconium (Zr)-Dissolved (mg/L)	<0.00060 <sup>DLA</sup>	<0.0060 <sup>DLA</sup>	<0.00060 <sup>DLA</sup>	<0.00060 <sup>DLA</sup>	<0.00030

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

## ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1627328-46	L1627328-47	L1627328-48	L1627328-49	L1627328-50
		Description	Water	Water	Water	Water	Water
		Sampled Date	13-JUN-15	14-JUN-15	14-JUN-15	14-JUN-15	14-JUN-15
		Sampled Time	14:30	11:10	11:10	11:20	18:00
		Client ID	DUP-5	DUP-6	FB-3	DUP-7	FB-4
Grouping	Analyte						
<b>WATER</b>							
<b>Dissolved Metals</b>	Sodium (Na)-Dissolved (mg/L)		6.84	8.41	<0.050	10.9	<0.050
	Strontium (Sr)-Dissolved (mg/L)		0.833	0.404	<0.00020	0.791	<0.00020
	Sulfur (S)-Dissolved (mg/L)		115	27.6	<0.50	176	<0.50
	Tellurium (Te)-Dissolved (mg/L)		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	Thallium (Tl)-Dissolved (mg/L)		0.000015	<0.000010	<0.000010	0.000012	<0.000010
	Thorium (Th)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Tin (Sn)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Titanium (Ti)-Dissolved (mg/L)		<0.00030	0.00030	<0.00030	<0.00030	<0.00030
	Tungsten (W)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Uranium (U)-Dissolved (mg/L)		0.00346	0.000513	<0.000010	0.00573	<0.000010
	Vanadium (V)-Dissolved (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Zinc (Zn)-Dissolved (mg/L)		0.0024	0.0027	<0.0010	10.6	<0.0010
	Zirconium (Zr)-Dissolved (mg/L)		<0.00030	<0.00030	0.00031	<0.00030	<0.00030

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

## ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1627328-51	L1627328-52	L1627328-53	L1627328-54	L1627328-55
		Description	Water	Water	Water	Water	Water
		Sampled Date	15-JUN-15	15-JUN-15	14-JUN-15	14-JUN-15	14-JUN-15
		Sampled Time	13:25	13:15	09:30	08:40	08:50
		Client ID	P09-SIS4	P09-SIS5	P09-LCD4	P2001-2A	P2001-2B
Grouping	Analyte						
<b>WATER</b>							
<b>Dissolved Metals</b>	Sodium (Na)-Dissolved (mg/L)		35.1	62.9	68.9	9.07	12.0
	Strontium (Sr)-Dissolved (mg/L)		2.46	2.04	0.450	2.46	2.48
	Sulfur (S)-Dissolved (mg/L)		2280	1360	41.7	628	608
	Tellurium (Te)-Dissolved (mg/L)		<0.0040 <sup>DLA</sup>	<0.0010 <sup>DLA</sup>	<0.00020	<0.00040 <sup>DLA</sup>	<0.00040 <sup>DLA</sup>
	Thallium (Tl)-Dissolved (mg/L)		<0.00020 <sup>DLA</sup>	<0.000050 <sup>DLA</sup>	0.000013	<0.000020 <sup>DLA</sup>	<0.000020 <sup>DLA</sup>
	Thorium (Th)-Dissolved (mg/L)		<0.0020 <sup>DLA</sup>	<0.00050 <sup>DLA</sup>	<0.00010	<0.00020 <sup>DLA</sup>	<0.00020 <sup>DLA</sup>
	Tin (Sn)-Dissolved (mg/L)		<0.0020 <sup>DLA</sup>	<0.00050 <sup>DLA</sup>	0.00023	<0.00020 <sup>DLA</sup>	<0.00020 <sup>DLA</sup>
	Titanium (Ti)-Dissolved (mg/L)		<0.0060 <sup>DLA</sup>	<0.0015 <sup>DLA</sup>	<0.00030	<0.00060 <sup>DLA</sup>	<0.00060 <sup>DLA</sup>
	Tungsten (W)-Dissolved (mg/L)		<0.0020 <sup>DLA</sup>	<0.00050 <sup>DLA</sup>	<0.00010	<0.00020 <sup>DLA</sup>	<0.00020 <sup>DLA</sup>
	Uranium (U)-Dissolved (mg/L)		0.0104	0.0193	0.00374	0.0792	0.0848
	Vanadium (V)-Dissolved (mg/L)		<0.010 <sup>DLA</sup>	<0.0025 <sup>DLA</sup>	<0.00050	<0.0010 <sup>DLA</sup>	<0.0010 <sup>DLA</sup>
	Zinc (Zn)-Dissolved (mg/L)		118	10.6	0.0049	<0.0020 <sup>DLA</sup>	0.0091 <sup>DLA</sup>
	Zirconium (Zr)-Dissolved (mg/L)		<0.0060 <sup>DLA</sup>	<0.0015 <sup>DLA</sup>	0.00044	0.00117	<0.00060 <sup>DLA</sup>

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

# ALS ENVIRONMENTAL ANALYTICAL REPORT

	<b>Sample ID</b> <b>Description</b> <b>Sampled Date</b> <b>Sampled Time</b> <b>Client ID</b>				
	L1627328-56 Water  TRAVEL BLANK 2				
Grouping	Analyte				
<b>WATER</b>					
<b>Dissolved Metals</b>	Sodium (Na)-Dissolved (mg/L) Strontium (Sr)-Dissolved (mg/L) Sulfur (S)-Dissolved (mg/L) Tellurium (Te)-Dissolved (mg/L) Thallium (Tl)-Dissolved (mg/L) Thorium (Th)-Dissolved (mg/L) Tin (Sn)-Dissolved (mg/L) Titanium (Ti)-Dissolved (mg/L) Tungsten (W)-Dissolved (mg/L) Uranium (U)-Dissolved (mg/L) Vanadium (V)-Dissolved (mg/L) Zinc (Zn)-Dissolved (mg/L) Zirconium (Zr)-Dissolved (mg/L)				

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

## Reference Information

## QC Samples with Qualifiers &amp; Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Method Blank	Conductivity	B	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Duplicate	Aluminum (Al)-Dissolved	DLA	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Duplicate	Antimony (Sb)-Dissolved	DLA	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Duplicate	Beryllium (Be)-Dissolved	DLA	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Duplicate	Bismuth (Bi)-Dissolved	DLA	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Duplicate	Cesium (Cs)-Dissolved	DLA	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Duplicate	Chromium (Cr)-Dissolved	DLA	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Duplicate	Iron (Fe)-Dissolved	DLA	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Duplicate	Lead (Pb)-Dissolved	DLA	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Duplicate	Phosphorus (P)-Dissolved	DLA	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Duplicate	Silver (Ag)-Dissolved	DLA	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Duplicate	Tellurium (Te)-Dissolved	DLA	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Duplicate	Thorium (Th)-Dissolved	DLA	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Duplicate	Tin (Sn)-Dissolved	DLA	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -29, -3, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -4, -40, -41, -42, -

## Reference Information

	Parameter	Qualifier	Applies to Sample Number(s)
			43, -44, -45, -46, -47, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Duplicate	Titanium (Ti)-Dissolved	DLA	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Duplicate	Tungsten (W)-Dissolved	DLA	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Duplicate	Zinc (Zn)-Dissolved	DLA	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Duplicate	Zirconium (Zr)-Dissolved	DLA	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Duplicate	Antimony (Sb)-Dissolved	DLA	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Duplicate	Beryllium (Be)-Dissolved	DLA	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Duplicate	Bismuth (Bi)-Dissolved	DLA	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Duplicate	Cesium (Cs)-Dissolved	DLA	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Duplicate	Cobalt (Co)-Dissolved	DLA	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Duplicate	Iron (Fe)-Dissolved	DLA	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Duplicate	Lead (Pb)-Dissolved	DLA	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Duplicate	Phosphorus (P)-Dissolved	DLA	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Duplicate	Rubidium (Rb)-Dissolved	DLA	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Duplicate	Silver (Ag)-Dissolved	DLA	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19,

## Reference Information

	Parameter	Qualifier	Applies to Sample Number(s)
			-2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Duplicate	Tellurium (Te)-Dissolved	DLA	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Duplicate	Thallium (Tl)-Dissolved	DLA	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Duplicate	Thorium (Th)-Dissolved	DLA	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Duplicate	Tin (Sn)-Dissolved	DLA	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Duplicate	Titanium (Ti)-Dissolved	DLA	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Duplicate	Tungsten (W)-Dissolved	DLA	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Duplicate	Zirconium (Zr)-Dissolved	DLA	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Duplicate	Manganese (Mn)-Dissolved	DLA	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Duplicate	Zinc (Zn)-Dissolved	DLA	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -



## Reference Information

	Parameter	Qualifier	Applies to Sample Number(s)
			55, -6, -7, -8, -9
Matrix Spike	Sulfate (SO4)	MS-B	L1627328-15, -16, -19, -46, -47
Matrix Spike	Aluminum (Al)-Dissolved	MS-B	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Matrix Spike	Cadmium (Cd)-Dissolved	MS-B	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Matrix Spike	Cesium (Cs)-Dissolved	MS-B	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Matrix Spike	Cobalt (Co)-Dissolved	MS-B	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Matrix Spike	Copper (Cu)-Dissolved	MS-B	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Matrix Spike	Iron (Fe)-Dissolved	MS-B	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Matrix Spike	Nickel (Ni)-Dissolved	MS-B	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Matrix Spike	Potassium (K)-Dissolved	MS-B	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Matrix Spike	Silicon (Si)-Dissolved	MS-B	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19,

## Reference Information

Parameter	Qualifier	Applies to Sample Number(s)
		-2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Matrix Spike	Sulfur (S)-Dissolved	MS-B L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Matrix Spike	Zinc (Zn)-Dissolved	MS-B L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Matrix Spike	Sulfate (SO4)	MS-B L1627328-1, -10, -11, -12, -13, -14, -17, -18, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -56, -6, -7, -8, -9
Matrix Spike	Barium (Ba)-Dissolved	MS-B L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Matrix Spike	Boron (B)-Dissolved	MS-B L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Matrix Spike	Calcium (Ca)-Dissolved	MS-B L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Matrix Spike	Manganese (Mn)-Dissolved	MS-B L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Matrix Spike	Molybdenum (Mo)-Dissolved	MS-B L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Matrix Spike	Potassium (K)-Dissolved	MS-B L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Matrix Spike	Silicon (Si)-Dissolved	MS-B L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Matrix Spike	Sodium (Na)-Dissolved	MS-B L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B L1627328-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -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, -48, -49, -5, -50, -51, -52, -53, -54, -55, -6, -7, -8, -9







## Reference Information

Parameter	Qualifier	Applies to Sample Number(s)
		55, -6, -7, -8, -9

**Qualifiers for Individual Parameters Listed:**

Qualifier	Description
B	Method Blank exceeds ALS DQO. All associated sample results are at least 5 times greater than blank levels and are considered reliable.
DLA	Detection Limit adjusted for required dilution
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

**Test Method References:**

ALS Test Code	Matrix	Test Description	Method Reference**
<b>ACY-PCT-VA</b>	Water	Acidity by Automatic Titration	APHA 2310 "Acidity"
<p>This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.</p> <p>Samples of industrial wastes, acid mine drainage, or other solutions that contain appreciable amounts of hydrolyzable metal ions such as aluminum, iron, and manganese may require hot peroxide treatment to ensure oxidation and hydrolysis of reduced forms of polyvalent cations. Acidity results may be highly variable if this procedure is not followed. Results in this report for 'Acidity (as CaCO3)' have not been peroxide treated.</p>			
<b>ACY-PCT-VA</b>	Water	Acidity by Automatic Titration	APHA 2310 Acidity
<p>This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.</p> <p>Samples of industrial wastes, acid mine drainage, or other solutions that contain appreciable amounts of hydrolyzable metal ions such as aluminum, iron, and manganese may require hot peroxide treatment to ensure oxidation and hydrolysis of reduced forms of polyvalent cations. Acidity results may be highly variable if this procedure is not followed. Results in this report for 'Acidity (as CaCO3)' have not been peroxide treated.</p>			
<b>ALK-TITR-VA</b>	Water	Alkalinity Species by Titration	APHA 2320 Alkalinity
<p>This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.</p>			
<b>CL-IC-N-WR</b>	Water	Chloride in Water by IC	EPA 300.1 (mod)
<p>Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.</p>			
<b>EC-PCT-VA</b>	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.
<p>This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.</p>			
<b>HARDNESS-CALC-VA</b>	Water	Hardness	APHA 2340B
<p>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.</p>			
<b>MET-D-CCMS-VA</b>	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030B/6020A (mod)
<p>Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.</p> <p>Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.</p>			
<b>MET-T-CCMS-VA</b>	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020A (mod)
<p>Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.</p> <p>Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.</p>			
<b>PH-PCT-VA</b>	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"
<p>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</p> <p>It is recommended that this analysis be conducted in the field.</p>			
<b>PH-PCT-VA</b>	Water	pH by Meter (Automated)	APHA 4500-H pH Value
<p>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</p> <p>It is recommended that this analysis be conducted in the field.</p>			
<b>SO4-IC-N-WR</b>	Water	Sulfate in Water by IC	EPA 300.1 (mod)
<p>Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.</p>			

## Reference Information

**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.

\*\* 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	5
---	---	---	---	---

### 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.

**Chain of Custody (COC) / Analytical Request Form**

COC Number: 1 -



Canada Toll Free: 1 800 668 9878



Page 1 of 5

www.alsglobal.com

L1627328-COFC

(Rush Turnaround Time (TAT) is not available for all tests)  
ed by 3 pm - business days)

<b>Report To</b>		<b>Report Format / E</b>		L1627328-COFC	
Company: Hemmera Environchem Inc.		Select Report Format: <input checked="" type="checkbox"/> PDF <input type="checkbox"/> L		P <input type="checkbox"/> Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT	
Contact: Natasha Sandys		Quality Control (QC) Report with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		E <input type="checkbox"/> Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT	
Address: 230 - 2237 2nd Avenue Whitehorse, YT		<input type="checkbox"/> Criteria on Report - provide details below if box checked		E2 <input type="checkbox"/> Same day or weekend emergency - contact ALS to confirm TAT and surcharge	
Phone: 867-456-4865		Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX		Specify Date Required for E2, E or P:	
		Email 1 or Fax nsandys@hemmera.com, jhains@hemmera.com, jo			
		Email 2 chris@elr.ca			

<b>Invoice To</b>		<b>Invoice Distribution</b>		<b>Analysis Request</b>													
Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX		Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below													
Copy of Invoice with Report <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Email 1 or Fax nsandys@hemmera.com															
Company: Hemmera Environchem Inc.		Email 2 chris@elr.ca															
Contact: Natasha Sandys																	
<b>Project Information</b>				<b>Oil and Gas Required Fields (client use)</b>													
ALS Quote #: Q50399		Approver ID:		Cost Center:													
Job #: 1343-005.08		GL Account:		Routing Code:													
PO / AFE:		Activity Code:															
LSD:		Location:															
ALS Lab Work Order # (lab use only)		ALS Contact: Sean Sluggett		Sampler: JC,JH,MM,AN													

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mm-yy)	Time (hh:mm)	Sample Type	acidity (to pH 8.3)	alkalinity	chloride	conductivity	pH	sulphate	suspended solids, total (TSS)	dissolved metals						Number of Containers
V37		13-Jun-15	11:08	Water	R	R	R	R	R	R	R	R						2
P09-VC1		12-Jun-15	17:05	Water	R	R	R	R	R	R	R	R						2
P09-VC2		12-Jun-15	16:50	Water	R	R	R	R	R	R	R	R						2
SRK05-9		12-Jun-15	15:03	Water	R	R	R	R	R	R	R	R						2
SRK05-5C		12-Jun-15	14:00	Water	R	R	R	R	R	R	R	R						2
P96-9A		12-Jun-15	12:30	Water	R	R	R	R	R	R	R	R						2
SRK05-8		12-Jun-15	11:15	Water	R	R	R	R	R	R	R	R						2
BH05-9B-R		12-Jun-15	12:30	Water	R	R	R	R	R	R	R	R						2
SRK05-07		12-Jun-15	9:40	Water	R	R	R	R	R	R	R	R						2
P09-GSIA		13-Jun-15	9:56	Water	R	R	R	R	R	R	R	R						2
P09-GSIB		13-Jun-15	10:10	Water	R	R	R	R	R	R	R	R						2
S1A		13-Jun-15	16:15	Water	R	R	R	R	R	R	R	R						2

<b>Drinking Water (DW) Samples<sup>1</sup> (client use)</b>		<b>Special Instructions / Specify Criteria to add on report (client Use)</b>		<b>SAMPLE CONDITION AS RECEIVED (lab use only)</b>			
Are samples taken from a Regulated DW System? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		- EDD must be in EQUIS format common to Faro Mine Remediation Project. Contact client if clarification is required. - See attached parameter sheet for required detection limits.		Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/>			
Are samples for human drinking water use? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				Ice packs Yes <input type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/>			
				Cooling Initiated <input type="checkbox"/>			
				INITIAL COOLER TEMPERATURES °C: 1.8, 2.1, 2.4, 2.3, 2.1			
				FINAL COOLER TEMPERATURES °C:			

<b>SHIPMENT RELEASE (client use)</b>				<b>INITIAL SHIPMENT RECEPTION (lab use only)</b>				<b>FINAL SHIPMENT RECEPTION (lab use only)</b>			
Released by: Justin Harris	Date: June 16, 2015	Time: 09:43	Received by: [Signature]	Date: 16 JUN 15	Time: 9:43	Received by:	Date:	Time:			

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION WHITE - LABORATORY COPY YELLOW - CLIENT COPY NA-FM-03286 v08 Form 04 January 2014

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 specified on the back page of the white - report copy.  
1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.





L1627328-COFC

<b>Report To</b>				<b>Report Format / Distribution</b>				<b>Rush Turnaround Time (TAT) is not available for all tests!</b>					
Company: Hemmera Environchem Inc.				Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input checked="" type="checkbox"/> EDD (DIGITAL)				R <input checked="" type="checkbox"/> Regular (Standard TAT if received by 3 pm - business days)					
Contact: Natasha Sandys				Quality Control (QC) Report with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				P <input type="checkbox"/> Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT					
Address: 230 - 2237 2nd Avenue Whitehorse, YT				<input type="checkbox"/> Criteria on Report - provide details below if box checked				E <input type="checkbox"/> Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT					
Phone: 867-456-4865				Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX				E2 <input type="checkbox"/> Same day or weekend emergency - contact ALS to confirm TAT and surcharge					
Invoice To Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				Email 1 or Fax nsandys@hemmera.com, jhains@hemmera.com, jchris@elr.ca				Specify Date Required for E2,E or P:					
Copy of Invoice with Report <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				Email 2 chris@elr.ca				<b>Analysis Request</b>					
Company: Hemmera Environchem Inc.				Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input checked="" type="checkbox"/> MAIL <input type="checkbox"/> FAX				Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below					
Contact: Natasha Sandys				Email 1 or Fax nsandys@hemmera.com									
Project Information				Oil and Gas Required Fields (client use)									
ALS Quote #: Q50389				Approver ID:									
Job #: 1343-005.08				GL Account:									
PO / AFE:				Routing Code:									
LSD:				Activity Code:									
ALS Lab Work Order # (lab use only)				Location:									
ALS Contact: Sean Sluggett				Sampler: JC,JH,MM,AN									
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mm-yy)	Time (hh:mm)	Sample Type	acidity (to pH 6.3)	alkalinity	chloride	conductivity	pH	sulphate	suspended solids, total (TSS)	dissolved metals	Number of Containers
SRK08-SP-7A		13-Jun-15	15:47	Water	R	R	R	R	R	R	R		2
SRK05-SP-5		13-Jun-15	15:25	Water	R	R	R	R	R	R	R		2
SRK05-SP-4A		13-Jun-15	14:36	Water	R	R	R	R	R	R	R		2
P09-LCD6		13-Jun-15	14:30	Water	R	R	R	R	R	R	R		2
P2001-3		13-Jun-15	10:15	Water	R	R	R	R	R	R	R		2
V36		13-Jun-15	10:10	Water	R	R	R	R	R	R	R		2
P09-LCD1		13-Jun-15	15:30	Water	R	R	R	R	R	R	R		2
V34		13-Jun-15	16:10	Water	R	R	R	R	R	R	R		2
V35		13-Jun-15	17:35	Water	R	R	R	R	R	R	R		2
P09-SIS1		14-Jun-15	17:15	Water	R	R	R	R	R	R	R		2
S2B		14-Jun-15	16:40	Water	R	R	R	R	R	R	R		2
S2A		14-Jun-15	16:00	Water	R	R	R	R	R	R	R		2
<b>Drinking Water (DW) Samples (client use)</b>				<b>Special Instructions / Specify Criteria to add on report (client Use)</b>				<b>SAMPLE CONDITION AS RECEIVED (lab use only)</b>					
Are samples taken from a Regulated DW System? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				- EDD must be in EQUIS format common to Faro Mine Remediation Project. Contact client if clarification is required. - See attached parameter sheet for required detection limits.				Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/>					
Are samples for human drinking water use? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No								Ice packs Yes <input type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/>					
								Cooling Initiated <input type="checkbox"/>					
								INITIAL COOLER TEMPERATURES °C					
								FINAL COOLER TEMPERATURES °C					
								18.2, 2.4, 2.3 2.1					
<b>SHIPMENT RELEASE (client use)</b>				<b>INITIAL SHIPMENT RECEPTION (lab use only)</b>				<b>FINAL SHIPMENT RECEPTION (lab use only)</b>					
Released by: <i>Justin Hain</i>		Date: <i>June 16, 2015</i>		Time: <i>09:43</i>		Received by: <i>[Signature]</i>		Date: <i>16 JUN 15</i>		Time: <i>9:43</i>		Received by:	

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

HA-FM-0226e-100 F10404 January 2014

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 specified on the back page of the white - report copy.  
1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.



L1627328-COFC

<b>Report To</b>		<b>Report Format /</b>		<small>(Rush Turnaround Time (TAT) is not available for all tests)</small>															
Company: Hemmera Environchem Inc.		Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input type="checkbox"/> EDD (DIGITAL)		<input type="checkbox"/> Arrived by 3 pm - business days <input type="checkbox"/> Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT <input type="checkbox"/> Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT <input type="checkbox"/> E2 Same day or weekend emergency - contact ALS to confirm TAT and surcharge															
Contact: Natasha Sandys		Quality Control (QC) Report with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																	
Address: 230 - 2237 2nd Avenue Whitehorse, YT		<input type="checkbox"/> Criteria on Report - provide details below if box checked																	
Phone: 867-456-4865		Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX		Specify Date Required for E2,E or P:															
Email 1 or Fax nsandys@hemmera.com, jhains@hemmera.com, jchris@elr.ca		Email 2 chris@elr.ca		<b>Analysis Request</b>															
<b>Invoice To</b> Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<b>Invoice Distribution</b>		<small>Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below</small>															
Copy of Invoice with Report <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input checked="" type="checkbox"/> MAIL <input type="checkbox"/> FAX																	
Company: Hemmera Environchem Inc.		Email 1 or Fax nsandys@hemmera.com																	
Contact: Natasha Sandys		Email 2 chris@elr.ca																	
<b>Project Information</b>				<b>Oil and Gas Required Fields (client use)</b>															
ALS Quote #: Q50399		Approver ID:		Cost Center:															
Job #: 1343-005.08		GL Account:		Routing Code:															
PO / AFE:		Activity Code:																	
LSD:		Location:																	
ALS Lab Work Order # (lab use only)		ALS Contact: Sean Sluggett		Sampler: JC,JH,MM,AN															
<b>ALS Sample # (lab use only)</b>		<b>Sample Identification and/or Coordinates (This description will appear on the report)</b>			<b>Date (dd-mmm-yy)</b>	<b>Time (hh:mm)</b>	<b>Sample Type</b>	acidity (to pH 8.3)	alkalinity	chloride	conductivity	pH	sulphate	suspended solids, total (TSS)	dissolved metals	Number of Containers			
		MW14-12D			14-Jun-15	13:05	Water	R	R	R	R	R	R	R	R	2			
		MW14-15			14-Jun-15	14:05	Water	R	R	R	R	R	R	R	R	2			
		P96-06			14-Jun-15	14:45	Water	R	R	R	R	R	R	R	R	2			
		S1B			15-Jun-15	9:30	Water	R	R	R	R	R	R	R	R	2			
		MW14-14			15-Jun-15	8:30	Water	R	R	R	R	R	R	R	R	2			
		P03-06-02			15-Jun-15	9:05	Water	R	R	R	R	R	R	R	R	2			
		DUP-3			12-Jun-15	11:15	Water	R	R	R	R	R	R	R	R	2			
		DUP-4			13-Jun-15	14:36	Water	R	R	R	R	R	R	R	R	2			
		FB-2			13-Jun-15	14:36	Water	R	R	R	R	R	R	R	R	2			
		DUP-5			13-Jun-15	14:30	Water	R	R	R	R	R	R	R	R	2			
		DUP-6			14-Jun-15	11:10	Water	R	R	R	R	R	R	R	R	2			
		FB-3			14-Jun-15	11:10	Water	R	R	R	R	R	R	R	R	2			
<b>Drinking Water (DW) Samples<sup>1</sup> (client use)</b>				<b>Special Instructions / Specify Criteria to add on report (client use)</b>				<b>SAMPLE CONDITION AS RECEIVED (lab use only)</b>											
Are samples taken from a Regulated DW System? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				- EDD must be in EQUIS format common to Faro Mine Remediation Project. Contact client if clarification is required. - See attached parameter sheet for required detection limits.				Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/> Ice packs Yes <input type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/> Cooling Initiated <input type="checkbox"/>											
Are samples for human drinking water use? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No								INITIAL COOLER TEMPERATURES °C: 1.8, 2.1, 2.4, 2.3, 2.1 FINAL COOLER TEMPERATURES °C:											
<b>SHIPMENT RELEASE (client use)</b>				<b>INITIAL SHIPMENT RECEPTION (lab use only)</b>				<b>FINAL SHIPMENT RECEPTION (lab use only)</b>											
Released by: Justin Hains		Date: June 16, 2015		Time: 09:43		Received by: [Signature]		Date: 16 Jun 15		Time: 9:43		Received by:		Date:		Time:			



<b>Report To</b>					<b>Report Format / Distribution</b>										<b>Analysis Request</b>																																																																																																																																																																																														
Company: Hemmera Environchem Inc.					Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input checked="" type="checkbox"/> EDD (DIGITAL)										<input checked="" type="checkbox"/> Regular (Standard TAT if received by 3 pm - business days) <input type="checkbox"/> Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT <input type="checkbox"/> Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT <input type="checkbox"/> Same day or weekend emergency - contact ALS to confirm TAT and surcharge																																																																																																																																																																																														
Contact: Natasha Sandys					Quality Control (QC) Report with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																																																																																																																																																																																																								
Address: 230 - 2237 2nd Avenue Whitehorse, YT					<input type="checkbox"/> Criteria on Report - provide details below if box checked																																																																																																																																																																																																								
Phone: 867-456-4865					Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX										Specify Date Required for E2, E or P:																																																																																																																																																																																														
Email 1 or Fax nsandys@hemmera.com, jhains@hemmera.com, j...					Email 1 or Fax nsandys@hemmera.com																																																																																																																																																																																																								
Email 2 chris@elr.ca					Email 2 chris@elr.ca																																																																																																																																																																																																								
<b>Invoice To</b> Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					<b>Invoice Distribution</b>										Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below																																																																																																																																																																																														
Copy of Invoice with Report <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX										<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>F</th><th>P</th><th>F/P</th><th colspan="3"></th><th colspan="3"></th><th colspan="3"></th><th colspan="3"></th><th colspan="3"></th><th rowspan="10" style="writing-mode: vertical-rl; transform: rotate(180deg);">Number of Containers</th> </tr> <tr> <td></td><td></td><td></td><td>alkalinity</td><td>chloride</td><td>conductivity</td><td>pH</td><td>sulphate</td><td>suspended solids, total (TSS)</td><td>dissolved metals (excluding mercury)</td><td>total metals (excluding mercury)</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>										F	P	F/P																Number of Containers				alkalinity	chloride	conductivity	pH	sulphate	suspended solids, total (TSS)	dissolved metals (excluding mercury)	total metals (excluding mercury)																																																																																																																																																							
F	P	F/P																Number of Containers																																																																																																																																																																																											
			alkalinity	chloride	conductivity	pH	sulphate	suspended solids, total (TSS)	dissolved metals (excluding mercury)	total metals (excluding mercury)																																																																																																																																																																																																			
Company: Hemmera Environchem Inc.					Email 1 or Fax nsandys@hemmera.com																																																																																																																																																																																																								
Contact: Natasha Sandys					Email 2 chris@elr.ca																																																																																																																																																																																																								
<b>Project Information</b>					<b>Oil and Gas Required Fields (client use)</b>																																																																																																																																																																																																								
ALS Quote #: Q50399					Approver ID:					Cost Center:																																																																																																																																																																																																			
Job #: 1343-005.08					GL Account:					Routing Code:																																																																																																																																																																																																			
PO / AFE:					Activity Code:																																																																																																																																																																																																								
LSD:					Location:																																																																																																																																																																																																								
ALS Lab Work Order # (lab use only)					ALS Contact: Sean Sluggett					Sampler: JC,JH,MM,AN																																																																																																																																																																																																			
<b>ALS Sample # (lab use only)</b>	<b>Sample Identification and/or Coordinates (This description will appear on the report)</b>				<b>Date (dd-mm-yy)</b>		<b>Time (hh:mm)</b>		<b>Sample Type</b>		acidity (to pH 8.3)		alkalinity	chloride	conductivity	pH	sulphate	suspended solids, total (TSS)	dissolved metals (excluding mercury)	total metals (excluding mercury)				Number of Containers																																																																																																																																																																																					
	DUP-7				14-Jun-15		11:20		Water		R	R	R	R	R	R	R	R	R						2																																																																																																																																																																																				
	FB-4				14-Jun-15		18:00		Water		R	R	R	R	R	R	R	R	R						2																																																																																																																																																																																				
	P09-SIS4				15-Jun-15		13:25		Water		R	R	R	R	R	R	R	R	R						2																																																																																																																																																																																				
	P09-SIS5				15-Jun-15		13:15		Water		R	R	R	R	R	R	R	R	R						2																																																																																																																																																																																				
	P09-LCD4				14-Jun-15		9:30		Water		R	R	R	R	R	R	R	R	R						2																																																																																																																																																																																				
	P2001-2A				14-Jun-15		8:40		Water		R	R	R	R	R	R	R	R	R						2																																																																																																																																																																																				
	P2001-2B				14-Jun-15		8:50		Water		R	R	R	R	R	R	R	R	R						2																																																																																																																																																																																				
	TRAVEL BLANK 2								Water		R	R	R	R	R	R	R	R	R		R				4																																																																																																																																																																																				
	P03-06-2				15-Jun-15		9:05		Water		R	R	R	R	R	R	R	R	R						2																																																																																																																																																																																				
<b>Drinking Water (DW) Samples<sup>1</sup> (client use)</b>					<b>Special Instructions / Specify Criteria to add on report (client use)</b>										<b>SAMPLE CONDITION AS RECEIVED (lab use only)</b>																																																																																																																																																																																														
Are samples taken from a Regulated DW System? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					- EDD must be in EQUIS format common to Faro Mine Remediation Project. Contact client if clarification is required. - See attached parameter sheet for required detection limits.										Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/> Ice packs Yes <input type="checkbox"/> No <input type="checkbox"/> Custody seal intact* Yes <input type="checkbox"/> No <input type="checkbox"/> Cooling Initiated <input type="checkbox"/>																																																																																																																																																																																														
Are samples for human drinking water use? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No																									INITIAL COOLER TEMPERATURES °C: 1.8, 2.1, 2.4, 2.3, 2.1 FINAL COOLER TEMPERATURES °C:																																																																																																																																																																																				
<b>SHIPMENT RELEASE (client use)</b>					<b>INITIAL SHIPMENT RECEPTION (lab use only)</b>										<b>FINAL SHIPMENT RECEPTION (lab use only)</b>																																																																																																																																																																																														
Released by: Justin Hains		Date: Jun 15 2015		Time: 09:43		Received by: [Signature]		Date: Jun 15 2015		Time: 09:43		Received by:			Date:			Time:																																																																																																																																																																																											

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

ALS Form 02/06 v08 From 04 January 2014

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 specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.



HEMMERA ENVIROCHEM INC.  
ATTN: Natasha Sandys  
230 - 2237 2nd Avenue  
Whitehorse YK Y1A 0K7

Date Received: 22-JUN-15  
Report Date: 02-JUL-15 11:54 (MT)  
Version: FINAL

Client Phone: 867-456-4865

## Certificate of Analysis

Lab Work Order #: L1630559  
Project P.O. #: NOT SUBMITTED  
Job Reference: 1343-005.08  
C of C Numbers: 1  
Legal Site Desc:

---

Brent Mack, B.Sc.  
Account Manager

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

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

## ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1630559-1	L1630559-2	L1630559-3	L1630559-4	L1630559-5
		Description	Water	Water	Water	Water	Water
		Sampled Date	17-JUN-15	17-JUN-15	17-JUN-15	18-JUN-15	18-JUN-15
		Sampled Time	15:10	16:25	18:15	14:10	15:30
		Client ID	MW14-02D	MW14-02S	PW14-01	MW14-03	MW14-05
Grouping	Analyte						
<b>WATER</b>							
<b>Physical Tests</b>	Conductivity (uS/cm)		557	162	808	895	5180
	Hardness (as CaCO3) (mg/L)		229	73.4	344	460	3930
	pH (pH)		6.54	7.72	6.63	8.00	7.17
	Total Suspended Solids (mg/L)		14.8	11.2	28.7	13.2	128
<b>Anions and Nutrients</b>	Acidity (as CaCO3) (mg/L)		121	2.9	123	8.2	76.1
	Alkalinity, Total (as CaCO3) (mg/L)		215	69.3	337	394	591
	Chloride (Cl) (mg/L)		<0.50	<0.50	<1.0 <sup>DLA</sup>	6.3	16
	Sulfate (SO4) (mg/L)		73.0	9.56	106	96.6	3270
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)						
	Antimony (Sb)-Total (mg/L)						
	Arsenic (As)-Total (mg/L)						
	Barium (Ba)-Total (mg/L)						
	Beryllium (Be)-Total (mg/L)						
	Bismuth (Bi)-Total (mg/L)						
	Boron (B)-Total (mg/L)						
	Cadmium (Cd)-Total (mg/L)						
	Calcium (Ca)-Total (mg/L)						
	Cesium (Cs)-Total (mg/L)						
	Chromium (Cr)-Total (mg/L)						
	Cobalt (Co)-Total (mg/L)						
	Copper (Cu)-Total (mg/L)						
	Iron (Fe)-Total (mg/L)						
	Lead (Pb)-Total (mg/L)						
	Lithium (Li)-Total (mg/L)						
	Magnesium (Mg)-Total (mg/L)						
	Manganese (Mn)-Total (mg/L)						
	Molybdenum (Mo)-Total (mg/L)						
	Nickel (Ni)-Total (mg/L)						
	Phosphorus (P)-Total (mg/L)						
	Potassium (K)-Total (mg/L)						
	Rubidium (Rb)-Total (mg/L)						
	Selenium (Se)-Total (mg/L)						
	Silicon (Si)-Total (mg/L)						
Silver (Ag)-Total (mg/L)							
Sodium (Na)-Total (mg/L)							
Strontium (Sr)-Total (mg/L)							
Sulfur (S)-Total (mg/L)							

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

## ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1630559-6	L1630559-7	L1630559-8	L1630559-9
		Description	Water	Water	Water	Water
		Sampled Date	18-JUN-15	19-JUN-15	18-JUN-15	
		Sampled Time	18:15	13:00	15:10	
		Client ID	MW14-04S	PW14-07	DUP-08	TRIP BLANK 3
Grouping	Analyte					
<b>WATER</b>						
<b>Physical Tests</b>	Conductivity (uS/cm)	5280	1000	564	<2.0	
	Hardness (as CaCO3) (mg/L)	4010	432	230	<0.50	
	pH (pH)	7.61	6.44	6.54	5.50	
	Total Suspended Solids (mg/L)	944	16.8	14.8	<1.0	
<b>Anions and Nutrients</b>	Acidity (as CaCO3) (mg/L)	76.3	183	97.3	1.3	
	Alkalinity, Total (as CaCO3) (mg/L)	998	236	216	<1.0	
	Chloride (Cl) (mg/L)	11	<1.0 <sup>DLA</sup>	<0.50	<0.50	
	Sulfate (SO4) (mg/L)	3140	306	73.4	<0.30	
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)				<0.0030	
	Antimony (Sb)-Total (mg/L)				<0.00010	
	Arsenic (As)-Total (mg/L)				<0.00010	
	Barium (Ba)-Total (mg/L)				<0.000050	
	Beryllium (Be)-Total (mg/L)				<0.00010	
	Bismuth (Bi)-Total (mg/L)				<0.000050	
	Boron (B)-Total (mg/L)				<0.010	
	Cadmium (Cd)-Total (mg/L)				<0.000050	
	Calcium (Ca)-Total (mg/L)				<0.050	
	Cesium (Cs)-Total (mg/L)				<0.000010	
	Chromium (Cr)-Total (mg/L)				<0.00010	
	Cobalt (Co)-Total (mg/L)				<0.00010	
	Copper (Cu)-Total (mg/L)				<0.00050	
	Iron (Fe)-Total (mg/L)				<0.010	
	Lead (Pb)-Total (mg/L)				<0.000050	
	Lithium (Li)-Total (mg/L)				<0.0010	
	Magnesium (Mg)-Total (mg/L)				<0.0050	
	Manganese (Mn)-Total (mg/L)				<0.00010	
	Molybdenum (Mo)-Total (mg/L)				<0.000050	
	Nickel (Ni)-Total (mg/L)				<0.00050	
	Phosphorus (P)-Total (mg/L)				<0.050	
	Potassium (K)-Total (mg/L)				<0.050	
	Rubidium (Rb)-Total (mg/L)				<0.00020	
	Selenium (Se)-Total (mg/L)				<0.000050	
	Silicon (Si)-Total (mg/L)				<0.050	
	Silver (Ag)-Total (mg/L)				<0.000010	
Sodium (Na)-Total (mg/L)				<0.050		
Strontium (Sr)-Total (mg/L)				<0.00020		
Sulfur (S)-Total (mg/L)				<0.50		

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

# ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L1630559-1 Water 17-JUN-15 15:10 MW14-02D	L1630559-2 Water 17-JUN-15 16:25 MW14-02S	L1630559-3 Water 17-JUN-15 18:15 PW14-01	L1630559-4 Water 18-JUN-15 14:10 MW14-03	L1630559-5 Water 18-JUN-15 15:30 MW14-05
Grouping	Analyte					
<b>WATER</b>						
<b>Total Metals</b>	Tellurium (Te)-Total (mg/L)					
	Thallium (Tl)-Total (mg/L)					
	Thorium (Th)-Total (mg/L)					
	Tin (Sn)-Total (mg/L)					
	Titanium (Ti)-Total (mg/L)					
	Tungsten (W)-Total (mg/L)					
	Uranium (U)-Total (mg/L)					
	Vanadium (V)-Total (mg/L)					
	Zinc (Zn)-Total (mg/L)					
	Zirconium (Zr)-Total (mg/L)					
<b>Dissolved Metals</b>	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	0.0437	0.0055	0.0371	0.0020	0.0119
	Antimony (Sb)-Dissolved (mg/L)	<0.00010	0.00011	<0.00010	0.00252	<0.00050 <sup>DLA</sup>
	Arsenic (As)-Dissolved (mg/L)	0.00216	0.00035	0.00136	0.0114	0.00149
	Barium (Ba)-Dissolved (mg/L)	0.0335	0.0419	0.117	0.0994	0.0452
	Beryllium (Be)-Dissolved (mg/L)	0.00096	<0.00010	0.00033	<0.00010	<0.00050 <sup>DLA</sup>
	Bismuth (Bi)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.00025 <sup>DLA</sup>
	Boron (B)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.050 <sup>DLA</sup>
	Cadmium (Cd)-Dissolved (mg/L)	0.000105	0.0000231	0.0000779	<0.000050	<0.00025 <sup>DLA</sup>
	Calcium (Ca)-Dissolved (mg/L)	58.3	21.4	94.6	128	342
	Cesium (Cs)-Dissolved (mg/L)	0.000017	0.000015	0.000221	0.000026	0.000944
	Chromium (Cr)-Dissolved (mg/L)	0.00116	0.00142	0.00067	0.00076	0.00161
	Cobalt (Co)-Dissolved (mg/L)	0.00457	<0.00010	0.00998	0.00338	0.00366
	Copper (Cu)-Dissolved (mg/L)	<0.00020	0.00090	0.00057	<0.00020	<0.0010 <sup>DLA</sup>
	Iron (Fe)-Dissolved (mg/L)	16.0	0.044	31.2	1.23	13.4
	Lead (Pb)-Dissolved (mg/L)	0.000381	0.000098	0.000220	<0.000050	<0.00025 <sup>DLA</sup>
	Lithium (Li)-Dissolved (mg/L)	0.0402	0.0025	0.0194	0.0370	0.0759
	Magnesium (Mg)-Dissolved (mg/L)	20.3	4.86	26.2	33.8	748
	Manganese (Mn)-Dissolved (mg/L)	1.03	0.0217	4.55	0.368	1.84
	Molybdenum (Mo)-Dissolved (mg/L)	0.000197	0.000655	0.000242	0.0495	0.00055
	Nickel (Ni)-Dissolved (mg/L)	0.0129	0.00130	0.0125	0.0203	0.0216
	Phosphorus (P)-Dissolved (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.25 <sup>DLA</sup>
	Potassium (K)-Dissolved (mg/L)	2.77	0.633	2.73	6.96	10.3
	Rubidium (Rb)-Dissolved (mg/L)	0.00842	0.00101	0.00991	0.00197	0.0112
	Selenium (Se)-Dissolved (mg/L)	<0.000050	0.000282	0.000089	0.000120	<0.00025 <sup>DLA</sup>
	Silicon (Si)-Dissolved (mg/L)	11.7	4.31	12.2	8.11	9.42
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000050 <sup>DLA</sup>

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

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID	L1630559-6 Water 18-JUN-15 18:15 MW14-04S	L1630559-7 Water 19-JUN-15 13:00 PW14-07	L1630559-8 Water 18-JUN-15 15:10 DUP-08	L1630559-9 Water  TRIP BLANK 3	
Grouping	Analyte				
<b>WATER</b>					
<b>Total Metals</b>	Tellurium (Te)-Total (mg/L)				<0.00020
	Thallium (Tl)-Total (mg/L)				<0.000010
	Thorium (Th)-Total (mg/L)				<0.00010
	Tin (Sn)-Total (mg/L)				<0.00010
	Titanium (Ti)-Total (mg/L)				<0.00030
	Tungsten (W)-Total (mg/L)				<0.00010
	Uranium (U)-Total (mg/L)				<0.000010
	Vanadium (V)-Total (mg/L)				<0.00050
	Zinc (Zn)-Total (mg/L)				<0.0030
	Zirconium (Zr)-Total (mg/L)				<0.00030
<b>Dissolved Metals</b>	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	
	Aluminum (Al)-Dissolved (mg/L)	0.0089	0.0903	0.0423	
	Antimony (Sb)-Dissolved (mg/L)	<0.00050 <sup>DLA</sup>	<0.00010	<0.00010	
	Arsenic (As)-Dissolved (mg/L)	<0.00050 <sup>DLA</sup>	0.00330	0.00213	
	Barium (Ba)-Dissolved (mg/L)	0.0257	0.0559	0.0327	
	Beryllium (Be)-Dissolved (mg/L)	<0.00050 <sup>DLA</sup>	0.00085	0.00089	
	Bismuth (Bi)-Dissolved (mg/L)	<0.00025 <sup>DLA</sup>	<0.000050	<0.000050	
	Boron (B)-Dissolved (mg/L)	<0.050 <sup>DLA</sup>	<0.010	<0.010	
	Cadmium (Cd)-Dissolved (mg/L)	0.000197	0.0000688	0.000102	
	Calcium (Ca)-Dissolved (mg/L)	544	104	58.0	
	Cesium (Cs)-Dissolved (mg/L)	0.000300	0.000123	0.000016	
	Chromium (Cr)-Dissolved (mg/L)	<0.00050 <sup>DLA</sup>	0.00076	0.00115	
	Cobalt (Co)-Dissolved (mg/L)	0.00122	0.00619	0.00466	
	Copper (Cu)-Dissolved (mg/L)	0.0014	<0.00020	<0.00020	
	Iron (Fe)-Dissolved (mg/L)	<0.050 <sup>DLA</sup>	28.5	16.3	
	Lead (Pb)-Dissolved (mg/L)	<0.00025 <sup>DLA</sup>	0.000247	0.000262	
	Lithium (Li)-Dissolved (mg/L)	0.0781	0.0453	0.0380	
	Magnesium (Mg)-Dissolved (mg/L)	644	42.0	20.7	
	Manganese (Mn)-Dissolved (mg/L)	0.910	1.46	1.02	
	Molybdenum (Mo)-Dissolved (mg/L)	0.00145	0.000124	0.000187	
	Nickel (Ni)-Dissolved (mg/L)	0.0120	0.0184	0.0130	
	Phosphorus (P)-Dissolved (mg/L)	<0.25 <sup>DLA</sup>	<0.050	<0.050	
	Potassium (K)-Dissolved (mg/L)	14.5	3.40	2.80	
	Rubidium (Rb)-Dissolved (mg/L)	0.0057	0.00886	0.00857	
	Selenium (Se)-Dissolved (mg/L)	0.00055	<0.000050	<0.000050	
	Silicon (Si)-Dissolved (mg/L)	12.3	13.1	11.4	
	Silver (Ag)-Dissolved (mg/L)	<0.000050 <sup>DLA</sup>	<0.000010	<0.000010	

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



## ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L1630559-1	L1630559-2	L1630559-3	L1630559-4	L1630559-5
		Description	Water	Water	Water	Water	Water
		Sampled Date	17-JUN-15	17-JUN-15	17-JUN-15	18-JUN-15	18-JUN-15
		Sampled Time	15:10	16:25	18:15	14:10	15:30
		Client ID	MW14-02D	MW14-02S	PW14-01	MW14-03	MW14-05
Grouping	Analyte						
<b>WATER</b>							
<b>Dissolved Metals</b>	Sodium (Na)-Dissolved (mg/L)		8.83	1.70	7.07	7.82	12.2
	Strontium (Sr)-Dissolved (mg/L)		0.370	0.0891	0.450	0.647	1.54
	Sulfur (S)-Dissolved (mg/L)		26.4	3.50	37.9	35.6	1210
	Tellurium (Te)-Dissolved (mg/L)		<0.00020	<0.00020	<0.00020	<0.00020	<0.0010 <sup>DLA</sup>
	Thallium (Tl)-Dissolved (mg/L)		<0.000010	<0.000010	0.000024	<0.000010	<0.000050 <sup>DLA</sup>
	Thorium (Th)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00050 <sup>DLA</sup>
	Tin (Sn)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00050 <sup>DLA</sup>
	Titanium (Ti)-Dissolved (mg/L)		<0.00030	<0.00030	<0.00030	<0.00030	<0.0015 <sup>DLA</sup>
	Tungsten (W)-Dissolved (mg/L)		<0.00010	<0.00010	<0.00010	<0.00010	<0.00050 <sup>DLA</sup>
	Uranium (U)-Dissolved (mg/L)		0.000567	0.000702	0.00401	0.0766	0.192
	Vanadium (V)-Dissolved (mg/L)		<0.00050	<0.00050	<0.00050	<0.00050	<0.0025 <sup>DLA</sup>
	Zinc (Zn)-Dissolved (mg/L)		0.781	0.0324	0.682	0.0649	0.743
	Zirconium (Zr)-Dissolved (mg/L)		<0.00030	<0.00030	0.00032	0.00031	0.0017

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

# ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID Description Sampled Date Sampled Time Client ID	L1630559-6 Water 18-JUN-15 18:15 MW14-04S	L1630559-7 Water 19-JUN-15 13:00 PW14-07	L1630559-8 Water 18-JUN-15 15:10 DUP-08	L1630559-9 Water  TRIP BLANK 3
Grouping	Analyte				
<b>WATER</b>					
<b>Dissolved Metals</b>	Sodium (Na)-Dissolved (mg/L)	14.1	10.6	9.10	
	Strontium (Sr)-Dissolved (mg/L)	2.43	0.526	0.374	
	Sulfur (S)-Dissolved (mg/L)	1120	102	25.5	
	Tellurium (Te)-Dissolved (mg/L)	<0.0010 <sup>DLA</sup>	<0.00020	<0.00020	
	Thallium (Tl)-Dissolved (mg/L)	<0.000050 <sup>DLA</sup>	<0.000010	<0.000010	
	Thorium (Th)-Dissolved (mg/L)	<0.00050 <sup>DLA</sup>	<0.00010	<0.00010	
	Tin (Sn)-Dissolved (mg/L)	<0.00050 <sup>DLA</sup>	<0.00010	<0.00010	
	Titanium (Ti)-Dissolved (mg/L)	<0.0015 <sup>DLA</sup>	<0.00030	<0.00030	
	Tungsten (W)-Dissolved (mg/L)	<0.00050 <sup>DLA</sup>	<0.00010	<0.00010	
	Uranium (U)-Dissolved (mg/L)	0.261	0.000352	0.000579	
	Vanadium (V)-Dissolved (mg/L)	<0.0025 <sup>DLA</sup>	<0.00050	<0.00050	
	Zinc (Zn)-Dissolved (mg/L)	0.0543	1.40	0.804	
	Zirconium (Zr)-Dissolved (mg/L)	<0.0015 <sup>DLA</sup>	<0.00030	<0.00030	

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

## Reference Information

## QC Samples with Qualifiers &amp; Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Antimony (Sb)-Dissolved	DLA	L1630559-1, -2, -3, -4, -5, -6, -7, -8
Duplicate	Beryllium (Be)-Dissolved	DLA	L1630559-1, -2, -3, -4, -5, -6, -7, -8
Duplicate	Bismuth (Bi)-Dissolved	DLA	L1630559-1, -2, -3, -4, -5, -6, -7, -8
Duplicate	Boron (B)-Dissolved	DLA	L1630559-1, -2, -3, -4, -5, -6, -7, -8
Duplicate	Cadmium (Cd)-Dissolved	DLA	L1630559-1, -2, -3, -4, -5, -6, -7, -8
Duplicate	Copper (Cu)-Dissolved	DLA	L1630559-1, -2, -3, -4, -5, -6, -7, -8
Duplicate	Lead (Pb)-Dissolved	DLA	L1630559-1, -2, -3, -4, -5, -6, -7, -8
Duplicate	Phosphorus (P)-Dissolved	DLA	L1630559-1, -2, -3, -4, -5, -6, -7, -8
Duplicate	Selenium (Se)-Dissolved	DLA	L1630559-1, -2, -3, -4, -5, -6, -7, -8
Duplicate	Silver (Ag)-Dissolved	DLA	L1630559-1, -2, -3, -4, -5, -6, -7, -8
Duplicate	Tellurium (Te)-Dissolved	DLA	L1630559-1, -2, -3, -4, -5, -6, -7, -8
Duplicate	Thallium (Tl)-Dissolved	DLA	L1630559-1, -2, -3, -4, -5, -6, -7, -8
Duplicate	Thorium (Th)-Dissolved	DLA	L1630559-1, -2, -3, -4, -5, -6, -7, -8
Duplicate	Tin (Sn)-Dissolved	DLA	L1630559-1, -2, -3, -4, -5, -6, -7, -8
Duplicate	Titanium (Ti)-Dissolved	DLA	L1630559-1, -2, -3, -4, -5, -6, -7, -8
Duplicate	Tungsten (W)-Dissolved	DLA	L1630559-1, -2, -3, -4, -5, -6, -7, -8
Duplicate	Vanadium (V)-Dissolved	DLA	L1630559-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Sulfate (SO4)	MS-B	L1630559-1, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1630559-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1630559-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L1630559-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1630559-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Silicon (Si)-Dissolved	MS-B	L1630559-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1630559-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1630559-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1630559-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L1630559-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L1630559-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Potassium (K)-Dissolved	MS-B	L1630559-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Rubidium (Rb)-Dissolved	MS-B	L1630559-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1630559-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1630559-1, -2, -3, -4, -5, -6, -7, -8

## Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLA	Detection Limit adjusted for required dilution
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

## Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
<b>ACY-PCT-VA</b>	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.			
Samples of industrial wastes, acid mine drainage, or other solutions that contain appreciable amounts of hydrolyzable metal ions such as aluminum, iron, and manganese may require hot peroxide treatment to ensure oxidation and hydrolysis of reduced forms of polyvalent cations. Acidity results may be highly variable if this procedure is not followed. Results in this report for 'Acidity (as CaCO3)' have not been peroxide treated.			
<b>ACY-PCT-VA</b>	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.			
Samples of industrial wastes, acid mine drainage, or other solutions that contain appreciable amounts of hydrolyzable metal ions such as aluminum, iron, and manganese may require hot peroxide treatment to ensure oxidation and hydrolysis of reduced forms of polyvalent cations. Acidity results may be highly variable if this procedure is not followed. Results in this report for 'Acidity (as CaCO3)' have not been peroxide treated.			
<b>ALK-TITR-VA</b>	Water	Alkalinity Species by Titration	APHA 2320 Alkalinity

## Reference Information

This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

**CL-IC-N-WR**                      Water              Chloride in Water by IC    EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

**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 CaCO<sub>3</sub> 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 3030B/6020A (mod)

Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

**MET-T-CCMS-VA**              Water              Total Metals in Water by CRC ICPMS    EPA 200.2/6020A (mod)

Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

**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.

**SO4-IC-N-WR**                      Water              Sulfate in Water by IC    EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

**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.

---

\*\* 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:**

## Reference Information

### GLOSSARY OF REPORT TERMS

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

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

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

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

*mg/L* - milligrams per litre.

*<* - Less than.

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

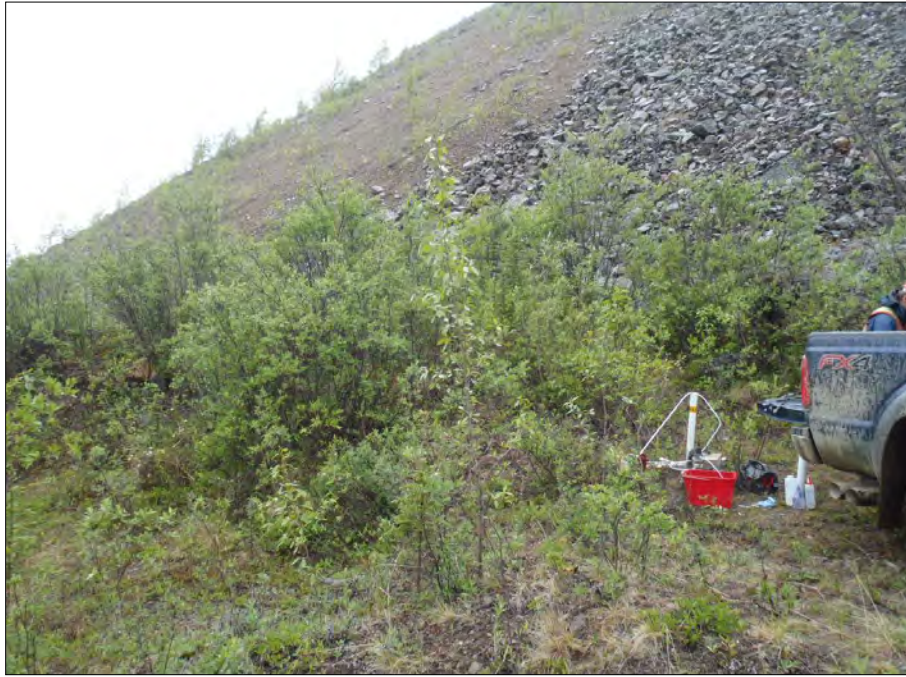
*N/A* - Result not available. Refer to qualifier code and definition for explanation.

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

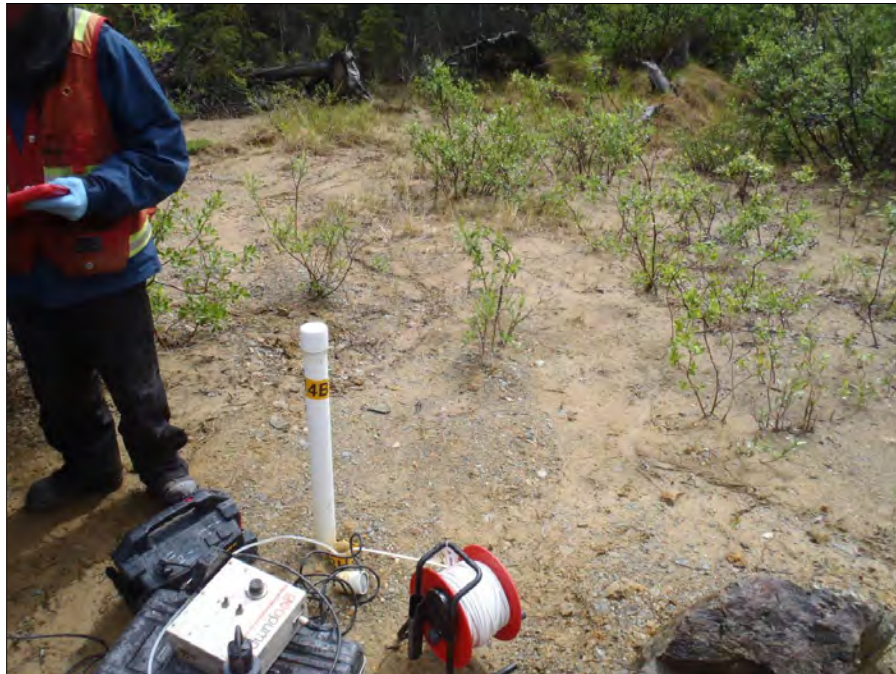
**UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.**

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

**APPENDIX B**  
**Site Photos**



**Photo 1:** View of well BH13B. Photo taken on June 11, 2015.



**Photo 2:** View of wells BH14A and BH14B. Photo taken on June 11, 2015.

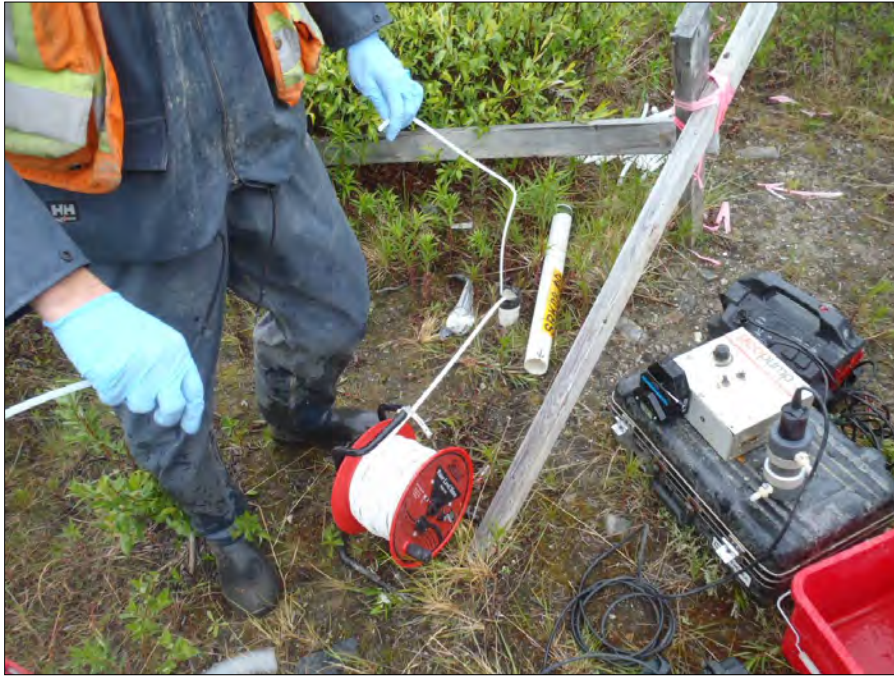


**Photo 3:** View of well SRK08-10A. Photo taken on June 11, 2015.



**Photo 4:** View of wells SRK08-11A and SRK08-11B. Photo taken on June 11, 2015.





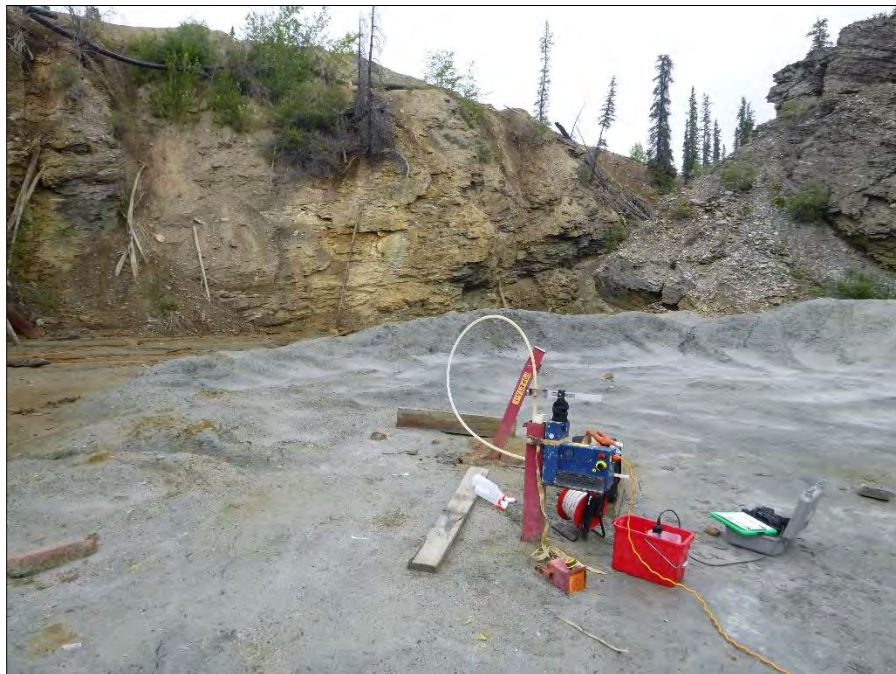
**Photo 5:** View of well SRK08-P9. Stick-up broken upon arrival. Photo taken on June 11, 2015.



**Photo 6:** View of well P96-6, Photo taken on June 14, 2015.



**Photo 7:** View of wells P96-8A and P96-8B. Photo taken on June 10, 2015.



**Photo 8:** View of well P09-ETA-2. Photo taken on June 11, 2015.



**Photo 9:** View of wells S1A and S1B. Photo taken on June 13, 2015.



**Photo 10:** View of well S2A and S2B. Photo taken on June 14, 2015.



**Photo 11:** View of well P96-7. Photo taken on June 14, 2015.



**Photo 12:** View of well SRK05-SP-4A. Photo taken on June 13, 2015.



**Photo 13:** View of well SRK05-SP-4B. Photo taken on June 14, 2015.



**Photo 14:** View of well SRK05-SP-5. Photo taken on June 13, 2015.



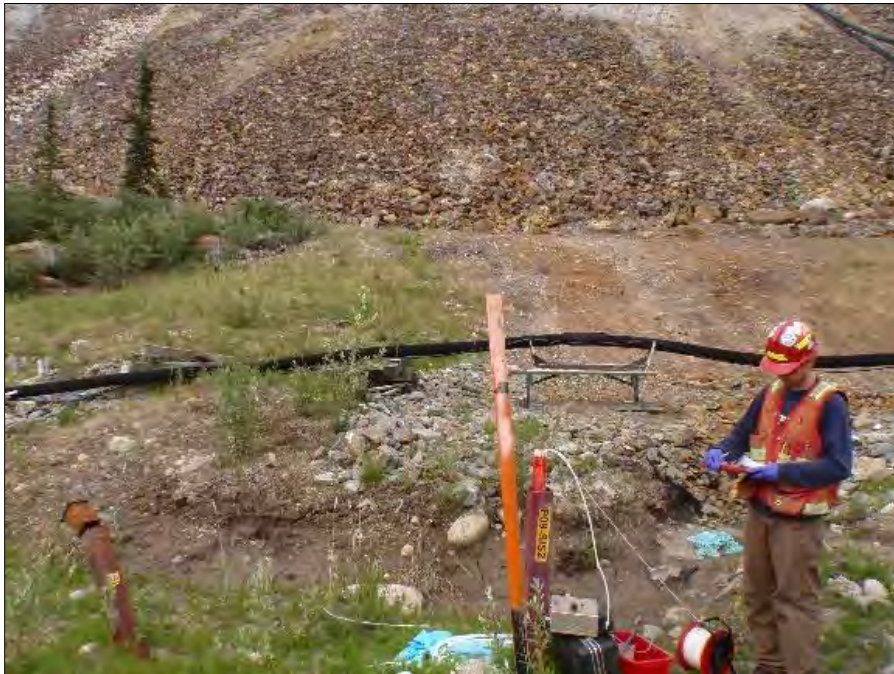
**Photo 15:** View of wells SRK08-7A and SRK08-7B. Photo taken on June 13, 2015.



**Photo 16:** View of wells SRK08-SP8A and SRK08-SP8B. Photo taken on June 14, 2015.



**Photo 17:** View of well P09-SIS1. Photo taken on June 14, 2015.



**Photo 18:** View of well P09-SIS2. Photo taken on June 14, 2015.



**Photo 19:** View of well P09-SIS3. Photo taken on June 14, 2015.



**Photo 20:** View of well P09-SIS4. Photo taken on June 15, 2015.





**Photo 21:** View of well P09-SIS5. Photo taken on June 15, 2015.



**Photo 22:** View of CMT wells P03-06-1, P03-06-2, P03-06-6 and P03-06-7. Photo taken on June 11, 2015.



**Photo 23:** View of well P01-03. Photo taken on June 10, 2015.



**Photo 24:** View of wells P01-04A and P01-04B. Photo taken on June 10, 2015.



**Photo 25:** View of well X24-96D. Photo taken on June 10, 2015.



**Photo 26:** View of wells X25-96A and X25-96B. Photo taken on June 10, 2015.



**Photo 27:** View of CMT wells P05-01-03 and P05-01-05. Photo taken on June 10, 2015.



**Photo 28:** View of well P01-11. Photo taken on June 11, 2015.



**Photo 29:** View of well P09-C2. Photo taken on June 11, 2015.



**Photo 30:** View of well P09-C3. Photo taken on June 10, 2015.



**Photo 31:** View of wells P01-01A and P01-01B. Photo taken on June 11, 2015.



**Photo 32:** Views of Wells SRK08-SP7A and SRK08-SP7B. Photo taken June 13, 2015.



**Photo 33:** View of wells P2001-02A and P2001-02B. Photo taken on June 14, 2015.



**Photo 34:** View of well P2001-3. Photo taken on June 14, 2015.



**Photo 35:** View of well P96-9A. Photo taken on June 12, 2015.



**Photo 36:** View of well BH05-9B-R (P96-9BR). Photo taken on June 12, 2015.





**Photo 37:** View of well SRK05-5C. Photo taken on June 12, 2015.



**Photo 38:** View of well SRK05-7. Photo taken on June 12, 2015.



**Photo 39:** View of well SRK05-08. Photo taken on June 12, 2015.



**Photo 40:** View of well SRK05-9. Lots of old tubing found at site upon arrival. Photo taken on June 12, 20145.



**Photo 41:** View of well V34. Photo taken on June 13, 2015.



**Photo 42:** View of well V35. Photo taken on June 13, 2015.



**Photo 43:** View of well V36. Photo taken on June 13, 2015.



**Photo 44:** View of well V37. Photo taken on June 12, 2015.



**Photo 45:** View of wells P09-GS1A. Photo taken on June 13, 2015.



**Photo 46:** View of wells P09-GS1B. Photo taken on June 13, 2015.



**Photo 47:** View of well PW14-06. Photo taken on June 10, 2015.



**Photo 48:** View of well MW14-03. Photo taken on June 18, 2015.



**Photo 49:** View of well MW14-02D. Photo taken on June 17, 2015.



**Photo 50:** View of well MW14-02S. Photo taken on June 17, 2015.



**Photo 51:** View of well PW14-01. Photo taken on June 17, 2015.



**Photo 52:** View of well MW14-02S. Photo taken on June 17, 2015.





**Photo 53:** View of well MW14-05. Photo taken on June 18, 2015.



**Photo 54:** View of well PW14-07 taken on June 19, 2015



**Photo 55:** View of well MW14-04D and MW14-04S. Photo taken on June 18, 2015.

# **APPENDIX C**

## **Field Forms**

# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	MW14-008	Project Number:	1343-005.10	Date:	17-Jun-15	
Approximate Date Drilled:	—	Client:	GY - AAM	Sampler:	MM/JH	
Piezometer Diameter / Screen Length:	4"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	Rainy ~ 12°C	
UTM Location	Z. 8.E. 50476 N. 681213	Waypoint	GPS <del>HEM</del> Name MW14-008	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad	
Photos	Cam. <del>W</del> Nos. <del>204-231</del>	Purge Method				
Duplicate Collected:	<input type="checkbox"/> Yes Name <del>204-504</del>		Waterra	Peristaltic	Disp. Bailer	
Field Blank Collected	<input type="checkbox"/> Yes Name	Analysis				
Initial Depth to Water (m):	58.27	Purge Start Time:	15:51	Purge End Time:	16:20	
Depth to Bottom (m):	67.00	Purge Interval Time ( ) min, Vol. (15) L	15:55	16:02	16:06	
Submerged Tubing Depth (m):	62.0	Depth to water (m)	58.64	58.59	58.56	
Well Stick-up Height (m):	0.90	Temperature (°C)	7.6	8.4	8.6	
Estimated Water Volume (L):	76.9	pH (pH Units)	7.34	7.08	7.45	
$\frac{67}{2} \times \pi r^2 \times 9.8$ (DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	98.2	100.9	102.3	104.0	
	Specific Cond. (µs/cm)	147.0	147.2	149.0	151.1	151.8
	Redox (mV)	89.1	92.5	88.9	86.2	85.2
	Appearance & Odour (Clear, Silty, HC odours, etc.)	turbid	less turbid	clear	clear	clear
	Turbidity (NTU)	—	—	—	—	8.47
	Interval Purge Volume (L)	15	15	15	15	15
	Cumulative Purge Volume (L):	15	30	45	60	75
YSI Field Parameters Logged:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Sample Method				
Time on YSI (24hr):			Waterra	Peristaltic	Disp. Bailer	
Actual time of measurement (24hr):		Analysis				

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

$$\pi r^2 \times \text{Depth} \times 1000$$

$$\pi (0.05\text{m})^2 \times 9.8\text{m} \times 1000 = 76.99\text{L}$$



Sample Site (Con't): MW14-025

Sample Date (Con't): 17-Jun-15

Sample Time: ~~15:10~~ 16:25

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):

- Well sampled during lightning storm

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	NW14-00D	Project Number:	1343-005.10	Date:	17-June-15	
Approximate Date Drilled:	/	Client:	GY - AAM	Sampler:	JH/MM	
Piezometer Diameter / Screen Length:	2"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	Sunny & windy	
UTM Location	Z. 8 E. 58470 N. 691313.1	Waypoint	GPS <del>HW</del> Name NW14-00D	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad	
Photos	Cam. <del>W</del> Nos. <del>58470</del> 58470	Purge Method				
Duplicate Collected:	<input checked="" type="checkbox"/> Yes Name <del>DLF-7</del>		Waterra	Peristaltic	Disp. Bailer	
Field Blank Collected	<input type="checkbox"/> Yes Name	Analysis				
Initial Depth to Water (m):	58.72	Purge Start Time:	14:31	Purge End Time:	15:03	
Depth to Bottom (m):	78.976	Purge Interval Time ( ) min, Vol. ( 5 ) L	14:40	14:46	14:51	
Submerged Tubing Depth (m):	73	Depth to water (m)	54.97	54.97	55.00	
Well Stick-up Height (m):	0.90	Temperature (°C)	5.8	5.4	5.3	
Estimated Water Volume (L):	40.5	pH (pH Units)	6.16	5.94	5.87	
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	524.6	334.6	334.5	324.6	36.7
	Specific Cond. (µs/cm)	514.8	543.6	525.6	531.7	589.8
	Redox (mV)	16.8	31.6	34.7	41.0	41.6
	Appearance & Odour (Clear, Silty, HC odours, etc.)	turbid	less turbid	less turbid	clear	clear
	Turbidity (NTU)	15	-	-	-	11.47
	Interval Purge Volume (L)	15	15	15	15	15
	Cumulative Purge Volume (L):	15	30	45	60	75
	YSI Field Parameters Logged:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Sample Method			
	Time on YSI (24hr):			Waterra	Peristaltic	Disp. Bailer
	Actual time of measurement (24hr):		Analysis			

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

Frequency	300	322	322	322	322
-----------	-----	-----	-----	-----	-----



Sample Site (Con't): MWH-02

Sample Date (Con't): June 17, 2015

Sample Time: 15:10

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

**General Notes (Condition of well, consumables, or other features):**

- Because of the 2" PVC well, we did not use the shroud around the generator pump. We lowered the pump to the bottom of the well and lifted it up 6" off the bottom. We turned the generator on and gave it a 5 minute warm-up. We then plugged the control unit into the generator and waited 5 minutes. We then plugged the motor into the control box and started the pump. I slowly increased the speed to 322 Hz. The pump is running well.  
- The aircraft cable is secured to the truck hitch.

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120 ml	
1 L (plastic)	General Chemistry	500 ml	-	-	1L	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	MW4-01D	Project Number:	1343-005.10 08	Date:	Jul 18, 2015
Approximate Date Drilled:		Client:	GY - AAM	Sampler:	JH rjc
Piezometer Diameter / Screen Length:	2" / 64.8-74	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	cloud, 10°C
UTM Location	Zo8 E. 584655 N. 6913322	Waypoint	GPS <input checked="" type="checkbox"/> Name MW4-01SD	Recovery:	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Bad
Photos	Cam. <u>  </u> Nos. <u>  </u>	Purge Method			
Duplicate Collected:	<input type="checkbox"/> Yes Name <u>  </u>		Waterra	Peristaltic	Disp. Bailer
Field Blank Collected	<input type="checkbox"/> Yes Name <u>  </u>	Analysis			<input checked="" type="checkbox"/> Redi-flo
Initial Depth to Water (m):	69.046	Purge Start Time:	17:36	Purge End Time:	
Depth to Bottom (m):	75.08	Purge Interval Time ( ) min, Vol. ( ) L	17:30	17:39	17:45
Submerged Tubing Depth (m):	N/A	Depth to water (m)			
Well Stick-up Height (m):	0.86	Temperature (°C)	7.43	7.1	7.0
Estimated Water Volume (L):	42L	pH (pH Units)	6.52	6.64	6.84
$\pi r^2 \times \text{depth} \times 1000 =$ (DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	3512	3000	2962	2841
	Specific Cond. (µs/cm)	4662	4520	4492	4210
	Redox (mV)	187.2	161.5	179.8	164.3
	Appearance & Odour (Clear, Silty, HC odours, etc.)	turbid	turbid	turbid	turbid
	Turbidity (NTU)	4-	0.4L	-	-
Interval Purge Volume (L)	0.4L	0.8L	0.4L	0.2L	Dry
Cumulative Purge Volume (L):	0.4L	0.8L	1.2L	1.4L	
YSI Field Parameters Logged:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method			
Time on YSI (24hr):			Waterra	Peristaltic	Disp. Bailer
Actual time of measurement (24hr):		Analysis			Redi-flo
*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.					



Sample Site (Con't): MU14-041D

Sample Date (Con't): \_\_\_\_\_

Sample Time: \_\_\_\_\_

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):

June 13 Well not sampled as ~~DTW~~ DTW beyond hydrolift capabilities

June 18 \*Not enough water for GUDOTOS specs. Attempted to sample using bailers. While pursuing, the bailer was only pulling up 0.4L at a time despite the observed water column. I think there is something at the bottom of the well small enough for the water level tape to pass by but too big for the bailer to get through. The well went dry after 4 pulls (0.4L). Upon a ~~4th~~ 5th attempt, the bailer came up empty. I waited 15 minutes to allow the well to

\*Consumables used: - 2 rolls of bailer cord  
- 2 bailers

\* Not Sampled.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HNO <sub>3</sub>		
1 L (plastic)	General Chemistry	500 ml	-	-		

Since there is a weighted bailer and perhaps something else (tubing??, broken screen??) at the bottom of the well, this well is unable to be sampled until we find a way to remove the bailer, or ~~wait~~ wait for the water table to rise.

recover, then dropped the bailer down. When pulling up, the nylon cord snapped and the bailer sank to the bottom. I tried to recover it with a fishing hook but had no success.

June 19 tried dropping a new bailer down, but it came up dry.

# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	PW14-07	Project Number:	1343-005.10	Date:	19 Jun -15						
Approximate Date Drilled:		Client:	GY - AAM	Sampler:	JH/MM						
Piezometer Diameter / Screen Length:	<del>8"</del> 8"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	Sunny to clouds wind ~10%						
UTM Location	Z.8 E. <del>4100</del> N. 6913195	Waypoint	GPS HEM Name PW14-07*	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad						
Photos	Cam REC Nos. 315-318	Purge Method									
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra	Peristaltic	Disp. Bailer	Redi-flo					
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis				X					
Initial Depth to Water (m):	66.265	Purge Start Time:	10:13			Purge End Time:					
Depth to Bottom (m):	75.600	Purge Interval Time ( ) min, Vol. (15) L	10:16	10:19	10:23	10:27	10:30	10:34	10:38	10:41	10:45
Submerged Tubing Depth (m):	~72.0	Depth to water (m)	66.30	66.34	66.37	66.35	66.35	66.35	66.35	66.35	66.35
Well Stick-up Height (m):	0.960	Temperature (°C)	3.8	3.7	3.6	3.4	3.4	3.3	3.3	3.4	3.4
Estimated Water Volume (L):	166 L	pH (pH Units)	5.76	5.68	5.68	5.66	5.67	5.68	5.67	5.68	5.68
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	579	566	558	551	549	546	546	541	542	
	Specific Cond. (µs/cm)	972	953	945	939	932	937	931	920	925	
	Redox (mV)	76.3	77.9	78.1	79.0	78.6	78.2	78.8	78.6	78.5	
	Appearance & Odour (Clear, Silty, HC odours, etc.)	slightly turbid	some	clear	clear	clear	clear	clear	clear	clear	
	Turbidity (NTU)	/	/	/	/	/	/	/	/	/	
	Interval Purge Volume (L)	15	15	15	15	15	15	15	15	15	
	Cumulative Purge Volume (L):	15	30	45	60	75	90	105	120	135	
YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method									
Time on YSI (24hr):	10:56		Waterra	Peristaltic	Disp. Bailer	Redi-flo					
Actual time of measurement (24hr):	10:56	Analysis				X					

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

$\pi r^2 \times \text{depth (m)} \times 1,000$   
 ~~$\pi (0.075)^2 \times 9.4 \times 1,000$~~   
 $\pi (0.075)^2 \times 9.4 \times 1,000 = 166 \text{ L}$

Sample Site (Con't): DWGH-07

 Sample Date (Con't): ~~18 Jun 15~~ 19 Jun 15

 Sample Time: 13:00

Additional Purge Data:						
Purge Interval Time ( ) min, Vol. (15) L	12:49	12:53	12:55			
Depth to water (m)	66.35 <sup>9</sup>	66.34 <sup>0</sup>	66.36 <sup>0</sup>			
Temperature (°C)	3.4	3.3	3.4			
pH (pH Units)	5.68	5.69	5.68			
Cond. (µs/cm)	543	540	545			
Specific Cond. (µs/cm)	923	924	924			
Redox (mV)	78.5	78.6	78.3			
Appearance & Odour (Clear, Silty, HC odours, etc.)	clear	clear	clear			
Turbidity (NTU)	/	/	2.63			
Interval Purge Volume (L)	15	15	15			
Cumulative Purge Volume (L):	150	165	180			

**General Notes (Condition of well, consumables, or other features):**

- unable to sample 17-Jun-15 due to lack of aircraft cable to hold to pump up; will return 18-Jun-15 to ~~attempt~~ <sup>attempt</sup> w/ aircraft cable to attempt sample  
 - used 81 m of ELR 5/8" waterca tubing  
 - frequency of pump 355 Hz

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1 L	

# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	PW/401	Project Number:	1343-005.10	Date:	17-Jun-15	
Approximate Date Drilled:		Client:	GY - AAM	Sampler:	JH, MM	
Piezometer Diameter / Screen Length:	4"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	rainy 12.2.	
UTM Location	Z.8 E.581752 N.691358	Waypoint	GPS <del>HEM</del> Name PW/4-01*	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad	
Photos	Cam. <del>EU</del> Nos. 208-310	Purge Method				
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra	Peristaltic	Disp. Bailer	
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis			Redi-flo	
Initial Depth to Water (m):	58.800	Purge Start Time:	17:19.	Purge End Time:		
Depth to Bottom (m):	78.35	Purge Interval Time ( ) min, Vol. (15) L	17:24	17:29	17:35	
Submerged Tubing Depth (m):	~73	Depth to water (m)	59.846	59.842	59.846	
Well Stick-up Height (m):	1.02	Temperature (°C)	3.4	3.9	4.0	
Estimated Water Volume (L):	345	pH (pH Units)	5.07	6.01	6.04	
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	451.9	457.8	460.0	460.6	
	Specific Cond. (µs/cm)	768.9	766.9	767.5	768.0	766.2
	Redox (mV)	43.9	40.4	35.5	35.2	31.5
	Appearance & Odour (Clear, Silty, HC odours, etc.)	turbid	less turbid	clear	clear	clear
	Turbidity (NTU)	/	/	/	/	/
	Interval Purge Volume (L)	15	15	15	15	15
	Cumulative Purge Volume (L):	15	30	45	60	75
	YSI Field Parameters Logged:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Sample Method			
	Time on YSI (24hr):			Waterra	Peristaltic	Disp. Bailer
	Actual time of measurement (24hr):		Analysis			Redi-flo

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

$$\begin{aligned}
 & r^2 * \text{depth (m)} * 1000 \\
 & (10.075)^2 * 109.5 * 1000 \\
 & = 345
 \end{aligned}$$

@ time of sample

Sample Site (Con't): DN14-01

Sample Date (Con't): 17-Jun-15

Sample Time: 18:15

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):

- 80m of ELR 5/8" waterera tubing used
- Grundfos frequency 323 Hz
- conductivity bouncing around, possibly due to nail + down pump @ 18:00
- not logged due to storm
- purge 145L, did not record parameters due to lightning storm that was occurring at the time
- sample taken without purging 1 full well volume, because parameters were very stable, + there was no drawdown ~~therefore~~ which indicates that there was horizontal pull of water, + ~~the sample was~~ ~~fe~~ therefore representative ground water was sampled.

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120 L	
1 L (plastic)	General Chemistry	500 ml	-	-	1 L	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	MW14-03	Project Number:	1343-005.1008	Date:	18 Jun-15						
Approximate Date Drilled:	/	Client:	GY - AAM	Sampler:	JH, MM						
Piezometer Diameter / Screen Length:	6"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	☉ Cloudy ~12°C						
UTM Location	Z. 8 E. 58443 N. 6913093	Waypoint	GPS <del>EM</del> Name MW14-03*	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad						
Photos	Cam. w/ Nos. 182-184	Purge Method									
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra	Peristaltic	Disp. Bailer						
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis			Redi-flo						
Initial Depth to Water (m):	53.342	Purge Start Time:	12:26	Purge End Time:							
Depth to Bottom (m):	65.000	Purge Interval Time ( ) min, Vol. ( ) L	12:28	12:37	12:35	12:39	12:43	12:47	12:50	12:55	13:00
Submerged Tubing Depth (m):	63.00m	Depth to water (m)	54.290	/	/	55.54	56.32	56.748	57.175	57.465	58.175
Well Stick-up Height (m):	0.885	Temperature (°C)	8.0	8.6	8.8	9.0	9.1	9.3	9.4	9.6	9.6
Estimated Water Volume (L):	206.74	pH (pH Units)	7.14	7.17	7.18	7.19	7.20	7.19	7.19	7.22	7.28
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	716	724	729	735	737	735	735	712	690	
	Specific Cond. (µs/cm)	1057	1056	1057	1057	1056	1050	1046	1009	977	
	Redox (mV)	35.5	36.4	64.3	74.4	85.5	88.3	72.8	-34.7	-59.9	
	Appearance & Odour (Clear, Silty, HC odours, etc.)	turbid	turbid	turbid	turbid	less turbid	less turbid	clear	clear	clear	
	Turbidity (NTU)	-	/	/	/	/	/	/	/	/	
	Interval Purge Volume (L)	15L	15L	15	15	15	15	15	15	15	
	Cumulative Purge Volume (L):	15L	30L	45	60	75	90	105	120	135	
YSI Field Parameters Logged:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Sample Method									
Time on YSI (24hr):			Waterra	Peristaltic	Disp. Bailer						
Actual time of measurement (24hr):		Analysis			Redi-flo						

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

$$\pi r^2 \times \text{depth (m)} \times 1,000$$

$$\pi (0.075)^2 \times 11.7 \times 1,000 = 206.7$$



Sample Site (Con't): MW14-03

Sample Date (Con't): June 18, 2015

Sample Time: 14:10

Additional Purge Data:							
Purge Interval Time ( ) min, Vol. (15) L	13:06	13:10	13:24	13:30	13:38	14:03	
Depth to water (m)	58.740	59.316	59.545	59.128	59.229		
Temperature (°C)	9.9	10.1	11.7	12.1	10.8	11.4	
pH (pH Units)	7.29	7.28	7.24	7.27	7.25	7.26	
Cond. (µs/cm)	671	656	674	679	630	631	
Specific Cond. (µs/cm)	942	909	905	901	862	855	
Redox (mV)	-49.5	-56.1	-46.2	-42.8	-33.7	-37.7	
Appearance & Odour (Clear, Silty, HC odours, etc.)	clear	clear sulphur	slightly turbid sulphur	same sulphur	clear sulphur	same	
Turbidity (NTU)	-	/	/	/	/	11.3	
Interval Purge Volume (L)	15L	15	15	7	15	15	
Cumulative Purge Volume (L):	150L	165	180	187	202	217	

turned pump off to allow recharge

General Notes (Condition of well, consumables, or other features):  
 - frequency of pump is @ 322  
 - sulphur odour @ 13:10.  
 - Used 67m of hemmera's water

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120 <sub>2</sub> L	
1 L (plastic)	General Chemistry	500 ml	-	-	1L	

17.67



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	MW14-05	Project Number:	1343-005.1008	Date:	June 18, 2015						
Approximate Date Drilled:	2015	Client:	GY - AAM	Sampler:	JH + SC						
Piezometer Diameter / Screen Length:	6" / 48-65.3	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	cloud 10°C						
UTM Location	Z.00 E.584693 N.6913351	Waypoint	GPS x Name MW14-05*	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad						
Photos	Cam. x Nos. 244-246	Purge Method									
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra	Peristaltic	Disp. Bailer						
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis			Redi-flo						
Initial Depth to Water (m):	53.541	Purge Start Time:	14:44	Purge End Time:							
Depth to Bottom (m):	66.5	Purge Interval Time ( ) min, Vol. (15) L	14:46	14:50	14:54	14:56	15:00	15:04	15:08	15:12	15:16
Submerged Tubing Depth (m):	63.5	Depth to water (m)	54.395	54.705				56.260	56.860	57.180	57.465
Well Stick-up Height (m):	0.86	Temperature (°C)	8.9	9.3	9.5	9.6	9.7	9.8	9.9	10.0	10.2
Estimated Water Volume (L):	209.7	pH (pH Units)	6.75	6.67	6.65	6.63	6.62	6.62	6.61	6.60	6.60
$f = 0.075$ (DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	3300	3318	3408	3410	3445	3481	3519	3540	3557	
	Specific Cond. (µs/cm)	4766	4817	4840	4831	4860	4904	4947	4964	4959	
	Redox (mV)	-5.5	-8.2	-10.1	-11.1	-11.1	-10.4	-10.0	-10.5	-10.2	
	Appearance & Odour (Clear, Silty, HC odours, etc.)	clear	clear	clear	clear	clear	clear	clear	clear	clear	
	Turbidity (NTU)	/	/	/	/	/	/	/	/	/	
	Interval Purge Volume (L)	15	15	15	15	15	15	15	15	15	
	Cumulative Purge Volume (L):	15	30	45	60	75	90	105	120	135	
YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method									
Time on YSI (24hr):	15:30		Waterra	Peristaltic	Disp. Bailer	Redi-flo					
Actual time of measurement (24hr):	15:30	Analysis				X					

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

$\pi r^2 \times \text{Depth} \times 1000$   
 $\pi (0.075)^2 \times 13 \times 1000 = 229.7$

(L/min) Pumping rate	3.75	7.5	3.75	3.75	3.75	3.75	3.75
(L/min) Draw-down rate	5.48			10.72	26.8	14.13	0.99



TT 12 x1006

235



Sample Site (Con't): MW14-05

Sample Date (Con't): June 18, 2015

Sample Time: 15:30

Additional Purge Data:			
Purge Interval Time ( ) min, Vol. (L) L	15:20	15:24	15:28
Depth to water (m)	57.38	57.09	58.10
Temperature (°C)	10.2	10.4	10.5
pH (pH Units)	6.60	6.60	6.60
Cond. (µs/cm)	3510	3470	3400
Specific Cond. (µs/cm)	4888	4816	4700
Redox (mV)	-10.4	-10.6	-11.2
Appearance & Odour (Clear, Silty, HC odours, etc.)	clear	clear	clear
Turbidity (NTU)	/	/	48.9
Interval Purge Volume (L)	15	15	15
Cumulative Purge Volume (L):	150	165	180

(L/min) Pumping rate  
 (L/min) Drawdown rate

Pumping rate	3.75	3.75	3.75
Drawdown rate	1.47	1.09	0.56

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1L	

**General Notes (Condition of well, consumables, or other features):**  
 June 13:  
 - Well not sampled as DTW beyond hydrolift capabilities  
 June 18, - returned with functioning Grundfos pump. Set frequency at 300hz  
 - water level stuck on tubing @ 14:54, therefore no readings taken until it could be unstick  
 - Purging was stopped at 180L as the monitored parameters were stable and the pumping rate exceeded

the drawdown rate, indicating that the well is recharging continuously, limiting drawdown, and indicating horizontal flow.

# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	MW14-045	Project Number:	1343-005- <del>08</del>	Date:	June 18, 2015					
Approximate Date Drilled:	2014	Client:	GY - AAM	Sampler:	JH & JC					
Piezometer Diameter / Screen Length:	4" / 47.2-61.7	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	Cloud, 10°C					
UTM Location	Z08 E584655N.6913322	Waypoint	GPS x Name MW14-045+0	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad					
Photos	Cam. x Nos. 238-240	Purge Method								
Duplicate Collected:	<input type="checkbox"/> Yes Name _____	Water	Peristaltic	Disp. Bailer	Redi-flo					
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis								
Initial Depth to Water (m):	60.241	Purge Start Time:	17:30	Purge End Time:						
Depth to Bottom (m):	62.7	Purge Interval Time ( ) min, Vol. (L) L	17:39 <del>17:45</del>	17:45	17:50	18:00	18:05	18:08	18:10	18:12
Submerged Tubing Depth (m):	N/A	Depth to water (m)	-	-	-	-	-	-	-	-
Well Stick-up Height (m):	0.91	Temperature (°C)	8.5	8.0	8.2	8.1	8.0	7.9	7.9	7.9
Estimated Water Volume (L):	8L	pH (pH Units)	6.85	6.88	6.89	6.9	6.85	6.87	6.87	6.87
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	3255	3200	3189	3190	3173	3144	3158	3125	
	Specific Cond. (µs/cm)	4024	4743	4694	4719	4698	4675	4704	4647	
	Redox (mV)	189.5	186.8	181.5	190.8	189.1	189.7	189.9	189.7	
	Appearance & Odour (Clear, Silty, HC odours, etc.)	silty	silty	silty	less silty	less silty	less silty	less silty	less silty	
	Turbidity (NTU)	-	-	-	-	-	-	-	-	1136AD
Interval Purge Volume (L)	1L	1L	1L	1L	1L	1L	1L	1L	1L	
Cumulative Purge Volume (L):	1L	2L	3L	4L	5L	6L	7L	8L	8L	
YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method								
Time on YSI (24hr):	MW14-045	Water	Peristaltic	Disp. Bailer	Redi-flo					
Actual time of measurement (24hr):	-	Analysis								

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

Sample Site (Con't): MWH-04  
 Sample Date (Con't): Jul 18, 2015  
 Sample Time: 18:15

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):

- well not sampled as DTW beyond hydrolift capabilities
- well sampled using bailer, very silty water, did not clear up.
- Parameters were stable so we decided to collect the sample
- Consumables - 1 roll of bailer cord  
- 1 bailer

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	100ml	
1 L (plastic)	General Chemistry	500 ml	-	-	0.8 L	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	MW14-13	Project Number:	1343-005.10	Date:	Jun. 14/2015	
Approximate Date Drilled:	unknown	Client:	GY - AAM	Sampler:	AN, JC	
Piezometer Diameter / Screen Length:	2" / unknown	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	Sunny ~20	
UTM Location	Z.8 E.584920 N.6913285	Waypoint	GPS AN Name MW14-13	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad	
Photos	Cam. AN Nos. 761-763	Purge Method				
Duplicate Collected:	<input checked="" type="checkbox"/> Yes Name DUP-7		Waterra	Peristaltic	Disp. Bailer	
Field Blank Collected	<input type="checkbox"/> Yes Name	Analysis		<input checked="" type="checkbox"/>	Redi-flo	
Initial Depth to Water (m):	3.169	Purge Start Time:	10:52	Purge End Time:	11:10	
Depth to Bottom (m):	5.019	Purge Interval Time (5) min, Vol. ( ) L	10:53	10:50	11:03	
Submerged Tubing Depth (m):	~4.5	Depth to water (m)	3.173	3.173	3.173	
Well Stick-up Height (m):	0.963	Temperature (°C)	3.9	2.9	3.1	
Estimated Water Volume (L):	~4.0	pH (pH Units)	6.26	5.91	5.87	
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	708	694	727	757	
	Specific Cond. (µs/cm)	1192	1198	1254	1311	1366
	Redox (mV)	245.2	250.7	251.1	252.1	250.8
	Appearance & Odour (Clear, Silty, HC odours, etc.)	light brown clear	Same	Same	Clear	Clear
	Turbidity (NTU)	/	/	/	/	2.01
	Interval Purge Volume (L)	0.35	0.75	1.0	1.0	1.0
	Cumulative Purge Volume (L):	0.35	1.1	2.1	3.1	4.1
YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method				
Time on YSI (24hr):	11:19		Waterra	Peristaltic	Disp. Bailer	
Actual time of measurement (24hr):	11:19	Analysis		<input checked="" type="checkbox"/>	Redi-flo	

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.



Sample Site (Con't): MW 14-13

Sample Date (Con't): Jun. 14/2015

Sample Time: 11:20

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):

Collected duplicate (DUP-7)

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	MW14-16	Project Number:	1343-005.10	Date:	Jun. 14/2015						
Approximate Date Drilled:	unknown	Client:	GY - AAM	Sampler:	AN, JC						
Piezometer Diameter / Screen Length:	2" / unknown	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	Sunny ~20°C						
UTM Location	Z.8 E. 587085N. 6913288	Waypoint	GPS AN Name MW14-16	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad						
Photos	Cam. AN Nos. 764-766	Purge Method									
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra	Peristaltic	Disp. Bailer						
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis		X	Redi-flo						
Initial Depth to Water (m):	4.800	Purge Start Time:	11:38	Purge End Time:	12:05						
Depth to Bottom (m):	6.895	Purge Interval Time (S) min, Vol. ( ) L	11:40	11:45	11:50	11:55	12:00	12:05			
Submerged Tubing Depth (m):	~6.8	Depth to water (m)	4.805	4.807	4.807	4.808	4.807	4.808			
Well Stick-up Height (m):	0.978	Temperature (°C)	5.3	2.4	2.5	2.6	2.5	2.6			
Estimated Water Volume (L):	~4.0	pH (pH Units)	6.69	6.29	6.18	6.15	6.14	6.14			
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	557	503	511	525	631	539				
	Specific Cond. (µs/cm)	920	885	900	718	932	946				
	Redox (mV)	237.9	246.1	251.5	256.0	256.1	261.1				
	Appearance & Odour (Clear, Silty, HC odours, etc.)	clear.	Sand	Sand	Sand	Sand	Sand	Sand			
	Turbidity (NTU)	/	/	/	/	/	0.62				
	Interval Purge Volume (L)	0.2	1.0	1.0	1.0	1.0	1.0				
	Cumulative Purge Volume (L):	0.2	1.2	2.2	3.2	4.2	5.2				
YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method									
Time on YSI (24hr):	12:05		Waterra	Peristaltic	Disp. Bailer	Redi-flo					
Actual time of measurement (24hr):	12:05	Analysis		X							

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.



Sample Site (Con't): MW14-16

Sample Date (Con't): Jun. 14/2015

Sample Time: 12:10

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	MW14-12D	Project Number:	1343-005.10	Date:	Jun. 14/2015						
Approximate Date Drilled:	unknown	Client:	GY - AAM	Sampler:	AN, JC						
Piezometer Diameter / Screen Length:	2" / unknown	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	Sunny ~25°C						
UTM Location	Z. 8 E. 584856N. 6913271	Waypoint	GPS AN Name MW14-12D/K	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad						
Photos	Cam. AN Nos. 767-770	Purge Method									
Duplicate Collected:	<input type="checkbox"/> Yes Name _____	Analysis	Waterra	Peristaltic	Disp. Bailer	Redi-flo					
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis		<input checked="" type="checkbox"/>							
Initial Depth to Water (m):	1.820	Purge Start Time:	12:21			Purge End Time:	13:02				
Depth to Bottom (m):	6.343	Purge Interval Time (Σ) min, Vol. ( ) L	12:22	12:27	12:32	12:37	12:42	12:47	12:52	12:57	13:02
Submerged Tubing Depth (m):	~5.6	Depth to water (m)	1.848	1.840	1.845	1.850	1.850	1.850	1.851	1.855	1.853
Well Stick-up Height (m):	0.960	Temperature (°C)	4.2	2.8	2.5	2.1	2.4	2.3	2.3	2.1	2.1
Estimated Water Volume (L):	~11.0	pH (pH Units)	6.80	6.70	6.62	6.49	6.28	6.16	6.17	6.14	6.14
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	230.8	153.9	156.2	189.6	258.4	289.1	305.2	310.8	317.4	
	Specific Cond. (µs/cm)	369.3	267.6	275.0	338.6	455.9	507.9	574.3	551.3	552.7	
	Redox (mV)	218.2	202.8	199.9	202.1	214.3	221.6	225.4	227.5	227.4	
	Appearance & Odour (Clear, Silty, HC odours, etc.)	Clear light brown	Sand	Sand.	Sand	Sand	Sand	Sand	Sand	Sand	
Turbidity (NTU)	/	/	/	/	/	/	/	/	/	253	
Interval Purge Volume (L)	0.2	1.4	1.4	2.1	1.2	1.9	1.7	2.3	1.6		
Cumulative Purge Volume (L):	0.2	1.6	3.2	5.3	6.5	8.4	10.1	12.4	14		
YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method									
Time on YSI (24hr):	13:04	Analysis	Waterra	Peristaltic	Disp. Bailer	Redi-flo					
Actual time of measurement (24hr):	13:04	Analysis		<input checked="" type="checkbox"/>							

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.





Sample Site (Con't): MW14-120

Sample Date (Con't): Jun. 14/2015

Sample Time: 13:05

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):

Silt observed on tubing and inside stick up. Silicon tubing replaced. (6")

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	

# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	MW14-15	Project Number:	1343-005.10	Date:	Jun. 14 / 2015						
Approximate Date Drilled:	unknown	Client:	GY - AAM	Sampler:	AN, JC						
Piezometer Diameter / Screen Length:	1" / unknown	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	Sunny ~ 20°C						
UTM Location	Z.8 E.584840N.6913263	Waypoint	GPS <u>AN</u> Name <u>MW14-15</u>	Recovery:	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Bad						
Photos	Cam. <u>AN</u> Nos. <u>771-773</u>	Purge Method									
Duplicate Collected:	<input type="checkbox"/> Yes Name _____	Analysis	Waterra	Peristaltic	Disp. Bailer	Redi-flo					
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis		<input checked="" type="checkbox"/>							
Initial Depth to Water (m):	0.646	Purge Start Time:	13:27			Purge End Time:	14:01				
Depth to Bottom (m):	2.752	Purge Interval Time (3) min, Vol. ( ) L	13:28	13:31*	13:41	13:44	13:48	13:51	13:54	13:57	14:01
Submerged Tubing Depth (m):	~ 2.4	Depth to water (m)	1.165	2.030	/	2.705	2.495	2.410	2.405	2.365	2.376
Well Stick-up Height (m):	1.195	Temperature (°C)	8.5	14.0	6.3	5.7	4.1	4.5	3.8	3.9	3.1
Estimated Water Volume (L):	~ 1.0	pH (pH Units)	7.19	7.31	7.16	6.82	6.77	6.78	6.77	6.75	6.78
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	63.4	70.9	345.6	112	153	820	722	134	586	
	Specific Cond. (µs/cm)	93.8	88.7	592.8	1749	1571	1351	1204	1060	1001	
	Redox (mV)	175.8	154.6	173.5	187.5	191.3	192.5	194.3	627	198.7	
	Appearance & Odour (Clear, Silty, HC odours, etc.)	clear	same	same	turbid grey/brown	same	same	same	same	same	
Turbidity (NTU)	/	/	/	/	/	/	/	/	/	46	
Interval Purge Volume (L)	0.2	0.3	0.2	0.5	0.5	0.8	0.25	0.25	0.25		
Cumulative Purge Volume (L):	0.2	0.5	0.7	1.2	1.7	2.4	2.65	2.9	3.15		
YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method									
Time on YSI (24hr):	14:02	Analysis	Waterra	Peristaltic	Disp. Bailer	Redi-flo					
Actual time of measurement (24hr):	14:02	Analysis		<input checked="" type="checkbox"/>							

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

Sample Site (Con't): MW 14-15

Sample Date (Con't): Jun. 14/2015

Sample Time: 14:05

Additional Purge Data:							
Purge Interval Time ( ) min, Vol. ( ) L							
Depth to water (m)							
Temperature (°C)							
pH (pH Units)							
Cond. (µs/cm)							
Specific Cond. (µs/cm)							
Redox (mV)							
Appearance & Odour (Clear, Silty, HC odours, etc.)							
Turbidity (NTU)							
Interval Purge Volume (L)							
Cumulative Purge Volume (L):							

**General Notes (Condition of well, consumables, or other features):**

Added 2.5 m of peri. tubing.

\* Well went dry at 13:32, had to put tubing lower down towards bottom

Flow rate was reduced significantly, drawdown was reduced and tubing was slightly raised from bottom of well.

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	MW14-125	Project Number:	1343-005.10	Date:	Jun. 14/2015
Approximate Date Drilled:	unknown	Client:	GY - AAM	Sampler:	AN, JC.
Piezometer Diameter / Screen Length:	2" / unknown	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	Sunny ~25°C
UTM Location	Z.8 E.584856 N.6913271	Waypoint	GPS AN Name MW14-125/D	Recovery:	<input type="checkbox"/> Good <input type="checkbox"/> Bad
Photos	Cam. AN Nos. 267-270	Purge Method			
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra	Peristaltic	Disp. Bailer
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis			Redi-flo
Initial Depth to Water (m):	/	Purge Start Time:		Purge End Time:	
Depth to <del>Bottom</del> (m):	ICE 2.047	Purge Interval Time ( ) min, Vol. ( ) L			
Submerged Tubing Depth (m):	/	Depth to water (m)			
Well Stick-up Height (m):	0.966	Temperature (°C)			
Estimated Water Volume (L):	/	pH (pH Units)			
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)				
	Specific Cond. (µs/cm)				
	Redox (mV)				
	Appearance & Odour (Clear, Silty, HC odours, etc.)				
	Turbidity (NTU)				
	Interval Purge Volume (L)				
	Cumulative Purge Volume (L):				
YSI Field Parameters Logged:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method			
Time on YSI (24hr):			Waterra	Peristaltic	Disp. Bailer
Actual time of measurement (24hr):		Analysis			Redi-flo

FROZEN

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.



Sample Site (Con't): MW14-125

Sample Date (Con't): Jun. 14/2015

Sample Time: Frozen

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):  
 Stagnant water observed in well movement.  
 Tubing stuck in well. Well assumed to be frozen.

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HNO <sub>3</sub>		
1 L (plastic)	General Chemistry	500 ml	-	-		



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	SFR08-SP 883	Project Number:	1343-005.10	Date:	14-Jun-15			
Approximate Date Drilled:	/	Client:	GY - AAM	Sampler:	JH/MM			
Piezometer Diameter / Screen Length:	2"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	Sunny w clouds ~12°C			
UTM Location	Z. 8 E. 584 28 N. 691253	Waypoint	GPS <del>LEM</del> Name SFR08SP883	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad			
Photos	Cam. <del>FLI</del> Nos. 258-262	Purge Method						
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra	Peristaltic	Disp. Bailer	Redi-flo		
Field Blank Collected	<input checked="" type="checkbox"/> Yes Name _____	Analysis	manual					
Initial Depth to Water (m):	1.924	Purge Start Time:	9:49			Purge End Time:	9:56	
Depth to Bottom (m):	7.035	Purge Interval Time ( ) min, Vol. (3) L	9:51	9:52	9:53	9:54	9:55	9:56
Submerged Tubing Depth (m):	~6	Depth to water (m)	1.942	/	1.943	1.935	1.937	1.935
Well Stick-up Height (m):	1.03	Temperature (°C)	6.7	6.5	6.4	6.4	6.5	6.5
Estimated Water Volume (L):	~10	pH (pH Units)	6.16	6.13	6.15	6.13	6.13	6.14
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	2402	2324	2250	2201	2175	2170	
	Specific Cond. (µs/cm)	_____						
	Redox (mV)	_____						
	Appearance & Odour (Clear, Silty, HC odours, etc.)	turbid	turbid	very turbid (silty)	same	same	same	
	Turbidity (NTU)	/	/	/	/	/	61.1	
	Interval Purge Volume (L)	3	3	3	3	3	3	
	Cumulative Purge Volume (L):	3	6	9	12	15	18	
YSI Field Parameters Logged:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Sample Method						
Time on YSI (24hr):	HANNAH		Waterra	Peristaltic	Disp. Bailer	Redi-flo		
Actual time of measurement (24hr):		Analysis	<input checked="" type="checkbox"/>					

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.



Sample Site (Con't): SRK08-SP88

Sample Date (Con't): 14-Jun-15

Sample Time: 10:15

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

**General Notes (Condition of well, consumables, or other features):**

- Ice in well ~0.5m down,  
 Surrounding ~~well~~ wetterra,  
 See photos  
 - no g-plug on well, will  
 need to be replaced.

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1,000	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	P96-7	Project Number:	1343-005.10	Date:	14-Jun-15						
Approximate Date Drilled:	—	Client:	GY - AAM	Sampler:	JH/MM						
Piezometer Diameter / Screen Length:	2"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	sunny ~10°C						
UTM Location	Z.8 E.58469N. 691327B	Waypoint	GPS Name P96-7*	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad						
Photos	Cam. EUR Nos. 252-254	Purge Method									
Duplicate Collected:	<input type="checkbox"/> Yes Name _____	Analysis	Waterra	Peristaltic	Disp. Bailer	Redi-flo					
Field Blank Collected	<input checked="" type="checkbox"/> Yes Name _____	Analysis		X							
Initial Depth to Water (m):	6.645	Purge Start Time:	8:28	Purge End Time:	9:04						
Depth to Bottom (m):	9.877	Purge Interval Time (3) min, Vol. ( ) L	8:31	8:34	8:37	8:40	8:43	8:46	8:49	8:52	8:55
Submerged Tubing Depth (m):	~8	Depth to water (m)	6.763	6.721	6.737	6.749	6.766	6.773	6.780	6.790	6.800
Well Stick-up Height (m):	0.76	Temperature (°C)	2.6	1.7	1.5	1.4	1.4	1.4	1.3	1.3	1.3
Estimated Water Volume (L):	6.4	pH (pH Units)	7.0	7.11	7.14	7.17	7.19	7.20	7.20	7.22	7.22
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	3009	3018	3000	2964	2978	2961	2963	2919	2876	
	Specific Cond. (µs/cm)										
	Redox (mV)										
	Appearance & Odour (Clear, Silty, HC odours, etc.)	clear, no odour	same	same	same	same	same	same	same	same	
	Turbidity (NTU)	/	/	/	/	/	/	/	/	/	
	Interval Purge Volume (L)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
	Cumulative Purge Volume (L):	0.5	1	1.5	2.0	2.5	3.0	3.5	4.0	4.5	
	YSI Field Parameters Logged:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Sample Method	Waterra	Peristaltic	Disp. Bailer	Redi-flo				
	Time on YSI (24hr):	parameters	Analysis		X						
	Actual time of measurement (24hr):	taken w/ Hanna	Analysis		X						

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.



Sample Site (Con't): P96-7

 Sample Date (Con't): 14-Jun-15

 Sample Time: 9:10

Additional Purge Data:									
Purge Interval Time ( <u>3</u> ) min, Vol. ( ) L	8:58	9:01	9:04						
Depth to water (m)	6.810	6.812	6.818						
Temperature (°C)	1.3	1.2	1.2						
pH (pH Units)	7.21	7.23	7.22						
Cond. (µs/cm)	2849	2875	2835						
Specific Cond. (µs/cm)	_____								
Redox (mV)	_____								
Appearance & Odour (Clear, Silty, HC odours, etc.)	clear	clear	same						
Turbidity (NTU)	/	/	0.45						
Interval Purge Volume (L)	0.5	0.5	0.5						
Cumulative Purge Volume (L):	5.0	5.5	6.0						

General Notes (Condition of well, consumables, or other features):

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	100	
1 L (plastic)	General Chemistry	500 ml	-	-	1,000	

# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	A09-SIS2		Project Number:	1343-005.10 028		Date:	June 18, 2015	
Approximate Date Drilled:			Client:	GY - AAM		Sampler:	JH + MM	
Piezometer Diameter / Screen Length:	2"		Project Name:	Faro 2015 GW Sampling Program		Weather/Temperature:	cloudy, 12°C	
UTM Location	Zone E. 584488 N. 6913117		Waypoint	GPS x Name A09SIS2		Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad	
Photos	Cam. ^ Nos. 297-289		Purge Method					
Duplicate Collected:	<input type="checkbox"/> Yes Name _____			Waterra	Peristaltic	Disp. Bailer	Redi-flo	
Field Blank Collected	<input checked="" type="checkbox"/> Yes Name FB-4		Analysis	X				
Initial Depth to Water (m):	4.050	Purge Start Time:	17:24			Purge End Time:	17:51	
Depth to Bottom (m):	6.328	Purge Interval Time ( ) min, Vol. (L) L	17:29	17:34	17:39	17:43	17:47	17:51
Submerged Tubing Depth (m):	3.75	Depth to water (m)	4.095	4.095	4.095	4.095	4.100	4.100
Well Stick-up Height (m):	1.14	Temperature (°C)	5.3	4.8	4.6	4.5	4.4	4.2
Estimated Water Volume (L):	4.6	pH (pH Units)	5.84	5.59	5.56	5.53	5.53	5.55
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	399	557	623	637	651	649	
	Specific Cond. (µs/cm)	-	-	-	-	-	-	
	Redox (mV)	-	-	-	-	-	-	
	Appearance & Odour (Clear, Silty, HC odours, etc.)	slightly turbid	same	same	same	same	same	
	Turbidity (NTU)	-	-	-	-	-	-	0.74
	Interval Purge Volume (L)	1L	1L	1L	1L	1L	1L	
	Cumulative Purge Volume (L):	1L	2L	3L	4L	5L	6L	
YSI Field Parameters Logged:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Sample Method					
Time on YSI (24hr):	Hanna			Waterra	Peristaltic	Disp. Bailer	Redi-flo	
Actual time of measurement (24hr):			Analysis	X				

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

4-JUN-15  
batch



Sample Site (Con't): P09-S152

Sample Date (Con't): June 14, 2015

Sample Time: 18:00

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):

- Well has transducer. We removed it for purge/sampling.
- No J-plug because of transducer cable
- Hanna cannot record conductivity greater than 3999 µS/cm
- 6" silicone used

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120 mL	
1 L (plastic)	General Chemistry	500 ml	-	-	1L	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	SRK05-SP-4B	Project Number:	1343-005.10	Date:	Jun. 14/2015						
Approximate Date Drilled:	unknown	Client:	GY - AAM	Sampler:	AN, JC						
Piezometer Diameter / Screen Length:	2" / unknown.	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	Overcast ~20°C						
UTM Location	Z. 8 E. 584500 N. 6913117	Waypoint	GPS AN Name SRK05-SP-4B	Recovery:	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Bad						
Photos	Cam. AN Nos. 786-788	Purge Method									
Duplicate Collected:	<input type="checkbox"/> Yes Name _____	Analysis	Waterra	Peristaltic	Disp. Bailer	Redi-flo					
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis		<del>X</del>							
Initial Depth to Water (m):	4.124	Purge Start Time:	17:25			Purge End Time:	17:44				
Depth to Bottom (m):	4.730	Purge Interval Time (3) min, Vol. ( ) L	17:26	17:29	17:32	17:35	17:38	17:41	17:44		
Submerged Tubing Depth (m):	~4.4	Depth to water (m)	/	4.265		4.312	4.365	4.408	4.436		
Well Stick-up Height (m):	0.798	Temperature (°C)	3.5	2.0	lowered.	2.3	2.4	2.2	2.1		
Estimated Water Volume (L):	~1.2	pH (pH Units)	6.28	6.15		6.10	6.13	6.13	6.12		
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	4984	4651		4893	4861	4838	4846			
	Specific Cond. (µs/cm)	8461	8265		8694	8563	8571	8586			
	Redox (mV)	73.8	38.6		120.7	107.2	82.3	77.8			
	Appearance & Odour (Clear, Silty, HC odours, etc.)	clear	sand		same.	same	same	same			
Turbidity (NTU)	/	/		/	/	/	/			Collected sample spot to run DO, ORP still other parameters stable.	
Interval Purge Volume (L)	0.2	0.45		0.6	0.4	0.35	0.25				
Cumulative Purge Volume (L):	0.2	0.65		1.25	1.65	2.0	2.25				
YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method									
Time on YSI (24hr):	17:46	Analysis	Waterra	Peristaltic	Disp. Bailer	Redi-flo					
Actual time of measurement (24hr):	17:46	Analysis		<del>X</del>							

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.



Sample Site (Con't): SRK05-SP-4B

Sample Date (Con't): Jun. 14/2015

Sample Time: 17:50

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	P09-5153	Project Number:	1343-005.10	Date:	Jun. 14 / 2015			
Approximate Date Drilled:	unknown	Client:	GY - AAM	Sampler:	AN, JC.			
Piezometer Diameter / Screen Length:	2" / unknown	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	overcast ~20°C			
UTM Location	Z. 8 E. 584493 N. 6913107	Waypoint	GPS AN Name P09-5153	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad			
Photos	Cam. AN Nos. 783-785	Purge Method						
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra	Peristaltic	Disp. Bailer	Redi-flo		
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis		<input checked="" type="checkbox"/>				
Initial Depth to Water (m):	3.994	Purge Start Time:	16:52			Purge End Time:	17:08	
Depth to Bottom (m):	4.628	Purge Interval Time (3) min, Vol. ( ) L	16:53	16:56	16:59	17:02	17:05	17:08
Submerged Tubing Depth (m):	~4.2	Depth to water (m)	4.016	4.017	4.020	4.024	4.024	4.025
Well Stick-up Height (m):	1.036	Temperature (°C)	6.6	5.1	3.2	3.3	3.1	3.0
Estimated Water Volume (L):	~1.0	pH (pH Units)	6.10	5.91	5.92	5.89	5.88	5.83
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	6535	6112	6247	6370	6375	6380	
	Specific Cond. (µs/cm)	10202	10428	10707	10916	10951	10995	
	Redox (mV)	342.0	338.5	333.3	329.7	327.6	323.6	
	Appearance & Odour (Clear, Silty, HC odours, etc.)	Slightly turbid brown.	same.	same	same	same	same	
	Turbidity (NTU)	/	/	/	/	/	0.87	
	Interval Purge Volume (L)	0.25	0.4	0.45	0.5	0.55	0.5	
	Cumulative Purge Volume (L):	0.25	0.65	1.05	1.55	2.1	2.6	
YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method						
Time on YSI (24hr):	17:09		Waterra	Peristaltic	Disp. Bailer	Redi-flo		
Actual time of measurement (24hr):	17:09	Analysis		<input checked="" type="checkbox"/>				

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.



Sample Site (Con't): P09-5153

Sample Date (Con't): Jun. 14/2015

Sample Time: 17:10

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	

# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	NW14-08	Project Number:	1343-005.10	Date:	14-Jul-15						
Approximate Date Drilled:	July 2014	Client:	GY - AAM	Sampler:	JH/MM						
Piezometer Diameter / Screen Length:	3"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	sunny ~15°C						
UTM Location	Z.8 E.58470 N.6913035	Waypoint	GPSAEM Name NW14-11*	Recovery:	<input type="checkbox"/> Good <input type="checkbox"/> Bad						
Photos	Cam. Roll Nos. 266-268	Purge Method									
Duplicate Collected:	<input type="checkbox"/> Yes Name _____	Analysis	Waterra	Peristaltic	Disp. Bailer						
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis		X	Redi-flo						
Initial Depth to Water (m):	1.396	Purge Start Time:	#25 11:36			Purge End Time:					
Depth to Bottom (m):	2.190	Purge Interval Time ( ) min, Vol. (L)	11:39	11:43	11:46	11:51	12:35	12:39	12:43	12:47	12:50
Submerged Tubing Depth (m):	1.50	Depth to water (m)	1.885	1.966	1.995	2.050	1.825	1.970	2.016	2.042	2.060
Well Stick-up Height (m):	1.000	Temperature (°C)	8.4	5.0	3.7	4.1		8.0	4.4	4.1	4.2
Estimated Water Volume (L):	1.59	pH (pH Units)	6.85	6.93	6.94	6.93		6.85	7.0	7.05	6.99
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	785	878	852	842		862	912	894	770	
	Specific Cond. (µs/cm)										
	Redox (mV)										
	Appearance & Odour (Clear, Silty, HC odours, etc.)	very turbid	turbid	very turbid	same		turbid (more clear than last purge)	same	same	same	
	Turbidity (NTU)	/	/	/			/	/	/	/	
	Interval Purge Volume (L)	0.4	0.4	0.4	0.4		0.4	0.4	0.4	0.4	
	Cumulative Purge Volume (L):	0.4	0.8	1.20	1.60	1.1	2.0	2.4	2.8	3.2	
YSI Field Parameters Logged:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Sample Method	Waterra	Peristaltic	Disp. Bailer	Redi-flo					
Time on YSI (24hr):	HANNAH.	Analysis		X							
Actual time of measurement (24hr):		Analysis		X							

OKay

→ upon return

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.



Sample Site (Con't): MW14-08

Sample Date (Con't): 14-Jun-15

Sample Time: 13:10

Additional Purge Data:					
Purge Interval Time ( ) min, Vol. (4) L	12:54	12:58	13:02	13:06	
Depth to water (m)	2.095	2.118	2.138	2.153	
Temperature (°C)	3.6	3.4	3.3	3.1	
pH (pH Units)	6.85	7.02	7.04	7.01	
Cond. (µs/cm)	726	708	685	657	
Specific Cond. (µs/cm)	-	-	-	-	
Redox (mV)	-	-	-	-	
Appearance & Odour (Clear, Silty, HC odours, etc.)	sand	sand	sand	sand	
Turbidity (NTU)	-	-	-	57.3	
Interval Purge Volume (L)	4L	4L	4L	4L	
Cumulative Purge Volume (L):	3.6L	4.0L	4.4L	4.8L	

**General Notes (Condition of well, consumables, or other features):**

- 6" silicon added
- new peritubing added ~ 7m
- ice lodged @ various points in the well.
- unbreakable solid ice @ 2.21,
- able to get tubing past, will attempt to purge (unable to get water level past).
- since there is a 60cm water column over the ice, we decided to purge.
- actual DTB should be 3.27
- 1 full well volume purged, left to recharge.

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	100 mL	
1 L (plastic)	General Chemistry	500 ml	-	-	1,000	

- DTW upon return = 1.825 @ 12:35 14-Jun-15.
- 3 full well volumes purged. Water quality parameters highly variable.
- Sample collected based on 3 well volumes purged



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	MW14-10	Project Number:	1343-005.10	Date:	14-Jun-15						
Approximate Date Drilled:		Client:	GY - AAM	Sampler:	JH/MM						
Piezometer Diameter / Screen Length:	2"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	Sunny ~15°C						
UTM Location	Z.8 E.58483 N.6913047	Waypoint	GPS <del>HW</del> Name MW14-16*	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad						
Photos	Cam. FLR Nos. 272-274	Purge Method									
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra	Peristaltic	Disp. Bailer						
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis		X	Redi-flo						
Initial Depth to Water (m):	3.485	Purge Start Time:	11:55	Purge End Time:	12:23						
Depth to Bottom (m):	5.540	Purge Interval Time ( ) min, Vol. 0.75 L	11:59	12:02	12:07	12:10	12:15	12:19	12:23		
Submerged Tubing Depth (m):	2.5	Depth to water (m)	3.643	3.709	3.745	3.750	3.789	3.800	3.885		
Well Stick-up Height (m):	0.735	Temperature (°C)	3.2	2.2	2.2	2.1	1.8	2.2	2.0		
Estimated Water Volume (L):	4	pH (pH Units)	7.17	7.20	7.18	7.18	7.17	7.17	7.11		
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	923	928	935	940	947	942	938			
	Specific Cond. (µs/cm)										
	Redox (mV)										
	Appearance & Odour (Clear, Silty, HC odours, etc.)	clear no odour	same	same	same	same	same	same	same		
	Turbidity (NTU)	/	/	/	/	/	/	/	9.19		
	Interval Purge Volume (L)	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75		
Cumulative Purge Volume (L):	0.75	1.50	2.25	3.0	3.75	4.25	5.0				
YSI Field Parameters Logged:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Sample Method		Waterra	Peristaltic	Disp. Bailer	Redi-flo				
Time on YSI (24hr):	HANNAH										
Actual time of measurement (24hr):		Analysis		X							

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

Sample Site (Con't): MW14-10

Sample Date (Con't): 14-Jun-15

Sample Time: 10:30

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):

- new 6" silicon added

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1,000	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	MW14-09	Project Number:	1343-005.10	Date:	14-Jun-15				
Approximate Date Drilled:	July 2014	Client:	GY - AAM	Sampler:	JH/MM				
Piezometer Diameter / Screen Length:	2"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	sunny ~15°C				
UTM Location	Z. 8E. 8469 N. 6913041	Waypoint	GPS <u>ELL</u> Name <u>MW14-09*</u>	Recovery:	<input type="checkbox"/> Good <input type="checkbox"/> Bad				
Photos	Cam. <u>EL</u> Nos. <u>269-271</u>	Purge Method							
Duplicate Collected:	<input type="checkbox"/> Yes Name _____	<table border="1"> <tr> <td>Water</td> <td>Peristaltic</td> <td>Disp. Bailer</td> <td>Redi-flo</td> </tr> </table>				Water	Peristaltic	Disp. Bailer	Redi-flo
Water	Peristaltic	Disp. Bailer	Redi-flo						
Field Blank Collected	<input checked="" type="checkbox"/> Yes Name _____	Analysis							
Initial Depth to Water (m):	~	Purge Start Time:	Purge End Time:						
Depth to Bottom (m):	2.416 @ ice	Purge Interval Time ( ) min, Vol. ( ) L							
Submerged Tubing Depth (m):		Depth to water (m)							
Well Stick-up Height (m):	0.81	Temperature (°C)							
Estimated Water Volume (L):		pH (pH Units)							
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	<del>ROZEN</del>							
	Specific Cond. (µs/cm)								
	Redox (mV)								
	Appearance & Odour (Clear, Silty, HC odours, etc.)								
	Turbidity (NTU)								
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									
YSI Field Parameters Logged:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method							
Time on YSI (24hr):		<table border="1"> <tr> <td>Water</td> <td>Peristaltic</td> <td>Disp. Bailer</td> <td>Redi-flo</td> </tr> </table>				Water	Peristaltic	Disp. Bailer	Redi-flo
Water	Peristaltic	Disp. Bailer	Redi-flo						
Actual time of measurement (24hr):		Analysis							

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.



Sample Site (Con't): \_\_\_\_\_

Sample Date (Con't): \_\_\_\_\_

Sample Time: \_\_\_\_\_

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HNO <sub>3</sub>		
1 L (plastic)	General Chemistry	500 ml	-	-		



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	MW14-11	Project Number:	1343-005.10	Date:	14-Jun-15					
Approximate Date Drilled:	July 2014	Client:	GY - AAM	Sampler:	MM/JH					
Piezometer Diameter / Screen Length:	2"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	Sunny ~ 15°C					
UTM Location	Z. 8 E. 584680N. 6913031	Waypoint	GPS <del>HEM</del> Name MW14-11*	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad					
Photos	Cam. # Nos. 263-265	Purge Method								
Duplicate Collected:	<input checked="" type="checkbox"/> Yes Name Dup-6	Waterria	Peristaltic	Disp. Bailer	Redi-flo					
Field Blank Collected	<input checked="" type="checkbox"/> Yes Name FB-3	Analysis	X							
Initial Depth to Water (m):	1.915	Purge Start Time:	10:43	Purge End Time:	11:07					
Depth to Bottom (m):	4.430	Purge Interval Time ( ) min, Vol. ( ) L .	10:47	10:51	10:57	11:01	11:07			
Submerged Tubing Depth (m):	~3.5	Depth to water (m)	2.241	2.409	2.529	2.645	2.745			
Well Stick-up Height (m):	0.725	Temperature (°C)	3.5	2.5	2.5	2.3	2.4			
Estimated Water Volume (L):	15	pH (pH Units)	6.65	6.69	6.60	6.61	6.60			
<p>(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume</p> <p>(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume</p> <p>2" casing has 0.16 USgal/ft or 2.032 l/m</p> <p>1" casing has 0.04 USgal/ft or 0.508 l/m</p> <p>8" sand pack has 0.73 USgal/ft or 9.271 l/m</p> <p>6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m</p>	Cond. (µs/cm)	582	594	609	612	614				
	Specific Cond. (µs/cm)									
	Redox (mV)									
	Appearance & Odour (Clear, Silty, HC odours, etc.)	turbid	turbid	same	same	same				
	Turbidity (NTU)	/	/	/	/	5.21				
	Interval Purge Volume (L)	1	1	1	1	1				
	Cumulative Purge Volume (L):	1	2	3	4	5				
	YSI Field Parameters Logged:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Sample Method							
	Time on YSI (24hr):	HANNAH	Waterria	Peristaltic	Disp. Bailer	Redi-flo				
	Actual time of measurement (24hr):		Analysis	X						

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.



Sample Site (Con't): MW 14-11

Sample Date (Con't): 14-June-15

Sample Time: 11:10

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):

- 6" of silicon used  
- FB batch date 4-June-15.

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1,000	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	SRK08-SP48A	Project Number:	1343-005.10	Date:	14-Jun-15	
Approximate Date Drilled:		Client:	GY - AAM	Sampler:	JH/MM	
Piezometer Diameter / Screen Length:	2"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	Sunny ~12°C	
UTM Location	Z. B.E. 58899 N. 6912955	Waypoint	GPS <u>JH</u> Name <u>SRK08SP48A</u>	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad	
Photos	Cam. <u>FLR</u> Nos. <u>255-257</u>	Purge Method				
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra	Peristaltic	Disp. Bailer	
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis	Redi-flo			
Initial Depth to Water (m):	1.951	Purge Start Time:	9:35	Purge End Time:		
Depth to Bottom (m):	8.520	Purge Interval Time ( ) min, Vol. (3) L	9:36	9:38	9:40	
Submerged Tubing Depth (m): <sup>0.25</sup> <del>7.76</del>		Depth to water (m)	1.952	/	/	
Well Stick-up Height (m):	1.190	Temperature (°C)	2.0	1.1	0.8	
Estimated Water Volume (L):	~12	pH (pH Units)	6.24	6.10	6.11	
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	2544	2409	2226	2180	
	Specific Cond. (µs/cm)					
	Redox (mV)	_____				
	Appearance & Odour (Clear, Silty, HC odours, etc.)	Slightly turbid	same	same	same	same
	Turbidity (NTU)	/	/	/	/	950
	Interval Purge Volume (L)	3	3	3	3	3
	Cumulative Purge Volume (L):	3	6	9	12	15
	YSI Field Parameters Logged:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Sample Method			
	Time on YSI (24hr):	HANNAH		Waterra	Peristaltic	Disp. Bailer
	Actual time of measurement (24hr):		Analysis	X		

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.





Sample Site (Con't): SRK08-SP-8A

Sample Date (Con't): 14-Jun-15

Sample Time: 10:00

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):

- Ice blockage @ ~0.5m, unable to get water level tape through, still able to purge.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input type="checkbox"/> HNO <sub>3</sub>	180	
1 L (plastic)	General Chemistry	500 ml	-	-	1,000	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	P0001-02B	Project Number:	1343-005.10	Date:	13-Jun-15	
Approximate Date Drilled:		Client:	GY - AAM	Sampler:	MMIAN	
Piezometer Diameter / Screen Length:	2"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	overcast 100°	
UTM Location	Z.8 E.593129N6902867	Waypoint	GPS ___ Name ___	Recovery:	<input type="checkbox"/> Good <input type="checkbox"/> Bad	
Photos	Cam. <u>ELR</u> Nos. <u>238-247</u>	Purge Method				
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra	Peristaltic	Disp. Bailer	
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis				
Initial Depth to Water (m):	4.130	Purge Start Time:	11:15	Purge End Time:		
Depth to Bottom (m):	27.50	Purge Interval Time ( ) min, Vol. (30) L				
Submerged Tubing Depth (m):	N/S	Depth to water (m)	/	/	24.55	
Well Stick-up Height (m):	0.42	Temperature (°C)	4.0	3.7	7.0	
Estimated Water Volume (L):	46.9	pH (pH Units)	7.5	7.3	7.8	
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. ( <del>µs/cm</del> ) ms/cm	3.99	3.95	3.87	3.92	
	Specific Cond. (µs/cm)	Could not monitor Sp. Con. using pen. meter				
	Redox (mV)	2' redox				
	Appearance & Odour (Clear, Silty, HC odours, etc.)	Grey turbid	Same	Same	light grey	Same
	Turbidity (NTU)	/	/	/	/	/
Interval Purge Volume (L)	15	15	30	30	<del>10</del>	
Cumulative Purge Volume (L):	15	30	60	90	<del>100</del>	
YSI Field Parameters Logged:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Sample Method				
Time on YSI (24hr):	(used Pen)		Waterra	Peristaltic	Disp. Bailer	
Actual time of measurement (24hr):	-	Analysis	X			

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

Sample Site (Con't): P2001-02B

 Sample Date (Con't): June 14, 2015

 Sample Time: 8:50

June 14, 2015

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L	-								
Depth to water (m)	4.200								
Temperature (°C)	4.9								
pH (pH Units)	7.4								
Cond. (µs/cm) <small>mS</small>	3.96								
Specific Cond. (µs/cm)	-								
Redox (mV)	-								
Appearance & Odour (Clear, Silty, HC odours, etc.)	slightly turbid								
Turbidity (NTU)	11.6								
Interval Purge Volume (L)	1L								
Cumulative Purge Volume (L):	-								

**General Notes (Condition of well, consumables, or other features):**

- large amounts of bentonite at top of stick-up, + inside stick-up (see photos)
- upon arrival ~ 1cm opening in bentonite where water level tape was able to fit through
- sample may be compromised due to bentonite
- Recommendation: Redrill well, or flush well (redrill would be the best option) + add ~ 20cm <sup>spvc</sup> on to top of stick-up to prevent ~~the~~ more bentonite from entering
- Debris from metal casing (bentonite?) ~~is~~ falling into well stick up. Likely contamination of sample.

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120mL	slightly turbid
1 L (plastic)	General Chemistry	500 ml	-	-	1L	

purged 1 L prior to sample collection



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	P09-S151	Project Number:	1343-005.10 og	Date:	June 14, 2015
Approximate Date Drilled:		Client:	GY - AAM	Sampler:	JH + MM
Piezometer Diameter / Screen Length:	2"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	Cloudy 12°C
UTM Location	Z.08 E.584477 N.6913136	Waypoint	GPS <input checked="" type="checkbox"/> Name P09-S151*	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad
Photos	Cam. <del>EG</del> Nos. P09-S151	Purge Method			
Duplicate Collected:	<input type="checkbox"/> Yes Name _____	Watterra	Peristaltic	Disp. Bailer	Redi-flo
Field Blank Collected	<input checked="" type="checkbox"/> Yes Name _____	Analysis	X		
Initial Depth to Water (m):	4.915	Purge Start Time:	1648	Purge End Time:	
Depth to Bottom (m):	6.481	Purge Interval Time ( ) min, Vol. (5) L	16:52 16:56 17:00 17:02 17:06 17:09 17:12		
Submerged Tubing Depth (m):	6.00	Depth to water (m)	5.115 5.305 5.412 5.518 5.625 5.767 5.825		
Well Stick-up Height (m):	1.61	Temperature (°C)	6.3 5.1 4.5 4.6 4.2 4.2 4.2		
Estimated Water Volume (L):	3L	pH (pH Units)	5.96 5.95 6.16 6.32 7.21 7.21 7.21		
<p>26.5 -4.9 +1.2</p> <p>(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume</p> <p>(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume</p> <p>2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m</p>	Cond. (µs/cm)	820 563 >3999 >3999 >3999 >3999 >3999			
	Specific Cond. (µs/cm)	- - - - - - -			
	Redox (mV)	- - - - - - -			
	Appearance & Odour (Clear, Silty, HC odours, etc.)	turbid turbid turbid turbid turbid turbid turbid			
	Turbidity (NTU)	- - - - - - 43.0			
	Interval Purge Volume (L)	.5L .5L .5L .5L .5L .5L .5			
	Cumulative Purge Volume (L):	.5L 1L 1.5L 2L 2.5L 3L 3.5			
YSI Field Parameters Logged:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Sample Method			
Time on YSI (24hr):	HANNA	Watterra	Peristaltic	Disp. Bailer	Redi-flo
Actual time of measurement (24hr):		Analysis	X		

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

Sample Site (Con't): PO9-SIS1

 Sample Date (Con't): 14-Jun-15

 Sample Time: 17:15

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

**General Notes (Condition of well, consumables, or other features):**

- Well has transducers inside. We removed it during purge/sampling  
 - No 2-plug because of transducer cable  
 - 6" silicone use

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120 mL	
1 L (plastic)	General Chemistry	500 ml	-	-	1L	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	SDB	Project Number:	1343-005.10-08	Date:	14-June-14						
Approximate Date Drilled:	—	Client:	GY - AAM	Sampler:	JH/MM						
Piezometer Diameter / Screen Length:	2"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	Sunny ~15°C.						
UTM Location	Z. 8E. 504160 N. 691311 E	Waypoint	GPS HEM Name SDB*	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad						
Photos	Cam. # Nos. 281-283	Purge Method									
Duplicate Collected:	<input type="checkbox"/> Yes Name	Watterra	Peristaltic	Disp. Bailer	Redi-flo						
Field Blank Collected	<input type="checkbox"/> Yes Name	Analysis	X								
Initial Depth to Water (m):	4.468	Purge Start Time:	16:06	Purge End Time:	16:39						
Depth to Bottom (m):	7.065	Purge Interval Time ( ) min, Vol. ( ) L	16:12	16:17	16:20	16:24	16:29	16:34	16:39		
Submerged Tubing Depth (m):	16.25	Depth to water (m)	4.941	5.147	5.360	5.577	5.775	5.900	6.020		
Well Stick-up Height (m):	0.515	Temperature (°C)	4.1	3.1	3.0	3.0	3.0	3.1	3.0		
Estimated Water Volume (L):	5.2	pH (pH Units)	6.13	6.12	6.15	6.04	5.95	5.89	5.91		
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	3197	3212	3438	3899	3999	3999	3999			
	Specific Cond. (µs/cm)	—	—	—	—	—	—	—			
	Redox (mV)	—	—	—	—	—	—	—			
	Appearance & Odour (Clear, Silty, HC odours, etc.)	very turbid	turbid	turbid	turbid	turbid	turbid	turbid			
	Turbidity (NTU)	—	—	—	—	—	—	—	27.8		
	Interval Purge Volume (L)	1L	2L	1L	1L	1L	1L	1L			
	Cumulative Purge Volume (L):	1L	2L	3L	4L	5L	6L	7L			
YSI Field Parameters Logged:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Sample Method									
Time on YSI (24hr):	HANNA	Watterra	Peristaltic	Disp. Bailer	Redi-flo						
Actual time of measurement (24hr):		Analysis	X								

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.



Sample Site (Con't): S2B

Sample Date (Con't): June 14, 2015

Sample Time: 16:40

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):

- 8m of peritubing added
- 6" silicon added
- @ 16:24 conductivity blinking 3999 b/c hit max ∴ >3999

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120ml	
1 L (plastic)	General Chemistry	500 ml	-	-	1L	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	S2A	Project Number:	1343-005.10	Date:	14-Jun-15	
Approximate Date Drilled:	/	Client:	GY - AAM	Sampler:	JH/MM	
Piezometer Diameter / Screen Length:	2"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	Sunny 15°C	
UTM Location	Z.8 E. 5846 N. 6913117	Waypoint	GPS Name S2A*	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad	
Photos	Camera Nos. 281-283	Purge Method				
Duplicate Collected:	<input type="checkbox"/> Yes Name		Waterra	Peristaltic	Disp. Bailer	
Field Blank Collected	<input checked="" type="checkbox"/> Yes Name	Analysis	manual		Redi-flo	
Initial Depth to Water (m):	5.210	Purge Start Time:	15:12	Purge End Time:	15:33	
Depth to Bottom (m):	12.710	Purge Interval Time ( ) min, Vol. (3) L	15:13	15:14	15:18	
Submerged Tubing Depth (m):	~11.7	Depth to water (m)	/	6.925	7.652	
Well Stick-up Height (m):	1.230	Temperature (°C)	6.2	3.2	2.7	
Estimated Water Volume (L):	15	pH (pH Units)	6.07	5.97	5.95	
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Conductivity (µs/cm)	1752	1619	1625	1442	
	Specific Cond. (µs/cm)					
	Redox (mV)					
	Appearance & Odour (Clear, Silty, HC odours, etc.)	extremely turbid, very silty, cloudy	silty	very silty	same	same
	Turbidity (NTU)	/	/	/	/	/
	Interval Purge Volume (L)	3	3	3	3	3
	Cumulative Purge Volume (L):	3	6	9	12	15
	YSI Field Parameters Logged:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Sample Method			
	Time on YSI (24hr):	HANNA		Waterra	Peristaltic	Disp. Bailer
	Actual time of measurement (24hr):		Analysis		X	

8905  
0.91  
~~8.045~~

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.



Sample Site (Con't): S2A

 Sample Date (Con't): 14-Jun-15

 Sample Time: 16:00
*time of sample.*

Additional Purge Data:						
Purge Interval Time ( ) min, Vol. (3) L	15:28	15:30	15:31	15:33		16:00
Depth to water (m)	9.160	10.130	11.160	10.410		
Temperature (°C)	2.4	2.5	2.5	2.5		6.3
pH (pH Units)	6.0	6.0	6.0	6.0		5.97
Cond. (µs/cm)	1709	1619	1585	1701		1715
Specific Cond. (µs/cm)						
Redox (mV)						
Appearance & Odour (Clear, Silty, HC odours, etc.)	silty	same	same	same		silty
Turbidity (NTU)	/	/	/	705		705
Interval Purge Volume (L)	3	6	6	3		
Cumulative Purge Volume (L):	30	36	42	45		

**General Notes (Condition of well, consumables, or other features):**

~~S2A~~ - stick-up cracked

- well cuppler cracked @ 1m below pipe, needs new cuppler

- ~~DTW meas~~

- sample taken @ cuppler ∴ extra 91cm added to each DTW measurement (→ 91cm is where cuppler is cracked).

- DTW (rerunning) 6.250m @ 15:53

- 14m of pre-tubing added

- 6" of silicon added.

340

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1,000	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	SRK08-SP7B	Project Number:	1343-005.10	Date:	14-Jun-15	
Approximate Date Drilled:		Client:	GY - AAM	Sampler:	JH/MM	
Piezometer Diameter / Screen Length:	2"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	Sunny ~15°C	
UTM Location	Z.8 E. 584434N. 6913097E	Waypoint	GPS <del>HEM</del> Name SRK507B	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad	
Photos	Cam. <del>ELL</del> Nos. 275-277	Purge Method				
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Watterra	Peristaltic	Disp. Bailer	
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis		<input checked="" type="checkbox"/>	Redi-flo	
Initial Depth to Water (m):	2.738	Purge Start Time:	13:39	Purge End Time:		
Depth to Bottom (m):	8.725	Purge Interval Time ( ) min, Vol. (2) L	8:46	8:55	14:03	
Submerged Tubing Depth (m):	8.0	Depth to water (m)	2.740	2.742	2.741	
Well Stick-up Height (m):	1.09	Temperature (°C)	5.1	3.0	2.6	
Estimated Water Volume (L):	~12	pH (pH Units)	6.63	6.23	6.32	
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	2002	249	262	265	
	Specific Cond. (µs/cm)					
	Redox (mV)					
	Appearance & Odour (Clear, Silty, HC odours, etc.)	slightly turbid	same	slightly turbid	same	clear
	Turbidity (NTU)	/	/	/	/	6.56
	Interval Purge Volume (L)	2	2	2	2	2
	Cumulative Purge Volume (L):	2	4	6	8	10
	YSI Field Parameters Logged:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Sample Method			
	Time on YSI (24hr):	HANNAH		Watterra	Peristaltic	Disp. Bailer
	Actual time of measurement (24hr):		Analysis		<input checked="" type="checkbox"/>	

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.



Sample Site (Con't): SRK08-SP7B

Sample Date (Con't): 14-Jun-15

Sample Time: 14:10

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):  
 -new 6" silicon tubing used.

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1,000	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	PO9-LCD1	Project Number:	1343-005.10	Date:	Jun. 13/2015	
Approximate Date Drilled:	unknown	Client:	GY - AAM	Sampler:	AN, mm	
Piezometer Diameter / Screen Length:	2" / unknown	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	cloudy/sunny ~ 20°C	
UTM Location	Z. 8 E. 593358 N. 6903314	Waypoint	GPS AN Name PO9-LCD1	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad	
Photos	Cam. AN Nos. 752-754	Purge Method				
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra	Peristaltic	Disp. Bailer	
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis		<input checked="" type="checkbox"/>	Redi-flo	
Initial Depth to Water (m):	3.56	Purge Start Time:	14:59		Purge End Time:	15:24
Depth to Bottom (m):	7.407	Purge Interval Time (S) min, Vol. ( ) L	15:04	15:09	15:14	15:19
Submerged Tubing Depth (m):	~6.4	Depth to water (m)	3.800	3.796	3.796	3.796
Well Stick-up Height (m):	0.93	Temperature (°C)	3.5	3.5	3.4	3.3
Estimated Water Volume (L):	~8.0	pH (pH Units)	7.46	7.42	7.39	7.38
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m.	Cond. (µs/cm)	542	570	574	575	575
	Specific Cond. (µs/cm)	922	968	978	981	980
	Redox (mV)	-90.4	-93.4	-96.1	-98.0	-98.0
	Appearance & Odour (Clear, Silty, HC odours, etc.)	Clear no odour	Same	Same	Same	Same TSI logged.
	Turbidity (NTU)	/	/	/	/	71.07
Interval Purge Volume (L)	1.4	1.6	2.0	2.0	2.0	
Cumulative Purge Volume (L):	1.4	3.0	5.0	7.0	9.0	
YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method				
Time on YSI (24hr):	15:25		Waterra	Peristaltic	Disp. Bailer	
Actual time of measurement (24hr):	15:25	Analysis		<input checked="" type="checkbox"/>	Redi-flo	

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.



Sample Site (Con't): P09-LCD2

Sample Date (Con't): Jun. 13/2015

Sample Time: 15:30

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	

# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	V34	Project Number:	1343-005.10	Date:	Jun. 13/2015			
Approximate Date Drilled:	unknown	Client:	GY - AAM	Sampler:	AN, mm			
Piezometer Diameter / Screen Length:	2" / unknown	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	overcast ~18°C			
UTM Location	Z. 8E. 593430N. 690247E	Waypoint	GPS AN Name V34	Recovery:	<input type="checkbox"/> Good <input type="checkbox"/> Bad <span style="float: right;">✓ okay</span>			
Photos	Cam. AN Nos. 765-767	Purge Method						
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra	Peristaltic	Disp. Bailer			
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis	manual					
Initial Depth to Water (m):	5.851	Purge Start Time:	16:05			Purge End Time:	16:25	
Depth to Bottom (m):	12.831	Purge Interval Time ( ) min, Vol. (3) L	16:07	16:10	16:12	16:18	16:23	17:10 <sup>sampled</sup>
Submerged Tubing Depth (m):	~10	Depth to water (m)	-	-	7.975	8.200	8.155	6.526
Well Stick-up Height (m):	0.547	Temperature (°C)	3.4	2.8	2.8	3.0	3.3	4.4
Estimated Water Volume (L):	~14.0	pH (pH Units)	7.13	7.12	7.09	7.10	7.21	7.21
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	698	1211	1193	1207	1204		1337
	Specific Cond. (µs/cm)	820	2105	2078	2081	2055		2203
	Redox (mV)	28.3	2.1	-12.2	-12.6	-21.2		44.3
	Appearance & Odour (Clear, Silty, HC odours, etc.)	sulphur odour, light grey	same	clearing up, no odour	slightly turbid	same	Water slightly turbid in bottom of well.	YSI logged. Clear.
	Turbidity (NTU)	-	-	-	-	-		13.06
Interval Purge Volume (L)	3	3	3	3	2.5			
Cumulative Purge Volume (L):	3	6	9	12	14.5			
YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method						
Time on YSI (24hr):	17:19		Waterra	Peristaltic	Disp. Bailer	Redi-flo		
Actual time of measurement (24hr):	17:19	Analysis		X				

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.



Sample Site (Con't): V34

Sample Date (Con't): Jun. 13/2015

Sample Time: 16:10

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):  
~~was~~ purged as much as possible, @ 16:05  
 will return to get sample once well has recharged and settled to reduce turbidity.  
 Sampled @ 17:10 on Jun. 13/2015.

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	

# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	V35	Project Number:	1343-005.10	Date:	Jun. 13/2015
Approximate Date Drilled:	unknown	Client:	GY - AAM	Sampler:	AN, MM
Piezometer Diameter / Screen Length:	2" / unknown	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	overcast ~20°C
UTM Location	Z.8 E.593178 N. 6902553	Waypoint	GPS AN Name V35	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad
Photos	Cam. AN Nos. 758-760	Purge Method			
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Watterra	Peristaltic	Disp. Bailer
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis	manual		Redi-flo
Initial Depth to Water (m):	8.311	Purge Start Time:	16:40	Purge End Time:	16:58
Depth to Bottom (m):	16.021	Purge Interval Time ( ) min, Vol. (3.0) L			17:35
Submerged Tubing Depth (m):	~15	Depth to water (m)	10.072	11.290	12.455
Well Stick-up Height (m):	~0.490	Temperature (°C)	3.0	2.9	2.9
Estimated Water Volume (L):	~16.0	pH (pH Units)	7.38	7.28	7.23
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Conductivity (µs/cm)	1936	1704	1663	1631
	Specific Cond. (µs/cm)	3341	2955	2881	2833
	Redox (mV)	71.6	95.2	110.9	130.4
	Appearance & Odour (Clear, Silty, HC odours, etc.)	Clear. No odour.	Silty	Silty	Silty
	Turbidity (NTU)	/	/	/	/
Interval Purge Volume (L)	3.0	3.0	3.0	3.0	4.0
Cumulative Purge Volume (L):	3.0	6.0	9.0	12.0	16.0
YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method			
Time on YSI (24hr):	17:50		Watterra	Peristaltic	Disp. Bailer
Actual time of measurement (24hr):	17:51	Analysis		X	

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.





Sample Site (Con't): V35

Sample Date (Con't): Jun. 13/2015

Sample Time: 17:35

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

**General Notes (Condition of well, consumables, or other features):**

Purged 16 L from well @ 16:40.  
Will let well recharge and collect sample.  
Returned to sample @ 17:35.

Temp. in the YSI logged field parameters appears to be very high (7.1°C), not sure why this is. Sample clear, all other parameters are similar to purge values.

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	

# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	P2001-02A	Project Number:	1343-005.10	Date:	Jan. 13/2015						
Approximate Date Drilled:	unknown	Client:	GY - AAM	Sampler:	AN, MM						
Piezometer Diameter / Screen Length:	2"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	overcast ~15°C						
UTM Location	Z. 8 E. 59369 N. 69 02 867	Waypoint	GPS AN Name P2001-02B	Recovery:	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Bad						
Photos	Cam. <u>ELR</u> Nos. <u>238-247</u>	Purge Method									
Duplicate Collected:	<input type="checkbox"/> Yes Name _____	Analysis	Watterra	Peristaltic	Disp. Bailer	Redi-flo					
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis	<input checked="" type="checkbox"/>								
Initial Depth to Water (m):	4.290	Purge Start Time:	11:12			Purge End Time:	11:52				
Depth to Bottom (m):	6.353	Purge Interval Time (S) min, Vol. ( ) L	11:17	11:22	11:27	11:32	11:37	11:42	11:47	11:52	11:57
Submerged Tubing Depth (m):	~5	Depth to water (m)	4.800	5.120	5.325	5.270	5.600	5.720	5.850	5.880	5.730
Well Stick-up Height (m):	0.64	Temperature (°C)	3.9	3.9	4.2	4.4	4.7	4.7	4.8	4.8	
Estimated Water Volume (L):	4.1	pH (pH Units)	7.03	7.00	6.98	6.98	6.95	6.98	7.00	7.00	7.0
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	1811	1762	1754	1756	1784	1796	1795	1803		
	Specific Cond. (µs/cm)	3033	2950	2909	2894	2917	2934	2925	2922		
	Redox (mV)	-77.3	-61.4	-46.8	-42.6	-50.5	-51.3	-47.9	-49.1		
	Appearance & Odour (Clear, Silty, HC odours, etc.)	Dark grey silty turbid.	light grey turbid.	Same	Same	Same	Same	Same	Same	Same	Dark grey/turbid.
	Turbidity (NTU)	/	/	/	/	/	/	/	/	/	/
	Interval Purge Volume (L)	1.0	1.0	0.5	0.3	0.35	0.4	0.4	0.5	0.5	
	Cumulative Purge Volume (L):	1.0	2.0	2.5	2.8	3.15	3.55	3.95	4.45	4.95	
YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method									
Time on YSI (24hr):	11:54	Analysis	Watterra	Peristaltic	Disp. Bailer	Redi-flo					
Actual time of measurement (24hr):	11:54	Analysis	<input checked="" type="checkbox"/>								

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

on day of purge.



Sample Site (Con't): P2001-02A

Sample Date (Con't): June 14, 2015

Sample Time: 8:40

June 14, 2015

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L	-								
Depth to water (m)	4.350								
Temperature (°C)	4.7								
pH (pH Units)	7.00								
Cond. (µs/cm)	1958								
Specific Cond. (µs/cm)	3219								
Redox (mV)	-15.0								
Appearance & Odour (Clear, Silty, HC odours, etc.)	fairly clear slightly turbid								
Turbidity (NTU)	21.1								
Interval Purge Volume (L)	0.5L								
Cumulative Purge Volume (L):	--								

**General Notes (Condition of well, consumables, or other features):**

Grey silt found on tip of water level meter when well was monitored. Also clogged tubing if peri. tubing was lowered to bottom. Well was dried on Jun. 13/2015. Poor recharge. Will return following day to collect sample.  
- Purged ~ 3 min (0.5L) before sampling

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120 mL	water fairly clear, slightly turbid
1 L (plastic)	General Chemistry	500 ml	-	-	1 L	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	PO9-LCD4	Project Number:	1343-005.10	Date:	13-Jun-15					
Approximate Date Drilled:	—	Client:	GY - AAM	Sampler:	AN/MM					
Piezometer Diameter / Screen Length:	2"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	~10°C + clayey					
UTM Location	Z.8 E.59327N.690326E	Waypoint	GPS <del>URL</del> Name PO9-LCD4	Recovery:	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Bad					
Photos	Cam. File Nos. 242-244	Purge Method								
Duplicate Collected:	<input type="checkbox"/> Yes Name		Waterra	Peristaltic	Disp. Bailer					
Field Blank Collected	<input type="checkbox"/> Yes Name	Analysis	manual		Redi-flo					
Initial Depth to Water (m):	1.594	Purge Start Time:	13:54	Purge End Time:	14:30					
Depth to Bottom (m):	12.283	Purge Interval Time ( ) min, Vol. (5) L	13:56	13:59	14:02	14:09	14:18	14:30		
Submerged Tubing Depth (m):	~10	Depth to water (m)	—	—	—	7.900	9.546	10.445		
Well Stick-up Height (m):	0.97	Temperature (°C)	4.3	3.7	3.4	3.9	5.5	6.7		
Estimated Water Volume (L):	21.4	pH (pH Units)	8.1	8.0	7.9	8.1	8.2	7.5		
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm) <del>not on MS</del>	1153	1046	983	976	979	981			
	Specific Cond. (µs/cm)									
	Redox (mV)									
	Appearance & Odour (Clear, Silty, HC odours, etc.)	clear	same	same	same	turbid	turbid			
	Turbidity (NTU)	—	1	1	1	1	1			
Interval Purge Volume (L)	5	5	5	3	3	1				
Cumulative Purge Volume (L):	5	10	15	18	21	22				
YSI Field Parameters Logged:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Sample Method								
Time on YSI (24hr):	(used pen)		Waterra	Peristaltic	Disp. Bailer	Redi-flo				
Actual time of measurement (24hr):	—	Analysis	X							

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.



Sample Site (Con't): 209-LCDH

Sample Date (Con't): June 14, 2015

Sample Time: 9:30

June 14, 2015

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L	-								
Depth to water (m)	10.286								
Temperature (°C)	6.8								
pH (pH Units)	8.1								
Cond. (µs/cm) 75/cm	981								
Specific Cond. (µs/cm)	-								
Redox (mV)	-								
Appearance & Odour (Clear, Silty, HC odours, etc.)	turbid grey								
Turbidity (NTU)	95								
Interval Purge Volume (L)	0.5L								
Cumulative Purge Volume (L):	-								

**General Notes (Condition of well, consumables, or other features):**

- purged as much as possible w/ waterera, will return later to sample.
- DTW 10:445 after purge.
- used 13m 1/4" tubing
- pumped waterera for sample collection, no water yielded → found sand clogging up foot valve  
↳ cleaned foot valve with DI, collected sample.

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120ml	turbid, grey
1 L (plastic)	General Chemistry	500 ml	-	-	1L	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	SRK05-SP-5	Project Number:	1343-005.10-08	Date:	June 13, 2015							
Approximate Date Drilled:		Client:	GY - AAM	Sampler:	JH + JC							
Piezometer Diameter / Screen Length:	2"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	cloud 10°C							
UTM Location	ZD8E584469N 6913120	Waypoint	GPS <input checked="" type="checkbox"/> Name SRK05-SP-54	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad							
Photos	Cam. <input checked="" type="checkbox"/> Nos. 249-252	Purge Method										
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra	Peristaltic	Disp. Bailer	Redi-flo						
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis	X									
Initial Depth to Water (m):	6.857	Purge Start Time:	15:03	Purge End Time:	15:23							
Depth to Bottom (m):	14.582	Purge Interval Time ( ) min, Vol. ( ) L	4	15:04	15:06	15:08	15:10	15:12	15:14	15:17	15:20	15:23
Submerged Tubing Depth (m):	14.00	Depth to water (m)	6.876	6.885	6.885	6.891	6.891	6.895	6.899	6.903	6.910	
Well Stick-up Height (m):	1.00	Temperature (°C)	4.5	3.5	3.1	2.9	2.9	2.9	2.8	2.9	2.8	
Estimated Water Volume (L):	16L	pH (pH Units)	5.94	5.96	6.00	6.00	5.97	6.00	5.97	5.97	5.97	
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	443	457	563	536	631	507	601	641	487		
	Specific Cond. (µs/cm)	-	-	-	-	-	-	-	-	-		
	Redox (mV)	-	-	-	-	-	-	-	-	-		
	Appearance & Odour (Clear, Silty, HC odours, etc.)	silty	silty	less silty	less silty	less silty	less silty	becoming more translucent	turbid	turbid		
	Turbidity (NTU)	-	-	-	-	-	-	-	-	43.6		
	Interval Purge Volume (L)	4L	4L	4L	4L	4L	4L	8L	8L	8L		
	Cumulative Purge Volume (L):	4L	8L	12L	16L	20L	24L	32L	40	48L		
	YSI Field Parameters Logged:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Sample Method									
	Time on YSI (24hr):	used banner		Waterra	Peristaltic	Disp. Bailer	Redi-flo					
	Actual time of measurement (24hr):		Analysis	X								

3 well volumes removed

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

Sample Site (Con't): SRK05-SP-5  
 Sample Date (Con't): June 13, 2015  
 Sample Time: 15:25

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

**General Notes (Condition of well, consumables, or other features):**

- Top 5' of well loose from rest of well, still functional.
- well has no stick-up monument, is protected by a delineator cemented to the ground.
- To better protect well, I recommend putting a 4' piece of 6" PVC w/ slip cap over well.
- Purged/sampled by hand using Waterloo
- Used Hanna to monitor stabilization of parameters
- Conductivity readings are persistently wandering. we removed 3 well volumes and decided to sample as pH + temp are stable.

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120 mL	
1 L (plastic)	General Chemistry	500 ml	-	-	1L	

# GROUNDWATER SAMPLE COLLECTION SHEET

DI batch 4-June-2015

Sample Site:	SRK05-SP-4A	Project Number:	1343-005.1008	Date:	June 13, 2015
Approximate Date Drilled:		Client:	GY - AAM	Sampler:	JH + JC
Piezometer Diameter / Screen Length:		Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	Cloud, 10°C
UTM Location	Z.08 E. 584503 N. 691311	Waypoint	GPS x Name SRK05-SP-4A	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad
Photos	Cam. x Nos. 247-249	Purge Method			
Duplicate Collected:	<input checked="" type="checkbox"/> Yes Name Dup-4	Analysis	Waterra	Peristaltic	Disp. Bailer
Field Blank Collected	<input checked="" type="checkbox"/> Yes Name FB-2	Analysis	X		Redi-flo
Initial Depth to Water (m):	4.636	Purge Start Time:	2:21	Purge End Time:	2:36
Depth to Bottom (m):	22.401	Purge Interval Time ( ) min, Vol. (8) L	2:24	2:27	2:30
Submerged Tubing Depth (m):	21.7	Depth to water (m)	4.765	4.930	4.930
Well Stick-up Height (m):	0.69	Temperature (°C)	3.1	1.9	1.8
Estimated Water Volume (L):	36L	pH (pH Units)	5.81	5.84	5.87
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	1670	1315	1300	1278
	Specific Cond. (µs/cm)	-	-	-	-
	Redox (mV)	-	-	-	-
	Appearance & Odour (Clear, Silty, HC odours, etc.)	clear	clear	clear	clear
	Turbidity (NTU)	-	-	-	8.35
Interval Purge Volume (L)	8L	8L	8L	8L	
Cumulative Purge Volume (L):	8L	16L	24L	32L	
YSI Field Parameters Logged:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Sample Method			
Time on YSI (24hr):	used banner	Analysis	Waterra	Peristaltic	Disp. Bailer
Actual time of measurement (24hr):		Analysis	X		Redi-flo

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.



Sample Site (Con't): SRK05-SP-4A

Sample Date (Con't): June 13, 2015

Sample Time: 14:36

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):

- purged by hand using water
- The top 3' of 2" PVC is broken off. To repair, this will need a 3' piece of 2" PVC + a 2" coupler joint.
- We used the Hanna to monitor ~~the~~ parameter stability
- Collected Dyp + field blank

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120 mL	
1 L (plastic)	General Chemistry	500 ml	-	-	1 L	

# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	P09-LCD6	Project Number:	1343-005.10	Date:	Jun. 13/2015	
Approximate Date Drilled:	unknown	Client:	GY - AAM	Sampler:	AN, MN	
Piezometer Diameter / Screen Length:	2" / unknown	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	Sunny ~20°C	
UTM Location	Z.8 E593513 N. 6903247	Waypoint	GPS AN Name P09-LCD6	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad	
Photos	Cam. AN Nos. 749-751	Purge Method				
Duplicate Collected:	<input checked="" type="checkbox"/> Yes Name DUP-5		Waterra	Peristaltic	Disp. Bailer	
Field Blank Collected	<input type="checkbox"/> Yes Name	Analysis		<input checked="" type="checkbox"/>	Redi-flo	
Initial Depth to Water (m):	5.842	Purge Start Time:	14:01	Purge End Time:	14:21	
Depth to Bottom (m):	7.960	Purge Interval Time (5) min, Vol. ( ) L	14:06	14:11	14:16	
Submerged Tubing Depth (m):	~6.9	Depth to water (m)	5.865	5.898	5.894	
Well Stick-up Height (m):	6.69	Temperature (°C)	3.9	3.9	4.0	
Estimated Water Volume (L):	~4.0	pH (pH Units)	7.49	7.41	7.41	
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	621	624	620	618	
	Specific Cond. (µs/cm)	1055	1046	1056	1052	
	Redox (mV)	-115.6	-116.6	-118.0	-119.2	
	Appearance & Odour (Clear, Silty, HC odours, etc.)	Slightly turbid No odour.	clear	same	same YSI logged	
	Turbidity (NTU)	/	/	/	2.97	
	Interval Purge Volume (L)	1.5	1.0	1.2	1.5	
	Cumulative Purge Volume (L):	1.5	2.5	3.7	5.2	
	YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method			
	Time on YSI (24hr):	14:21		Waterra	Peristaltic	Disp. Bailer
	Actual time of measurement (24hr):	14:21	Analysis		<input checked="" type="checkbox"/>	Redi-flo

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.



Sample Site (Con't): P09-LCD6

Sample Date (Con't): Jun. 13/2015

Sample Time: 14:30

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):  
 Duplicate collected (DUP-5)  
 full bottle set, (D. Metals + Gen. chem).

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	P2001-3	Project Number:	1343-005.10	Date:	13-Jun-15							
Approximate Date Drilled:		Client:	GY - AAM	Sampler:	AN/MM							
Piezometer Diameter / Screen Length:	2"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	overcast ~6°C							
UTM Location	Z.8 E.49669 N.6734051	Waypoint	GPSEK Name OSO	Recovery:	<input type="checkbox"/> Good <input type="checkbox"/> Bad							
Photos	Cam. ELL Nos. 235-237	Purge Method										
Duplicate Collected:	<input type="checkbox"/> Yes Name	Analysis	Watera	Peristaltic	Disp. Bailer							
Field Blank Collected	<input type="checkbox"/> Yes Name	Analysis	hydrolift									
Initial Depth to Water (m):	37.204	Purge Start Time:	9:09	Purge End Time:	16:12							
Depth to Bottom (m):	62.165	Purge Interval Time ( ) min, Vol. (15) L	9:17	9:23	9:32	9:37	9:42	9:48	9:54	10:00	10:06	
Submerged Tubing Depth (m):	35	Depth to water (m)	NOT TAKEN, SEE BACK									
Well Stick-up Height (m):	2.755	Temperature (°C)	2.9	2.7	2.9	3.0	2.9	3.0	3.0	3.1	3.0	
Estimated Water Volume (L):	49.882	pH (pH Units)	8.49	7.08	7.39	7.43	7.54	7.60	7.61	7.58	7.57	
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB - DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	632	589	572	574	567	563	561	564	560		
	Specific Cond. (µs/cm)	1093	1005	993	992	979	971	968	969	965		
	Redox (mV)	207.9	132.9	167.3	173.9	168.1	134.7	138.2	116.2	123.0		
	Appearance & Odour (Clear, Silty, HC odours, etc.)	very turbid	very turbid	same	very turbid	same	same	same	same	cleared up a bit still turbid	same	
	Turbidity (NTU)	/	/	/	/	/	/	/	/	/		
	Interval Purge Volume (L)	15	15	15	15	15	15	15	15	15		
	Cumulative Purge Volume (L):	15	30	45	60	75	90	105	120	145		
	YSI Field Parameters Logged:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method									
	Time on YSI (24hr):		Analysis	Watera	Peristaltic	Disp. Bailer	Redi-flo					
	Actual time of measurement (24hr):		Analysis	hydrolift								

unknown. (assumed good)

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

Sample Site (Con't): P2001-3

 Sample Date (Con't): 13-Jul-15

 Sample Time: 10:15

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. (15) L	10:12								
Depth to water (m)	/								
Temperature (°C)	3.0								
pH (pH Units)	7.50								
Cond. (µs/cm)	565								
Specific Cond. (µs/cm)	978								
Redox (mV)	121.3								
Appearance & Odour (Clear, Silty, HC odours, etc.)	clear								
Turbidity (NTU)	39.9								
Interval Purge Volume (L)	15								
Cumulative Purge Volume (L):	160								

General Notes (Condition of well, consumables, or other features):

- DTW not taken due to friction from waterera tubing ∴ took 3 well volumes.

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1,000	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	V36	Project Number:	1343-005.10	Date:	Jun. 13/2015					
Approximate Date Drilled:	unknown	Client:	GY - AAM	Sampler:	AN, MM					
Piezometer Diameter / Screen Length:	2" / unknown	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	Overcast ~ 10°C					
UTM Location	Z.8 E.593136N. 6902915	Waypoint	GPS AN Name V36	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad					
Photos	Cam. AN Nos. 746-748	Purge Method								
Duplicate Collected:	<input type="checkbox"/> Yes Name _____	Water	Peristaltic	Disp. Bailer	Redi-flo					
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis	Manual		10:05					
Initial Depth to Water (m):	8.716	Purge Start Time:	09:32	Purge End Time:	10:05					
Depth to Bottom (m):	11.745	Purge Interval Time ( ) min, Vol. ( ) L								
Submerged Tubing Depth (m):	~ 10.5	Depth to water (m)	8.761	8.824	8.772	8.840	8.775	8.910	8.701	8.792
Well Stick-up Height (m):	0.498	Temperature (°C)	3.3	3.3	3.5	3.2	3.4	3.4	3.3	3.3
Estimated Water Volume (L):	6.0	pH (pH Units)	7.02	7.14	7.20	7.21	7.21	7.17	7.16	7.21
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	1646	1448	1506	1589	1636	1655	1696	1719	
	Specific Cond. (µs/cm)	2862	2470	2559	2718	2774	2818	2899	2944	
	Redox (mV)	174.2	183.6	185.0	172.9	151.3	112.5	130.3	137.2	
	Appearance & Odour (Clear, Silty, HC odours, etc.)	clear	clear	clear	Same	Same	Same	Same	Same	
Turbidity (NTU)	/	/	/	/	/	/	4.87	4.87		
Interval Purge Volume (L)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		
Cumulative Purge Volume (L):	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0		
YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method								
Time on YSI (24hr):	10:09	Water	Peristaltic	Disp. Bailer	Redi-flo					
Actual time of measurement (24hr):	10:09	Analysis								

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.



Sample Site (Con't): V36

Sample Date (Con't): Jun 13/2015

Sample Time: 10:10

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):

Slow purge rate due to exchanging  
Ysl between two wells. Causing  
delay in measurements.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	SRK05-07	Project Number:	1343-005.10	Date:	Jun. 12 / 2015						
Approximate Date Drilled:	unknown	Client:	GY - AAM	Sampler:	AN, JH						
Piezometer Diameter / Screen Length:	2" / unknown	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	Sunny/cloudy ~15°C						
UTM Location	Z. 8 E. 59237   N. 6903190	Waypoint	GPS AN Name SRK05-07	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad						
Photos	Cam. AN Nos. 717-719	Purge Method									
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra	Peristaltic	Disp. Bailer	Redi-flo					
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis		<input checked="" type="checkbox"/>							
Initial Depth to Water (m):	4.688	Purge Start Time:	9:00			Purge End Time:					
Depth to Bottom (m):	6.526	Purge Interval Time (5) min, Vol. ( ) L	9:05	9:10	9:15	9:20	9:25	9:30	9:35		
Submerged Tubing Depth (m):	~5.5	Depth to water (m)	5.457	5.428	5.452	5.448	5.445	5.441	5.436		
Well Stick-up Height (m):	0.67	Temperature (°C)	3.4	4.0	3.4	3.4	3.6	3.7	3.8		
Estimated Water Volume (L):	~4.0	pH (pH Units)	6.79	6.93	6.96	7.01	7.04	7.05	7.07		
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	1818	1864	1824	1785	1792	1755	1849			
	Specific Cond. (µs/cm)	3096	3119	3104	3053	3029	2969	3108			
	Redox (mV)	146.0	167.3	180.3	191.7	200.6	206.1	210.5			
	Appearance & Odour (Clear, Silty, HC odours, etc.)	turbid light brown. No odour	clear/ slightly turbid	Same.	Same	Same.	Same	Same.			
	Turbidity (NTU)	/	/	/	/	/	/	2.06			
	Interval Purge Volume (L)	0.85	0.5	0.5	0.65	0.5	0.6	0.65			
	Cumulative Purge Volume (L):	0.85	1.35	1.85	2.45	2.95	3.55	4.2			
	YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method								
Time on YSI (24hr):	9:37		Waterra	Peristaltic	Disp. Bailer	Redi-flo					
Actual time of measurement (24hr):	9:57	Analysis		<input checked="" type="checkbox"/>							

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.





Sample Site (Con't): SRK05-07

Sample Date (Con't): Jun. 12/2015

Sample Time: 09:40

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1050	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	P09-G51A	Project Number:	1343-005.10	Date:	June 13 / 15						
Approximate Date Drilled:		Client:	GY - AAM	Sampler:	JH + JC						
Piezometer Diameter / Screen Length:	2"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	cloudy 8°C						
UTM Location	Z08 E. 59246 N. 6904833	Waypoint	GPS <input checked="" type="checkbox"/> Name P09-G51A*	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad						
Photos	Cam. <input checked="" type="checkbox"/> Nos. 221-224	Purge Method									
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra	Peristaltic	Disp. Bailer	Redi-flo					
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis		<input checked="" type="checkbox"/>							
Initial Depth to Water (m):	2.345	Purge Start Time:	9:08	Purge End Time:	9:54						
Depth to Bottom (m):	7.390	Purge Interval Time ( ) min, Vol. (L) L	9:12	9:18	9:22	9:28	9:38	9:42	9:45	9:48	9:51
Submerged Tubing Depth (m):	<del>7.0</del> 6.90	Depth to water (m)	2.357	2.365	2.370	2.377	2.369	2.375	2.376	2.365	2.360
Well Stick-up Height (m):	1.385	Temperature (°C)	4.6	4.4	4.4	4.6	4.6	4.3	4.4	4.4	4.3
Estimated Water Volume (L):	10L	pH (pH Units)	6.77	6.74	6.80	6.83	6.87	6.87	6.88	6.91	6.91
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	1557	1602	1626	1584	1583	1608	1614	1611	1613	
	Specific Cond. (µs/cm)	-	-	-	-	-	-	-	-	-	
	Redox (mV)	-	-	-	-	-	-	-	-	-	
	Appearance & Odour (Clear, Silty, HC odours, etc.)	clear	clear	clear	clear	clear	clear	clear	clear	clear	clear
	Turbidity (NTU)	-	-	-	-	-	-	-	-	-	
	Interval Purge Volume (L)	1L	1L	1L	1L	1L	1L	1L	1L	1L	1L
	Cumulative Purge Volume (L):	1L	2L	3L	4L	5L	6L	7L	8L	9L	
YSI Field Parameters Logged:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Sample Method									
Time on YSI (24hr):	-		Waterra	Peristaltic	Disp. Bailer	Redi-flo					
Actual time of measurement (24hr):	-	Analysis	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>							

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

Sample Site (Con't): P09-G51A

Sample Date (Con't): June 13, 2015

Sample Time: 9:56

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L	9.54								
Depth to water (m)	2.355								
Temperature (°C)	4.2								
pH (pH Units)	6.93								
Cond. (µs/cm)	1611								
Specific Cond. (µs/cm)	-								
Redox (mV)	-								
Appearance & Odour (Clear, Silty, HC odours, etc.)	clear								
Turbidity (NTU)	0.02								
Interval Purge Volume (L)	1L								
Cumulative Purge Volume (L):	10L								

**General Notes (Condition of well, consumables, or other features):**

- ~~stick-up~~ Well PVC is higher than stick-up casing. It appears as though the entire well has lifted 15-20 cm out of the ground.
- We placed a 6" PVC casing 2' long with a slip cap to protect the well, and removed the stick-up casing.
- Parameter stabilization monitored with Hanna (pH, temp, cond only)

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120 mL	
1 L (plastic)	General Chemistry	500 ml	-	-	1 L	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	PO9-GS1B	Project Number:	1343-005.10	Date:	June 13, 2015	
Approximate Date Drilled:		Client:	GY - AAM	Sampler:	JH + JC	
Piezometer Diameter / Screen Length:	2"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	Cloudy 8°C	
UTM Location	Z08 E.592485 N.6904835	Waypoint	GPS <input checked="" type="checkbox"/> Name PO9-GS1B	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad	
Photos	Cam. <input checked="" type="checkbox"/> Nos. 218 - 220, 225	Purge Method				
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Watterra	Peristaltic	Disp. Bailer	
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Initial Depth to Water (m):	2.038	Purge Start Time:	9:05	Purge End Time:	9:35	
Depth to Bottom (m):	29.555	Purge Interval Time (5) min, Vol. (10) L	9:10	9:15	9:20	
Submerged Tubing Depth (m):	29.0	Depth to water (m)	5.560	8.950	10.960	
Well Stick-up Height (m):	0.965	Temperature (°C)	4.6	4.4	4.2	
Estimated Water Volume (L):	53 L	pH (pH Units)	6.74	6.87	6.84	
<p>27.5 * 2</p> <p>(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume</p> <p>(DTB - DTW) x 1.1 (for 1.5" diameter) = 1 well volume</p> <p>2" casing has 0.16 USgal/ft or 2.032 l/m</p> <p>1" casing has 0.04 USgal/ft or 0.508 l/m</p> <p>8" sand pack has 0.73 USgal/ft or 9.271 l/m</p> <p>6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m</p>	Cond. (µs/cm)	1538	1587	1591	1589	
	Specific Cond. (µs/cm)	-	-	-	-	-
	Redox (mV)	-	-	-	-	-
	Appearance & Odour (Clear, Silty, HC odours, etc.)	clear	clear	clear	clear	clear
	Turbidity (NTU)	-	-	-	-	9.69
	Interval Purge Volume (L)	10L	10L	10L	10L	10L
	Cumulative Purge Volume (L):	10L	20L	30L	40L	50L
YSI Field Parameters Logged:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Sample Method				
Time on YSI (24hr):	-		Watterra	Peristaltic	Disp. Bailer	
Actual time of measurement (24hr):	-	Analysis	<input checked="" type="checkbox"/>			

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

allowed well to recover ~15min. purged with peristaltic for ~2 min before sampling - water clear.

Sample Site (Con't): P09-GS1B

 Sample Date (Con't): June 13, 2015

 Sample Time: 10:10

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

**General Notes (Condition of well, consumables, or other features):**

- Well cap was off when we arrived.  
 - well is in otherwise good condition  
 - Parameter stabilization measured with Hanna (pH, temp, cond only)  
 - Because of the size of the well volume, we purged with water, waited 35 minutes for the silt to settle, then sampled with low flow.  
 - No consumables

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120 ml	
1 L (plastic)	General Chemistry	500 ml	-	-	1L	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	S1A	Project Number:	1343-005.1008	Date:	June 13, 2015	
Approximate Date Drilled:		Client:	GY - AAM	Sampler:	JH + JC	
Piezometer Diameter / Screen Length:	2"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	Cloud 10°C	
UTM Location	Z08 E.584428 N.6913118	Waypoint	GPS <input checked="" type="checkbox"/> Name S1A*	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad	
Photos	Cam. <input checked="" type="checkbox"/> Nos. 256-258	Purge Method				
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra	Peristaltic	Disp. Bailer	
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis	X		Redi-flo	
Initial Depth to Water (m):	4.720	Purge Start Time:	16:04	Purge End Time:	16:14	
Depth to Bottom (m):	12.720	Purge Interval Time ( ) min, Vol. ( ) L	4L			
Submerged Tubing Depth (m):	18.2012010	Depth to water (m)	16:06	16:08	16:10	
Well Stick-up Height (m):	11.34	Temperature (°C)	16:12	16:14		
Estimated Water Volume (L):	16 L	pH (pH Units)	4.732	4.730	4.730	
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Conductivity (µs/cm)	2.7	2.2	2.0	2.0	
	Specific Cond. (µs/cm)	5.94	7.21	7.21	7.21	
	Redox (mV)	2015	1655	1621	1630	
	Appearance & Odour (Clear, Silty, HC odours, etc.)	-	-	-	-	
	Turbidity (NTU)	turbid	turbid	turbid	turbid	
	Interval Purge Volume (L)	-	-	-	-	
	Cumulative Purge Volume (L):	4L	4L	12L	16L	
	YSI Field Parameters Logged:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Sample Method			
	Time on YSI (24hr):	used hammer		Waterra	Peristaltic	Disp. Bailer
	Actual time of measurement (24hr):		Analysis	X		Redi-flo

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

Sample Site (Con't): S1A  
 Sample Date (Con't): June 13, 2015  
 Sample Time: 16:15

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):  
 - wells are grey PVC  
 - wells in good condition

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120 ml	
1 L (plastic)	General Chemistry	500 ml	-	-	1 L	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	SLK08-SP-7A	Project Number:	1343-005.10 08	Date:	June 13, 2015		
Approximate Date Drilled:		Client:	GY - AAM	Sampler:	JH JSC		
Piezometer Diameter / Screen Length:	2"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	clouds, 10°C		
UTM Location	Z08 E.584433 N.6913097	Waypoint	GPS <input checked="" type="checkbox"/> Name SLK08-SP-7A	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad		
Photos	Cam. <input checked="" type="checkbox"/> Nos. 226-225	Purge Method					
Duplicate Collected:	<input type="checkbox"/> Yes Name 252-255		Waterra	Peristaltic	Disp. Bailer	Redi-flo	
Field Blank Collected	<input type="checkbox"/> Yes Name	Analysis	X				
Initial Depth to Water (m):	2.630	Purge Start Time:	15:35	Purge End Time:	15:45		
Depth to Bottom (m):	17.728	Purge Interval Time ( ) min, Vol. (8) L	15:37	15:39	15:42	15:45	
Submerged Tubing Depth (m):	17.00	Depth to water (m)	2.465	3.060	3.030	3.140	
Well Stick-up Height (m):		Temperature (°C)	2.5	2.0	2.1	2.0	
Estimated Water Volume (L):	30L	pH (pH Units)	7.21	7.21	7.21	7.21	
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	840	766	760	762		
	Specific Cond. (µs/cm)	-	-	-	-		
	Redox (mV)	-	-	-	-		
	Appearance & Odour (Clear, Silty, HC odours, etc.)	turbid	turbid	clear			
	Turbidity (NTU)	-	-	-	31		
	Interval Purge Volume (L)	8L	8L	8L	8L		
	Cumulative Purge Volume (L):	8L	16L	24L	32		
	YSI Field Parameters Logged:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Sample Method				
	Time on YSI (24hr):	used hammer		Waterra	Peristaltic	Disp. Bailer	Redi-flo
	Actual time of measurement (24hr):		Analysis	X			

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.





Sample Site (Con't): SRK08-SP-7A  
 Sample Date (Con't): June 13, 2015  
 Sample Time: 15:47

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):  
 - Purged using water by hand  
 - Well in good condition  
 - Purge parameters monitored w/ Hanna  
 - Consumables: 1 J-plug

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120 ml	
1 L (plastic)	General Chemistry	500 ml	-	-	1 L	

5  
DTN - 33



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	SRK05-9	Project Number:	1343-005.10	Date:	Jun. 12/2015						
Approximate Date Drilled:	unknown	Client:	GY-AAM	Sampler:	AN, JH						
Piezometer Diameter / Screen Length:	1 1/2" / unknown	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	Sunny / cloudy ~15°C						
UTM Location	Z.8 E. 59275   N. 6963160	Waypoint	GPS AN Name SRK05-9	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad						
Photos	Cam. AN Nos. 733-735	Purge Method									
Duplicate Collected:	<input type="checkbox"/> Yes Name _____	Watterra	Peristaltic	Disp. Bailer	Redi-flo						
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis	Micro								
Initial Depth to Water (m):	2.703	Purge Start Time:	14:42	Purge End Time:							
Depth to Bottom (m):	3.962	Purge Interval Time ( ) min, Vol. (0.5) L									
Submerged Tubing Depth (m):	~3.362	Depth to water (m)	2.165	1.970	2.701	2.635	2.050	2.285	1.957	1.985	1.928
Well Stick-up Height (m):	0.560	Temperature (°C)	3.5	2.5	2.6	2.9	2.1	1.9	1.9	2.0	2.0
Estimated Water Volume (L):	~2.0	pH (pH Units)	7.86	7.79	7.76	7.74	7.45	7.49	7.78	7.35	7.49
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB - DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	618	814	536	375.6	286.5	834	836	805	773	
	Specific Cond. (µs/cm)	1040	1422	966	1039	518.9	1490	1496	522	1404	
	Redox (mV)	151.1	157.5	162.7	167.0	183.0	181.7	181.5	193.2	195.8	
	Appearance & Odour (Clear, Silty, HC odours, etc.)	clear	same	same	same	same	same	same	same	same	same
Turbidity (NTU)	/	/	/	/	/	/	/	/	/	11.78	
Interval Purge Volume (L)	0.5	0.5	0.5	0.5	0.5	1.0	1.0	1.0	1.0		
Cumulative Purge Volume (L):	0.5	1.0	1.5	2.0	2.5	3.5	4.5	5.5	6.5		
YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method									
Time on YSI (24hr):	15:02	Watterra	Peristaltic	Disp. Bailer	Redi-flo						
Actual time of measurement (24hr):	15:02	Analysis	<del>X</del>								

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.



Sample Site (Con't): SRK05-9

Sample Date (Con't): Jun. 12/2015

Sample Time: 15:03

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):

~~Blockage @ 0.50m. Also blockage is  
Micro waterer used to sample well previously.~~

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	SRK05-5C	Project Number:	1343-005.10	Date:	Jun. 12/2015						
Approximate Date Drilled:	unknown	Client:	GY - AAM	Sampler:	AN, JH						
Piezometer Diameter / Screen Length:	1.5"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	overcast ~15°C						
UTM Location	Z08 E59274 N.6903385	Waypoint	GPS AN Name SRK05-5C	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad						
Photos	Cam. AN Nos. 730-732	Purge Method									
Duplicate Collected:	<input type="checkbox"/> Yes Name _____	Analysis	Waterra	Peristaltic	Disp. Bailer						
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis		X							
Initial Depth to Water (m):	1.465	Purge Start Time:	13:28	Purge End Time:							
Depth to Bottom (m):	3.718	Purge Interval Time (3) min, Vol. (5) L	13:31	13:34	13:37	13:40	13:43	13:46	13:49	13:52	13:55
Submerged Tubing Depth (m):	3.218	Depth to water (m)	1.650	1.655	1.650	1.653	1.662	1.664	1.670	1.668	1.655
Well Stick-up Height (m):	0.96	Temperature (°C)	6.3	5.5	5.3	5.2	4.9	4.9	4.9	5.0	5.3
Estimated Water Volume (L):	<del>2.48</del> 2.48 L	pH (pH Units)	8.02	7.99	7.95	7.94	7.93	7.92	7.89	7.88	7.86
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	376.4	573.3	408.1	398.3	393.1	405.8	420.6	433.2	452.6	
	Specific Cond. (µs/cm)	603.6	596.1	653.0	634.8	639.2	657.4	682.0	701.7	725.3	
	Redox (mV)	47.3	-2.7	-29.0	-41.0	-50.2	-57.1	-63.0	-65.7	-69.3	
	Appearance & Odour (Clear, Silty, HC odours, etc.)	slightly turbid	clear	clear	clear	clear	clear	clear	clear	clear	
Turbidity (NTU)	-	-	-	-	-	-	-	-	-		
Interval Purge Volume (L)	0.7L	0.3L	0.5L	0.5L	0.5L	0.4L	0.5L	0.5L	0.5L		
Cumulative Purge Volume (L):	0.7L	1L	1.5L	2.0L	2.5L	2.9L	3.4L	3.9L	4.4L		
YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method									
Time on YSI (24hr):	13:58	Analysis	Waterra	Peristaltic	Disp. Bailer	Redi-flo					
Actual time of measurement (24hr):	13:58	Analysis		X							

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

3.718  
- 1.465  
-----  
2.253 x 1.1 =

Sample Site (Con't): SRK05-5C

 Sample Date (Con't): June 17, 2015

 Sample Time: 14:00

Additional Purge Data:									
Purge Interval Time (3) min, Vol. (5) L	13.58								
Depth to water (m)	1.665								
Temperature (°C)	5.2								
pH (pH Units)	7.84								
Cond. (µs/cm)	460.7								
Specific Cond. (µs/cm)	738.6								
Redox (mV)	-72.9								
Appearance & Odour (Clear, Silty, HC odours, etc.)	clear								
Turbidity (NTU)	3.36								
Interval Purge Volume (L)	.5L								
Cumulative Purge Volume (L):	.5L								

General Notes (Condition of well, consumables, or other features):

-well in good condition

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	<del>100</del> 120 mL	
1 L (plastic)	General Chemistry	500 ml	-	-	1L	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	P96-9A	Project Number:	1343-005.10	Date:	Jun. 12 / 2015				
Approximate Date Drilled:	unknown	Client:	GY - AAM	Sampler:	AN, JH				
Piezometer Diameter / Screen Length:	2" / unknown	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	overcast ~18°C.				
UTM Location	Z.8 E.52647 N.6903346	Waypoint	GPS AN Name _____	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad				
Photos	Cam. AN Nos. 724-726	Purge Method							
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra	Peristaltic	Disp. Bailer				
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis	<del>X</del>						
Initial Depth to Water (m):	5.623	Purge Start Time:	12:15	Purge End Time:	12:24				
Depth to Bottom (m):	9.400	Purge Interval Time ( ) min, Vol. (2) L							
Submerged Tubing Depth (m):	~8.5	Depth to water (m)	6.165	6.265	6.265	6.300	6.300	6.495	6.550
Well Stick-up Height (m):	0.954	Temperature (°C)	1.9	1.5	1.4	1.4	1.4	1.4	1.4
Estimated Water Volume (L):	~8.0 L	pH (pH Units)	7.74	7.20	7.11	7.11	7.08	7.00	7.02
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	7461	1467	1472	1473	1469	1472	1467	
	Specific Cond. (µs/cm)	2765	2662	2686	2688	2682	2682	2677	
	Redox (mV)	29.3	84.6	100.3	110.4	118.4	133.1	124.6	
	Appearance & Odour (Clear, Silty, HC odours, etc.)	slightly turbid grey.	clear	same	same	same	same	same	
	Turbidity (NTU)	/	/	/	/	/	/	8.85	
Interval Purge Volume (L)	2.0	2.0	2.0	2.0	2.0	2.0	2.0		
Cumulative Purge Volume (L):	2.0	4.0	6.0	8.0	10.0	12.0	14.0		
YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method							
Time on YSI (24hr):	12:24		Waterra	Peristaltic	Disp. Bailer	Redi-flo			
Actual time of measurement (24hr):	12:24	Analysis		<del>X</del>					

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

Sample Site (Con't): P96-9A

 Sample Date (Con't): Jun. 12/2015

 Sample Time: 12:30

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):

Added 10 m of peri. tubing + 6" of silicon tubing.  
 Purged manually to waterline and sampled to peri. pump.

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	SRK05-8	Project Number:	1343-005.10	Date:	Jun. 12/2015						
Approximate Date Drilled:	unknown.	Client:	GY - AAM	Sampler:	AN, JH						
Piezometer Diameter / Screen Length:	2" / unknown.	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	Cloudy ~15°C						
UTM Location	Z. 8 E. 592580N. 6903237	Waypoint	GPS AN Name SRK05-8	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad						
Photos	Cam. AN Nos. 720-723	Purge Method									
Duplicate Collected:	<input checked="" type="checkbox"/> Yes Name Dup-3		Waterra	Peristaltic	Disp. Bailer						
Field Blank Collected	<input type="checkbox"/> Yes Name	Analysis		<del>Peristaltic</del>							
Initial Depth to Water (m):	5.521	Purge Start Time:	10:15			Purge End Time:					
Depth to Bottom (m):	8.500	Purge Interval Time (5) min, Vol. (0.5) L	10:20	10:25	10:30	10:35	10:40	10:45	10:50	10:55	11:00
Submerged Tubing Depth (m):	7.75	Depth to water (m)	5.705	5.735	5.765	5.777	5.795	5.805	5.826	5.845	5.834
Well Stick-up Height (m):		Temperature (°C)	4.1	4.8	4.6	4.8	4.9	4.9	4.9	4.8	5.1
Estimated Water Volume (L):	~6.0	pH (pH Units)	7.14	7.09	7.07	7.06	7.04	7.07	7.07	6.79	7.00
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	1542	1503	1611	1615	1604	1339	1600	1622	1635	
	Specific Cond. (µs/cm)	2594	2469	2619	2635	2608	2204	2519	2637	2636	
	Redox (mV)	217.5	219.5	222.1	223.1	223.0	224.1	225.5	227.9	2247	
	Appearance & Odour (Clear, Silty, HC odours, etc.)	Clear No odour	Same	Same	Same	Same	Same	Same	Same	Same	
Turbidity (NTU)		/	/	/	/	/	/	/	/	/	
Interval Purge Volume (L)	1.0	0.55	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Cumulative Purge Volume (L):	1.0	1.55	2.05	2.55	3.05	3.55	4.05	4.55	5.05		
YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method									
Time on YSI (24hr):	11:10		Waterra	Peristaltic	Disp. Bailer	Redi-flo					
Actual time of measurement (24hr):	11:10	Analysis		<del>Peristaltic</del>							

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.



Sample Site (Con't): SRK05-8

Sample Date (Con't): Jun. 12/2015

Sample Time: 11:15

Additional Purge Data:									
Purge Interval Time (S) min, Vol. (L)	11:05	11:10							
Depth to water (m)	5.847	5.854							
Temperature (°C)	5.1	4.9							
pH (pH Units)	6.88	7.10							
Cond. (µs/cm)	1627	1534							
Specific Cond. (µs/cm)	2636	2492							
Redox (mV)	287.7	221.7							
Appearance & Odour (Clear, Silty, HC odours, etc.)	Same	Same							
Turbidity (NTU)	/	1.50							
Interval Purge Volume (L)	0.5	0.5							
Cumulative Purge Volume (L):	5.55	6.05							

General Notes (Condition of well, consumables, or other features):

Conductivity variable during purge.  
 Very little draw down. Seems representative of formation water. Sampled after one well vol. purged.  
 Used 10 m of 1/4" per. tubing + 6" of silicon tubing.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	BH05-9B-R		Project Number:	1343-005.10		Date:	Jun. 12/2015			
Approximate Date Drilled:	unknown.		Client:	GY - AAM		Sampler:	AN, JH			
Piezometer Diameter / Screen Length:	2" / unknown.		Project Name:	Faro 2015 GW Sampling Program		Weather/Temperature:	Overcast ~20°C.			
UTM Location	Z.8 E.592640 N.6903348		Waypoint	GPS AN Name BH05-9B-R		Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad			
Photos	Cam. AN Nos. 724-726		Purge Method							
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra		Peristaltic		Disp. Bailer		Redi-flo	
Field Blank Collected	<input type="checkbox"/> Yes Name _____		Analysis							
Initial Depth to Water (m):	0.02	Purge Start Time:	11:50			Purge End Time:	12:06			
Depth to Bottom (m):	19.854	Purge Interval Time ( ) min, Vol. (8) L								12:30
Submerged Tubing Depth (m):	19.0	Depth to water (m)	2.695	5.055	6.350	7.012	7.515	7.871	8.055	
Well Stick-up Height (m):	0.915	Temperature (°C)	3.4	3.1	3.1	3.1	3.1	3.2	3.2	
Estimated Water Volume (L):	~40.0	pH (pH Units)	8.11	8.07	7.98	8.28	8.03	8.26	8.09	
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB - DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	378.2	361.9	361.5	360.5	360.1	363.0	362.7	725 AV 725 AV 725 AV	
	Specific Cond. (µs/cm)	644.6	621.5	621.5	619.1	622.7	622.8	622.5		
	Redox (mV)	-29.2	-67.2	-76.1	-81.6	-80.4	-75.8	-101.6		
	Appearance & Odour (Clear, Silty, HC odours, etc.)	slightly turbid No odour	sand	increased turbidity Grey Silty metallic.	sand	sand	sand	sand		sand
Turbidity (NTU)									725 AV	
Interval Purge Volume (L)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0		
Cumulative Purge Volume (L):	8.0	16.0	24.0	32.0	40.0	48.0	56.0			
YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Sample Method							
Time on YSI (24hr):	12:08		Waterra		Peristaltic		Disp. Bailer		Redi-flo	
Actual time of measurement (24hr):	12:08		Analysis							

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.



Sample Site (Con't): BH05-9B-R

Sample Date (Con't): Jun. 12/2015

Sample Time: 12:30

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):  
Well allowed to settle following 56 L purge. Turbidity reduced but still very cloudy (725 AU).  
Added 20 m of peri. tubing and 6" of silicon.  
Purged to waterline and sampled w peri. pump.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	X25-96A	Project Number:	1343-005.10	Date:	10-Jun-15					
Approximate Date Drilled:	/	Client:	GY - AAM	Sampler:	AN/MM					
Piezometer Diameter / Screen Length:	2"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	overcast, rainy 27°C					
UTM Location	Z.8 E. 58041 N. 6914120	Waypoint	GPS AN Name X25-96AB	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad					
Photos	Cam. AN Nos. 693-695	Purge Method								
Duplicate Collected:	<input checked="" type="checkbox"/> Yes Name Dup-1	Watterra	Peristaltic	Disp. Bailer	Redi-flo					
Field Blank Collected	<input type="checkbox"/> Yes Name	Analysis	low flow							
Initial Depth to Water (m):	2.059	Purge Start Time:	12:27	Purge End Time:						
Depth to Bottom (m):	9.460	Purge Interval Time (S) min, Vol. (L)	12:38	12:34	12:39	12:44	12:49	12:54	12:59	13:04
Submerged Tubing Depth (m):	~8.5	Depth to water (m)	2.055	2.055	2.063	2.061	2.061	2.061	2.061	2.061
Well Stick-up Height (m):	0.608	Temperature (°C)	4.9	4.2	4.0	4.0	4.1	4.1	4.0	4.0
Estimated Water Volume (L):	14.8	pH (pH Units)	7.04	6.74	6.72	6.71	6.71	6.71	6.70	6.70
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	576	1104	1101	1100	1100	1098	1097	1080	
	Specific Cond. (µs/cm)	930	1840	1837	1835	1831	1830	1829	1801	
	Redox (mV)	-42.4	-45.2	-47.3	-48.8	-49.8	-50.7	-51.3	-52.1	
	Appearance & Odour (Clear, Silty, HC odours, etc.)	clear no odour	same	same	same	same	same	same	same	
Turbidity (NTU)	/	/	/	/	/	/	/	/	0.26	
Interval Purge Volume (L)	/	2.25	2.25	2	2	2	2	2	2	
Cumulative Purge Volume (L):	/	2.25	5.05	7.0	9.0	11.0	13.0	15.0		
YSI Field Parameters Logged:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Sample Method								
Time on YSI (24hr):		Watterra	Peristaltic	Disp. Bailer	Redi-flo					
Actual time of measurement (24hr):		Analysis								

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

Sample Site (Con't): X25-96A

Sample Date (Con't): Jun. 10/2015

Sample Time: 13:10

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

**General Notes (Condition of well, consumables, or other features):**

Watera tubing and footvalve removed from well following sample collection. Tubing was not used in previous sampling events and was therefore discarded.

DUP-1 collected

Duplicate included: DM (120mL) ± HNO<sub>3</sub>  
Gen. Chem (1L) raw.

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	PO1-03	Project Number:	1343-005.10	Date:	10-3-15	
Approximate Date Drilled:		Client:	GY - AAM	Sampler:	AN/MM	
Piezometer Diameter / Screen Length:	2"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	overcast, rainy ~7°C	
UTM Location	Z.8 E.580517N. 6914253	Waypoint	GPS <sup>AN</sup> Name PO1-03	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad	
Photos	Cam. AN Nos. 690-695	Purge Method				
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra	Peristaltic	Disp. Bailer	
Field Blank Collected	<input checked="" type="checkbox"/> Yes Name _____	Analysis			Redi-flo	
Initial Depth to Water (m):	—	Purge Start Time:		Purge End Time:		
Depth to Bottom (m):	2.580 (twice)	Purge Interval Time ( ) min, Vol. ( ) L				
Submerged Tubing Depth (m):	—	Depth to water (m)				
Well Stick-up Height (m):	0.503	Temperature (°C)				
Estimated Water Volume (L):	—	pH (pH Units)				
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)					
	Specific Cond. (µs/cm)					
	Redox (mV)					
	Appearance & Odour (Clear, Silty, HC odours, etc.)					
	Turbidity (NTU)					
	Interval Purge Volume (L)					
	Cumulative Purge Volume (L):					
	YSI Field Parameters Logged:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method			
	Time on YSI (24hr):			Waterra	Peristaltic	Disp. Bailer
	Actual time of measurement (24hr):		Analysis			Redi-flo

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

Sample Site (Con't): PO1-03

Sample Date (Con't): FROZEN

Sample Time: \_\_\_\_\_

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)	<div style="font-size: 2em; opacity: 0.5;">FROZEN</div>								
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):

- tubing stuck in well, most likely frozen @ 2.508m

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HNO <sub>3</sub>		
1 L (plastic)	General Chemistry	500 ml		-		



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	V37	Project Number:	1343-005.10	Date:	Jun. 12/2015			
Approximate Date Drilled:	unknown	Client:	GY - AAM	Sampler:	AN, JH.			
Piezometer Diameter / Screen Length:	2" / unknown	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	Sunny ~20°C			
UTM Location	Z.8 E.91 3314 N.69 03082	Waypoint	GPS AN Name V37	Recovery:	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Bad			
Photos	Cam. AN Nos. 742-744	Purge Method						
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra	Peristaltic	Disp. Bailer			
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis	Manual					
Initial Depth to Water (m):	8.686	Purge Start Time:	17:23	Purge End Time:				
Depth to Bottom (m):	14.500	Purge Interval Time ( ) min, Vol. (3) L	3min		June 13 11:08			
Submerged Tubing Depth (m):	13.5	Depth to water (m)	10.105	11.065	12.895	12.415	12.755	10.654
Well Stick-up Height (m):	0.48	Temperature (°C)	3.0	2.9	2.8	2.9	2.7	4.5
Estimated Water Volume (L):	~12.0	pH (pH Units)	7.93	7.77	7.93	7.78	7.91	7.96
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	757	755	748	744	736	774	1344
	Specific Cond. (µs/cm)	1305	1309	1297	1289	1282	1273	-
	Redox (mV)	99.5	105.2	36.7	-2.9	-30.7	-34.9	-
	Appearance & Odour (Clear, Silty, HC odours, etc.)	Slightly turbid. No odour.	Same	turbid grey.	Same.	Same.	Same	
Turbidity (NTU)	/	/	/	/	/	/	26.4	
Interval Purge Volume (L)	3.0	3.0	3.0	3.0	3.0	1.5	1.5	
Cumulative Purge Volume (L):	3.0	6.0	9.0	12.0	15.0	16.5	18 L	
YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method						
Time on YSI (24hr):	17:39		Waterra	Peristaltic	Disp. Bailer	Redi-flo		
Actual time of measurement (24hr):	17:39	Analysis	X					

YSI used on June 12

Hanna used on June 13

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.



Sample Site (Con't): V37  
 Sample Date (Con't): June 13, 2015  
 Sample Time: 11:08

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):  
 No j-plug or PVC cap found on well.  
 Well covered with plastic barrel.  
 Well purged to 12.755m on Jun. 12/2015.  
 Will return to sample following day.  
 June 13  
 - Collected Sample at 11:08  
 - Added a J-plug to the well  
 - OTW:

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120ml	
1 L (plastic)	General Chemistry	500 ml	-	-	1L	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	P09-VC1	Project Number:	1343-005.10	Date:	Jun. 12 / 2015						
Approximate Date Drilled:	unknown	Client:	GY - AAM	Sampler:	AN, JH						
Piezometer Diameter / Screen Length:	2" / unknown	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	Sunny ~20°C						
UTM Location	Z. 8 E. 59 35 19 N. 69 03 4 17	Waypoint	GPS AN Name P09-VC1	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad						
Photos	Cam. AN Nos. 739-741	Purge Method									
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra	Peristaltic	Disp. Bailer	Redi-flo					
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis	Hydro:ift.								
Initial Depth to Water (m):	3.816	Purge Start Time:	16:19	Purge End Time:	17:00						
Depth to Bottom (m):	67.973	Purge Interval Time ( ) min, Vol. (15) L									
Submerged Tubing Depth (m):	~ 66.9	Depth to water (m)	<del>3.4</del> 11.90	<del>3.5</del> 14.70	<del>3.6</del>	<del>3.7</del>	<del>3.8</del>	<del>3.8</del>	<del>3.8</del>	15.11	
Well Stick-up Height (m):	0.1	Temperature (°C)	<del>3.4</del> 3.4	3.5	3.6	3.7	3.8	3.8	3.8	3.8	
Estimated Water Volume (L):	~ 128	pH (pH Units)	8.33	8.39	8.40	8.36	8.43	8.39	8.40	8.51	8.48
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	206.0	207.5	208.9	210.0	211.0	213.0	214.0	213.4	215.6	
	Specific Cond. (µs/cm)	343.1	353.0	353.7	354.6	354.9	358.0	359.7	357.7	361.7	
	Redox (mV)	-141.2	-153.1	-157.5	-160.0	-162.9	-162.8	-164.0	-164.0	-164.3	
	Appearance & Odour (Clear, Silty, HC odours, etc.)	Slightly turbid No odour.	same	clear/light grey.	same	same	same	same	same	same	
Turbidity (NTU)										20.7	
Interval Purge Volume (L)		15	15	15	15	15	15	15	15	15	
Cumulative Purge Volume (L):		15	30	45	60	75	90	105	120	135	
YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method									
Time on YSI (24hr):	16:59		Waterra	Peristaltic	Disp. Bailer	Redi-flo					
Actual time of measurement (24hr):	16:59	Analysis	Hydro:ift.								

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.



Sample Site (Con't): P09-VC1

Sample Date (Con't): Jun. 12/2015.

Sample Time: 17:05

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

**General Notes (Condition of well, consumables, or other features):**  
 Previous monitoring event recorded deeper DTB. DTB was double checked as 67.973 m. Well has been installed on a ~30° angle. DTW/drawdown could not be measured continuously during ~~the~~ purging process. Angle of well and method of purging (hydrolift) could potentially damage

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	PO9-VC2	Project Number:	1343-005.10	Date:	Jun. 12 / 2015				
Approximate Date Drilled:	unknown	Client:	GY - AAM	Sampler:	AN, JH				
Piezometer Diameter / Screen Length:	2" / unknown	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	overcast ~15°C				
UTM Location	Z. 8 E. 5935 16N. 6903430	Waypoint	GPS AN Name PO9-VC2	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad				
Photos	Cam. AN Nos. 736-738	Purge Method							
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra	Peristaltic	Disp. Bailer				
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis	Hydrolift						
Initial Depth to Water (m):	1.500	Purge Start Time:	15:35	Purge End Time:	16:01				
Depth to Bottom (m):	19.775	Purge Interval Time ( ) min, Vol. (10) L	15:						
Submerged Tubing Depth (m):	~18.7	Depth to water (m)	2.365	2.465	2.505	2.607	2.482		
Well Stick-up Height (m):	0.864	Temperature (°C)	3.5	3.4	3.4	3.4	3.6	3.7	
Estimated Water Volume (L):	~56.0	pH (pH Units)	7.86	7.76	7.73	7.69	7.67	7.65	
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume	Cond. (µs/cm)	232.4	225.8	215.1	223.2	223.3	224.2		
	Specific Cond. (µs/cm)	394.7	384.3	366.5	379.7	378.3	377.7		
	Redox (mV)	-77.9	-76.0	-83.4	-81.6	-88.5	-86.2		
	Appearance & Odour (Clear, Silty, HC odours, etc.)	silty grey / light brown No odour	light grey	Same	Same	Same	Same		
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume	Turbidity (NTU)	/	/	/	/	/	826 AU	← collected @ time of sample	
2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Interval Purge Volume (L)	10.0	10.0	10.0	10.0	10.0			
	Cumulative Purge Volume (L):	10.0	20.0	30.0	40.0	50.0		16:50	
YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method							
Time on YSI (24hr):	16:01		Waterra	Peristaltic	Disp. Bailer	Redi-flo			
Actual time of measurement (24hr):	16:01	Analysis	Manual						

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

Sample Site (Con't): P69-VC2

 Sample Date (Con't): Jun. 12/2015

 Sample Time: 16:50

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

**General Notes (Condition of well, consumables, or other features):**

Top section of PVC well was not connected to rest of PVC. Presumed to have disconnected due to well cap fit (i.e. too tight), when trying to open well.

Top 94 cm was disconnected.

Stick up measurement recorded to top of well monument.

Well allowed to settle for 50 min before sampling in order to reduce turbidity.

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	

DTB 71.8 3L/14  
dry



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	POB-06-7	Project Number:	1343-005.10	Date:	Jun. 10/2015
Approximate Date Drilled:		Client:	GY - AAM	Sampler:	AN, mm
Piezometer Diameter / Screen Length:	1/2" Nested / unknown	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	Sunny. ~15°C slightly windy
UTM Location	Z. 0 E. 582451 N. 6913491	Waypoint	GPS AN Name POB-06-07	Recovery:	<input type="checkbox"/> Good <input type="checkbox"/> Bad
Photos	Cam. AN Nos. 702-705	Purge Method			
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra	Peristaltic	Disp. Bailer
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis			Redi-flo
Initial Depth to Water (m):	DRY	Purge Start Time:		Purge End Time:	
Depth to Bottom (m):	11.804	Purge Interval Time ( ) min, Vol. ( ) L			
Submerged Tubing Depth (m):		Depth to water (m)			
Well Stick-up Height (m):	0.921	Temperature (°C)			
Estimated Water Volume (L):		pH (pH Units)			
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)				
	Specific Cond. (µs/cm)				
	Redox (mV)				
	Appearance & Odour (Clear, Silty, HC odours, etc.)				
	Turbidity (NTU)				
Interval Purge Volume (L)					
Cumulative Purge Volume (L):					
YSI Field Parameters Logged:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method			
Time on YSI (24hr):			Waterra	Peristaltic	Disp. Bailer
Actual time of measurement (24hr):		Analysis			Redi-flo

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

Sample Site (Con't): P03-06-7

Sample Date (Con't): Jun. 10/2015 DRY

Sample Time: \_\_\_\_\_

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

**General Notes (Condition of well, consumables, or other features):**

Small amount of water detected at the bottom of well. Water level meter had tailing/sludge on the tip when well was dipped.

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HNO <sub>3</sub>		
1 L (plastic)	General Chemistry	500 ml	-	-		



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	P09-C3	Project Number:	1343-005.10	Date:	10-Jul-15	
Approximate Date Drilled:		Client:	GY - AAM	Sampler:	AN/MM	
Piezometer Diameter / Screen Length:	2" / unknown	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	overcast ~14°C	
UTM Location	Z.8 E.57973 N.614314	Waypoint	GPS AN Name P09-C3	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad	
Photos	Cam. AN Nos. 699-701	Purge Method				
Duplicate Collected:	<input type="checkbox"/> Yes Name _____	Analysis	Watera	Peristaltic	Disp. Bailer	
Field Blank Collected	<input type="checkbox"/> Yes Name _____				Redi-flo	
Initial Depth to Water (m):	1.161	Purge Start Time:	15:25	Purge End Time:		
Depth to Bottom (m):	52.219	Purge Interval Time (5) min, Vol. ( ) L	15:30	15:35	15:40	
Submerged Tubing Depth (m):	~50	Depth to water (m)	1.265	1.283	1.284	
Well Stick-up Height (m):	0.785	Temperature (°C)	4.0	4.0	4.0	
Estimated Water Volume (L):	102.1	pH (pH Units)	6.72	6.55	6.57	
<p>measured on angle ~20° from perpendicular</p> <p>(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume</p> <p>* Refer to back for drawing.</p> <p>(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume</p> <p>2" casing has 0.16 USgal/ft or 2.032 l/m</p> <p>1" casing has 0.04 USgal/ft or 0.508 l/m</p> <p>8" sand pack has 0.73 USgal/ft or 9.271 l/m</p> <p>6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m</p>	Cond. (µs/cm)	909	907	908	907	
	Specific Cond. (µs/cm)	1514	1517	1516	1515	1514
	Redox (mV)	-36.0	-34.9	-36.4	-38.1	-38.2
	Appearance & Odour (Clear, Silty, HC odours, etc.)	clear, sulphur odour	clear, no odour	clear, no odour	same.	same.
	Turbidity (NTU)	/	/	/	/	/
	Interval Purge Volume (L)	12	10	10	10	10
	Cumulative Purge Volume (L):	12	22	32	42	52
	YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method	Watera	Peristaltic	Disp. Bailer
Time on YSI (24hr):	16:03				Redi-flo	
Actual time of measurement (24hr):	16:03	Analysis				

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.



Sample Site (Con't): P09-C3

 Sample Date (Con't): Jun. 10/2015

 Sample Time: 16:05

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):

Stick-up measurement:


**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	POI-04A	Project Number:	1343-005.10	Date:	10-Jun-15	
Approximate Date Drilled:		Client:	GY - AAM	Sampler:	AN/MM	
Piezometer Diameter / Screen Length:	2"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	overcast rain ~15-7c	
UTM Location	Z. 8 E. 5803 E N. 6914071	Waypoint	GPS AN Name POI-04A	Recovery:	<input type="checkbox"/> Good <input type="checkbox"/> Bad	
Photos	Cam AN Nos. 696-698	Purge Method				
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra	Peristaltic	Disp. Bailer	
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis			Redi-flo	
Initial Depth to Water (m):	1.648	Purge Start Time:		Purge End Time:		
Depth to Bottom (m):	2.061 ICE	Purge Interval Time ( ) min, Vol. ( ) L				
Submerged Tubing Depth (m):	\	Depth to water (m)				
Well Stick-up Height (m):	0.33	Temperature (°C)				
Estimated Water Volume (L):	\	pH (pH Units)				
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)					
	Specific Cond. (µs/cm)					
	Redox (mV)					
	Appearance & Odour (Clear, Silty, HC odours, etc.)					
	Turbidity (NTU)					
	Interval Purge Volume (L)					
	Cumulative Purge Volume (L):					
	YSI Field Parameters Logged:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method			
	Time on YSI (24hr):	\		Waterra	Peristaltic	Disp. Bailer
	Actual time of measurement (24hr):	\	Analysis			Redi-flo

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

Sample Site (Con't): POI-04A

Sample Date (Con't): FROZEN

Sample Time: \_\_\_\_\_

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)	/								
Temperature (°C)	/								
pH (pH Units)	/								
Cond. (µs/cm)	FROZEN								
Specific Cond. (µs/cm)	FROZEN								
Redox (mV)	/								
Appearance & Odour (Clear, Silty, HC odours, etc.)	/								
Turbidity (NTU)	/								
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):  
 -tubing ~~is~~ stuck in well,  
 most likely frozen @ 2.061

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HNO <sub>3</sub>		
1 L (plastic)	General Chemistry	500 ml	-	-		



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	P01-04B	Project Number:	1343-005.10	Date:	10-June-15
Approximate Date Drilled:	1	Client:	GY - AAM	Sampler:	ANIMM
Piezometer Diameter / Screen Length:	2"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	overcast, rainy
UTM Location	Z.8 E.580375 N.6914071	Waypoint	GPS <del>AN</del> Name P01-04B	Recovery:	<input type="checkbox"/> Good <input type="checkbox"/> Bad
Photos	Cam. AN Nos. 696-698	Purge Method			
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra	Peristaltic	Disp. Bailer
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis			Redi-flo
Initial Depth to Water (m):	<del>1.710</del>	Purge Start Time:		Purge End Time:	
Depth to Bottom (m):	1.710 ICE	Purge Interval Time ( ) min, Vol. ( ) L			
Submerged Tubing Depth (m):	1	Depth to water (m)			
Well Stick-up Height (m):	0.30	Temperature (°C)			
Estimated Water Volume (L):	1	pH (pH Units)			
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)				
	Specific Cond. (µs/cm)				
	Redox (mV)				
	Appearance & Odour (Clear, Silty, HC odours, etc.)				
	Turbidity (NTU)				
	Interval Purge Volume (L)				
	Cumulative Purge Volume (L):				
YSI Field Parameters Logged:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method			
Time on YSI (24hr):			Waterra	Peristaltic	Disp. Bailer
Actual time of measurement (24hr):		Analysis			Redi-flo

FROZEN

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

Sample Site (Con't): 201-64B

 Sample Date (Con't): FROZEN

Sample Time: \_\_\_\_\_

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)	<b>FROZEN</b>								
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

**General Notes (Condition of well, consumables, or other features):**

- Tubing just out of reach, hard to pull up,  
 - Frozen @ 1.710 m.  
 - upon next sample will have to have something present to pull tubing up, most likely something w a sharp edge

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HNO <sub>3</sub>		
1 L (plastic)	General Chemistry	500 ml	-	-		



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	X25-96B	Project Number:	1343-005.10	Date:	10-Jun-15						
Approximate Date Drilled:	—	Client:	GY - AAM	Sampler:	AN/MM						
Piezometer Diameter / Screen Length:	2"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	overcast, rainy ~7°C						
UTM Location	Z. 2 E. 508412 N. 6914125	Waypoint	GPS AN Name X25-96AB	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad						
Photos	Cam. AN Nos. 693-695	Purge Method									
Duplicate Collected:	<input type="checkbox"/> Yes Name _____	Watera	Peristaltic	Disp. Bailer	Redi-flo						
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis									
Initial Depth to Water (m):	1.940	Purge Start Time:	13:26	Purge End Time:							
Depth to Bottom (m):	19.886	Purge Interval Time (S) min, Vol. (L)	13:26	13:31	13:36	13:41	13:46	13:51			
Submerged Tubing Depth (m):	19.0	Depth to water (m)	1.945	1.945	1.945	1.945	1.945	1.945			
Well Stick-up Height (m):	0.60	Temperature (°C)	5.0	4.5	4.3	4.2	4.1	4.1			
Estimated Water Volume (L):	35.89	pH (pH Units)	7.08	7.23	7.28	7.30	7.32	7.32			
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	1100	483.4	1093	1092	1090	1092				
	Specific Cond. (µs/cm)	1787	793.8	1808	1810	1815	1818				
	Redox (mV)	-73.8	-94.2	-100.4	-103.7	-105.9	-107.2				
	Appearance & Odour (Clear, Silty, HC odours, etc.)	clear no odour	Same	Same	Same	Same	Same				
	Turbidity (NTU)	/	/	/	/	/	0.07				
	Interval Purge Volume (L)	0	1.6	2.4	1.6	2.0	2.0				
	Cumulative Purge Volume (L):	0	1.6	4.0	6.0	8.0	10.0				
YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method									
Time on YSI (24hr):	13:53	Watera	Peristaltic	Disp. Bailer	Redi-flo						
Actual time of measurement (24hr):	13:53	Analysis									

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

Sample Site (Con't): X25-96B

Sample Date (Con't): Jun. 10/2015

Sample Time: 13:55

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1060	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	P05-01-03	Project Number:	1343-005.10	Date:	11-Jun-15
Approximate Date Drilled:		Client:	GY - AAM	Sampler:	AN/MM
Piezometer Diameter / Screen Length:	0.5"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	raining ~10°C
UTM Location	Z. 8 E. 8055 N. 6914508	Waypoint	GPS AN Name P05-01	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad
Photos	Cam. AN Nos. 711-713	Purge Method			
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra	Peristaltic	Disp. Bailer
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis		X	
Initial Depth to Water (m):	1.47	Purge Start Time:	16:05	Purge End Time:	
Depth to Bottom (m):	17.771	Purge Interval Time (S) min, Vol. (L)	16:10 16:15 16:20 16:25 16:30 16:35		
Submerged Tubing Depth (m):	~16	Depth to water (m)	can not measure DTW due to well diameter.		
Well Stick-up Height (m):	0.58	Temperature (°C)	5.3 5.3 5.2 5.2 5.0 4.7		
Estimated Water Volume (L):	2.07	pH (pH Units)	6.56 6.55 6.54 6.55 6.57 6.55		
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	2184 2143 2144 2198 2183 2163			
	Specific Cond. (µs/cm)	3480 3450 3457 3538 3531 3526			
	Redox (mV)	-27.9 -28.2 -29.1 -29.9 -30.8 -31.0			
	Appearance & Odour (Clear, Silty, HC odours, etc.)	sulphur odour clear. same reduced odour. same. same. same. same.			
	Turbidity (NTU)	/ / / / / 0.93			
	Interval Purge Volume (L)	1.0 1.0 1.0 1.0 1.0 1.0			
	Cumulative Purge Volume (L):	1.0 2.0 3.0 4.0 5.0 6.0			
YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method			
Time on YSI (24hr):	16:3?		Waterra	Peristaltic	Disp. Bailer
Actual time of measurement (24hr):	16:3?	Analysis		X	

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.





Sample Site (Con't): POS-01-03

Sample Date (Con't): Jun. 11 / 2015

Sample Time: 16:40

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	POS-01-05	Project Number:	1343-005.10	Date:	11 Jun - 15	
Approximate Date Drilled:		Client:	GY - AAM	Sampler:	AN/MM	
Piezometer Diameter / Screen Length:	1/2" / unknown	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	rainy ~10°C	
UTM Location	Z.8 E.580055 N.6914508	Waypoint	GPS AN Name POS-01	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad	
Photos	Cam. AN Nos. 711-713	Purge Method				
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra	Peristaltic	Disp. Bailer	
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis		X		
Initial Depth to Water (m):	1.754	Purge Start Time:	15:35	Purge End Time:		
Depth to Bottom (m):	6.547	Purge Interval Time (S) min, Vol. (L)	15:36 15:41 15:46 15:51			
Submerged Tubing Depth (m):	~5.5	Depth to water (m)	Depth not taken, unable to fit H <sub>2</sub> O level meter in well w/ tubing			
Well Stick-up Height (m):	0.56	Temperature (°C)	5.4 5.2 5.4 5.4			
Estimated Water Volume (L):	0.608	pH (pH Units)	7.02 6.68 6.64 6.63			
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB - DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	2064 2138 2070 2119				
	Specific Cond. (µs/cm)	3312 3436 3317 3395				
	Redox (mV)	-72.5 -42.5 -39.8 -39.3				
	Appearance & Odour (Clear, Silty, HC odours, etc.)	clear sulphur odour same clear no odour same				
	Turbidity (NTU)	/ / / 0.03				
	Interval Purge Volume (L)	/ 0.75 0.75 0.75				
	Cumulative Purge Volume (L):	/ 0.75 1.5 2.25				
	YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method			
	Time on YSI (24hr):	15:51		Waterra	Peristaltic	Disp. Bailer
	Actual time of measurement (24hr):	15:51	Analysis			

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.



Sample Site (Con't): POS-01-05

Sample Date (Con't): 11-Jun-15

Sample Time: 16:00

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1,000	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	P09-C0	Project Number:	1343-005.10	Date:	11-Jun-15
Approximate Date Drilled:		Client:	GY - AAM	Sampler:	AN/MM
Piezometer Diameter / Screen Length:	2" / unknown.	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	rainy ~6°C
UTM Location	Z.8 E. S80009 N. 6914403	Waypoint	GPS AN Name P09-C2	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad
Photos	Cam. AN Nos. 708-710	Purge Method			
Duplicate Collected:	<input checked="" type="checkbox"/> Yes Name _____	Water	Peristaltic	Disp. Bailer	Redi-flo
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis	Hydro:iff.		
Initial Depth to Water (m):	0.653	Purge Start Time:	14:10	Purge End Time:	14:40
Depth to Bottom (m):	~64m	Purge Interval Time (5) min, Vol. ( ) L	14:15 14:20 14:25 14:30 14:35 14:40		
Submerged Tubing Depth (m):	~62m	Depth to water (m)	2.715 3.110 3.410 3.50 3.639 3.745		
Well Stick-up Height (m):	0.890	Temperature (°C)	4.8 5.2 5.0 4.9 5.0 4.9		
Estimated Water Volume (L):	126.7	pH (pH Units)	6.60 6.64 6.65 6.60 6.64 6.61		
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB - DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	1662 1696 1659 1657 1661 1649			
	Specific Cond. (µs/cm)	2706 2710 2693 2689 2691 2684			
	Redox (mV)	-17.8 -29.5 -15.6 -12.4 -16.6 -12.9			
	Appearance & Odour (Clear, Silty, HC odours, etc.)	light grey no odour clear clear sulfur odour same same same			
Turbidity (NTU)	/ / / / / 8.31				
Interval Purge Volume (L)	10 5 5 5 5 5				
Cumulative Purge Volume (L):	10 15 20 25 30 35				
YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method			
Time on YSI (24hr):	14:44	Water	Peristaltic	Disp. Bailer	Redi-flo
Actual time of measurement (24hr):	14:44	Analysis	<input checked="" type="checkbox"/>		

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

Sample Site (Con't): P09-C2

 Sample Date (Con't): Jun. 11/2015

 Sample Time: 14:45

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

**General Notes (Condition of well, consumables, or other features):**

Water level detected @ PVC connection 0.653 DTW.

Water level tape only 60 m length.

Could not measure DTB. 64m assumed from previous event (Fall 2014).

- Orange brown color inside stick-up

- Well Repairs: stick-up well w/ cement + 1m of 2" PVC was removed. The well is on a 25° angle from horizontal. We dug 1m down to inspect the well casing. The well was still on an angle, but in good condition. We pushed the well casing back

towards horizontal and backfilled with big rocks and dirt. We added 1m of new 2" PVC, placed a new stick-up monument,

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	

and cemented it in place.

consumables used:

- 1 stick-up monument
- 1 2" PVC cap
- 1 J-plug
- 1m of 2" PVC
- 2 bags of cement



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	P01-01A	Project Number:	1343-005.10	Date:	June 11, 2015
Approximate Date Drilled:		Client:	GY - AAM	Sampler:	JH + JC
Piezometer Diameter / Screen Length:	2"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	rain 8°C
UTM Location	Z00 E. 6914855 N. 0570696	Waypoint	GPS X Name P01-01A-B	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad
Photos	Cam. <input checked="" type="checkbox"/> Nos. 210, 211, 212	Purge Method			
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra	Peristaltic	Disp. Bailer
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis	X		
Initial Depth to Water (m):	3.24	Purge Start Time:	16:45	Purge End Time:	16:59
Depth to Bottom (m):	20.283	Purge Interval Time (min, Vol. (L))	16:45 <del>16:45</del> 16:48 16:50 16:53 <del>16:54</del> 16:56 16:59		
Submerged Tubing Depth (m):	19.55	Depth to water (m)	-	-	-
Well Stick-up Height (m):	0.58	Temperature (°C)	2.5 -2.4 -8.8 -8.9	?? 8.9 -8.8	
Estimated Water Volume (L):	33.36 L	pH (pH Units)	7.18 7.41 7.02 7.17	?? 6.59 6.93	
$\begin{matrix} 20.283 \\ - 3.624 \\ \hline 16.659 \end{matrix} \times 2 = 33.318$ (DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB - DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	1221 1097 1090 1090	1103 1104 1105		
	Specific Cond. (µs/cm)	2087 2287 3056 2729	?? 3071 3219		
	Redox (mV)	315.4 280.7 251.3 231.9	234.0 217.3 223.2		
	Appearance & Odour (Clear, Silty, HC odours, etc.)	clear clear clear clear	clear clear clear		
	Turbidity (NTU)	- - - -	- - 1.29		
	Interval Purge Volume (L)	15L 8L 8L 8L	8L 8L 8L		
	Cumulative Purge Volume (L):	15L 23L 31L 39L	47L 55L 53L		
YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method			
Time on YSI (24hr):	17:00		Waterra	Peristaltic	Disp. Bailer
Actual time of measurement (24hr):	17:00	Analysis	X		

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

Sample Site (Con't): P01-01A

 Sample Date (Con't): June 11, 2015

 Sample Time: 17:05

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

**General Notes (Condition of well, consumables, or other features):**

- Could not monitor DTW while sample due to ice ~~in well~~ blocking water level tape

- temp, specific conductivity + pH probes have been ~~flashing~~ flashing error messages (???). So we are only relying on ORP + Conductivity parameters for stabilization

- Well in good condition, ice build up

- Used 32 m of Wellora + 1 Foot valve

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120 ml	
1 L (plastic)	General Chemistry	500 ml	-	-	1L	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	P01-01B	Project Number:	1343-005.10	Date:	June 11/15							
Approximate Date Drilled:	-	Client:	GY - AAM	Sampler:	JC/JH							
Piezometer Diameter / Screen Length:	2"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	light rain 80c							
UTM Location	Z.08 E.6914855 N. 0579696	Waypoint	GPS <del>X</del> Name P01-01A+B	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad							
Photos	Cam. <del>X</del> Nos. 211+216	Purge Method										
Duplicate Collected:	<input type="checkbox"/> Yes Name _____	Watterra	Peristaltic	Disp. Bailer	Redi-flo							
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis	X									
Initial Depth to Water (m):	3.787	Purge Start Time:	17:12	Purge End Time:								
Depth to Bottom (m):	35.215	Purge Interval Time (2) min, Vol. (8) L	17:13	17:15	17:17	17:20	17:22	17:24	17:26	17:27	17:29	
Submerged Tubing Depth (m):	33.50	Depth to water (m)	-	-	-	-	-	-	-	-	3.88	
Well Stick-up Height (m):		Temperature (°C)	-9.7	?	?	-9.6	?	?	-9.1	?	?	?
Estimated Water Volume (L):	65	pH (pH Units)	6.45	?	?	6.76	?	?	?	?	?	?
<p>35.845 2.227 32.5+2.65 (DTB - DTW) x 2 (for 2" well diameter) = 1 well volume</p> <p>(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume</p> <p>2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m</p>	Cond. (µs/cm)	845	876	874	875	873	875	873	877	877		
	Specific Cond. (µs/cm)	2547	?	?	2584	?	?	?	?	?		
	Redox (mV)	150.7	96.3	102.4	97.5	75.2	100.6	74.1	100.6	79.1		
	Appearance & Odour (Clear, Silty, HC odours, etc.)	clear	clear	clear	clear	clear	clear	clear	clear	clear	clear	
	Turbidity (NTU)	-	-	-	-	-	-	-	-	-	-	
	Interval Purge Volume (L)	8L	8L	9L	8L	8L	8L	8L	8L	8L	8L	
	Cumulative Purge Volume (L):	8L	16L	24L	32L	40L	48L	56L	64L	72L	80L	
	YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method									
	Time on YSI (24hr):	17:43	Watterra	Peristaltic	Disp. Bailer	Redi-flo						
	Actual time of measurement (24hr):	17:43	Analysis	X								

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.



Sample Site (Con't): P01-01B

 Sample Date (Con't): June 11, 2015

 Sample Time: ~~17:45~~ 17:45

Additional Purge Data:							
Purge Interval Time ( ) min, Vol. ( ) L	17:32	17:34	17:35	17:37	17:39	17:41	17:43
Depth to water (m)	3.87	3.82	3.88	-	3.88	3.88	3.88
Temperature (°C)	?	?	?	?	?	?	?
pH (pH Units)	?	?	?	?	?	?	?
Cond. (µs/cm)	875	875	877	876	877	877	875
Specific Cond. (µs/cm)	?	?	?	?	?	?	?
Redox (mV)	57.7	45.6	85.6	42.5	66.8	24.7	37.0
Appearance & Odour (Clear, Silty, HC odours, etc.)	clear	clear	clear	clear	clear	clear	
Turbidity (NTU)	-	-	-	-	-	-	1.02
Interval Purge Volume (L)	8L	8L	8L	8L	8L	8L	8L
Cumulative Purge Volume (L):	8L	16L	24L	32L	40L	48L	56L

**General Notes (Condition of well, consumables, or other features):**

-The pH, temp, specific conductivity probes aren't functioning despite efforts to repair/recalibrate. Thus, we are relying on Cond + ORP for stabilization

-well in good condition

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120 mL	
1 L (plastic)	General Chemistry	500 ml	-	-	1L	

DTB L/M = 26.581  
DTW = 14.9



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	P03-06-1	Project Number:	1343-005.10	Date:	Jun. 10 / 2015
Approximate Date Drilled:		Client:	GY - AAM	Sampler:	AN, mm
Piezometer Diameter / Screen Length:	1/2" / unknown	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	Sunny / wind - ~15°C
UTM Location	Z. 8 E. 582451 N. 6913491	Waypoint	GPS AN Name P03-06-7	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad
Photos	Cam. AN Nos. 702-705	Purge Method			
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra	Peristaltic	Disp. Bailer
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis	Micvo.		
Initial Depth to Water (m):	14.409	Purge Start Time:	10:16	Purge End Time:	10:41
Depth to Bottom (m):	26.538	Purge Interval Time (Σ) min, Vol. ( ) L	10:21	10:25	10:30
Submerged Tubing Depth (m):	~25.5	Depth to water (m)	CAN FILTER	H <sub>2</sub> O	LEVEL IN WELL W TUBING
Well Stick-up Height (m):	0.778	Temperature (°C)	5.5	4.5	4.9
Estimated Water Volume (L):	~1.5	pH (pH Units)	2.86	4.26	3.89
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	3115	3045	3025	3105
	Specific Cond. (µs/cm)	4971	5003	4911	5005
	Redox (mV)	398.1	222.9	257.3	203.1
	Appearance & Odour (Clear, Silty, HC odours, etc.)	very brown	mostly cleared up.	same	same
	Turbidity (NTU)				1.52
Interval Purge Volume (L)	1	1	1	1	
Cumulative Purge Volume (L):	1	2	3	4	
YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method			
Time on YSI (24hr):	10:42		Waterra	Peristaltic	Disp. Bailer
Actual time of measurement (24hr):	10:42	Analysis	<del>Waterra</del>		

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.



Sample Site (Con't): P03-06-1

Sample Date (Con't): 11-Jun-15

Sample Time: 10:45

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	110	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	

DTB = 3.6  
DTW = 12.3



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	P03-06-6	Project Number:	1343-005.10	Date:	Jun. 10 / 2015
Approximate Date Drilled:		Client:	GY - AAM	Sampler:	AN, MM
Piezometer Diameter / Screen Length:	1/2" / unknown	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	Sunny / windy ~15°C
UTM Location	Z.8 E.582451 N.6913491	Waypoint	GPS AN Name P03-06-7	Recovery:	<input type="checkbox"/> Good <input type="checkbox"/> Bad
Photos	Cam. AN Nos. 702-705	Purge Method			
Duplicate Collected:	<input type="checkbox"/> Yes Name _____	Analysis	Watterra	Peristaltic	Disp. Bailer
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis	manual micro		Redi-flo
Initial Depth to Water (m):	12.424	Purge Start Time:		Purge End Time:	
Depth to Bottom (m):	13.611	Purge Interval Time ( ) min, Vol. ( ) L	9:58		
Submerged Tubing Depth (m):	~12	Depth to water (m)	1		
Well Stick-up Height (m):	0.90	Temperature (°C)	6.1		
Estimated Water Volume (L):	0.1507	pH (pH Units)	3.58		
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB - DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	656			
	Specific Cond. (µs/cm)	1020			
	Redox (mV)	363.9			
	Appearance & Odour (Clear, Silty, HC odours, etc.)	very turbid			
	Turbidity (NTU)	AN 627AN			
Interval Purge Volume (L)	0.55				
Cumulative Purge Volume (L):	0.55				
YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method			
Time on YSI (24hr):	9:57	Analysis	Watterra	Peristaltic	Disp. Bailer
Actual time of measurement (24hr):	9:57	Analysis	<del>Watterra</del>		Redi-flo

\* Some recovery.

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.



Sample Site (Con't): P03-06-6

Sample Date (Con't): 11-30-15

Sample Time: 10:00

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	X24-960	Project Number:	1343-005.10	Date:	10-Jun-15							
Approximate Date Drilled:		Client:	GY - AAM	Sampler:	AN/MM							
Piezometer Diameter / Screen Length:	2"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	overcast, rainy ~7°C							
UTM Location	Z.8 E.58054 N.6914299	Waypoint	GPS <u>AN</u> Name X24-960	Recovery:	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Bad							
Photos	Cam. <u>AN</u> Nos. <del>687-689</del>	Purge Method										
Duplicate Collected:	<input type="checkbox"/> Yes - Name _____	Wattera	Peristaltic	Disp. Bailer	Redi-flo							
Field Blank Collected	<input type="checkbox"/> Yes - Name _____	Analysis	Hydroliq.									
Initial Depth to Water (m):	2.621	Purge Start Time:	10:48	Purge End Time:								
Depth to Bottom (m):	28.589	Purge Interval Time (5) min, Vol. ( ) L	10:49	10:54	10:59	11:04	11:09	11:14	11:19	11:24	11:29	
Submerged Tubing Depth (m):	~22	Depth to water (m)	4.840	4.760	6.490	7.061	7.954	10.890	13.890	16.445	18.790	
Well Stick-up Height (m):	0.842	Temperature (°C)	4.1	3.9	4.0	4.2	3.9	3.8	3.4	3.6	3.5	
Estimated Water Volume (L):	51.9	pH (pH Units)	7.24	6.10	6.18	6.04	6.02	6.04	5.99	5.97	5.96	
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	2010	1999	2000	2009	1991	1981	1946	1851	1956		
	Specific Cond. (µs/cm)	3348	3346	3334	3335	3329	3339	3314	3169	3318		
	Redox (mV)	88.9	44.3	26.3	31.8	32.5	29.7	34.2	33.8	32.0		
	Appearance & Odour (Clear, Silty, HC odours, etc.)	clear no odour	same	same	same	same	same	same	same	same		
	Turbidity (NTU)	/	/	/	/	/	/	/	/	/		
	Interval Purge Volume (L)	1	5	3	3	2	5	7	5	5		
	Cumulative Purge Volume (L):	1	6	9	12	14	19	26	31	34		
	YSI Field Parameters Logged:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method									
	Time on YSI (24hr):		Wattera	Peristaltic	Disp. Bailer	Redi-flo						
	Actual time of measurement (24hr):		Analysis									

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

Sample Site (Con't): X24-960

 Sample Date (Con't): Jun. 11/2015

 Sample Time: 13:15

Additional Purge Data:	Jun. 10/2015				Jun. 11/2015	
	Purge Interval Time (5) min, Vol. ( ) L	11:34	11:39	11:45	11:48	
Depth to water (m)	50.33	20.93	24.78	26.28		5.405
Temperature (°C)	3.8	4.1	3.3	3.4		5.0
pH (pH Units)	5.97	5.99	6.03	6.08		6.35
Cond. (µs/cm)	1972	1987	1897	1706		1802
Specific Cond. (µs/cm)	3316	3392	3255	2901		2945
Redox (mV)	29.8	24.9	17.0	37.8		8.7
Appearance & Odour (Clear, Silty, HC odours, etc.)	same clear	clear	slight turbid	same		clear
Turbidity (NTU)	/	/	/	/		18.3
Interval Purge Volume (L)	6	6	8			
Cumulative Purge Volume (L):	40	46	54			

**General Notes (Condition of well, consumables, or other features):**

- water level would not stabilize, therefore sped up purge rate.
- purged dry w/ hydroliik @ 11:39. attempt to manually purge the rest
- purged dry manually @ 11:48, will return tomorrow to sample.
- Returned to sample on Jun. 11/2015 @ 13:15. Well fully recovered, 5.405 DTW.
- had to pull waterera out b/c it snapped @ top; appeared to be

calcium build up on the bottom of the tubing  
 - added 28m of 5/8" waterera + F.V.

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	PO9-ETA-2	Project Number:	1343-005.10	Date:	11-Jun-15							
Approximate Date Drilled:		Client:	GY - AAM	Sampler:	AN/MM							
Piezometer Diameter / Screen Length:	2"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	Rainy ~90c							
UTM Location	Z. 8 E. 582701 N. 0913812	Waypoint	GPS AN Name PO9-ETA-2	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad							
Photos	Cam. AN Nos. 706-707	Purge Method										
Duplicate Collected:	<input type="checkbox"/> Yes Name _____	Watera	Peristaltic	Disp. Bailer	Redi-flo							
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis	Hydrolyt.									
Initial Depth to Water (m):	5.833	Purge Start Time:	11:37	Purge End Time:								
Depth to Bottom (m):	18.533	Purge Interval Time (5) min, Vol. ( ) L	11:42	11:47	11:52	11:58	12:03	12:08	12:14	12:21	12:26	12:31
Submerged Tubing Depth (m):	~17	Depth to water (m)	5.870	5.872	5.873	5.879	5.879	5.879	5.881	5.882	5.895	
Well Stick-up Height (m):	0.74	Temperature (°C)	1.8	1.8	1.8	1.9	1.9	2.2	2.0	2.0	1.9	
Estimated Water Volume (L):	25.46	pH (pH Units)	5.67	5.80	5.80	5.92	5.76	5.84	5.82	5.99	5.92	
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	4605	4773	4804	4799	4812	4840	4810	4811	4777		
	Specific Cond. (µs/cm)	8262	8577	8612	8592	8594	8528	8592	8582	8550		
	Redox (mV)	-29.4	-41.6	-54.6	-56.1	-56.3	-54.4	-56.4	-54.6	-51.1		
	Appearance & Odour (Clear, Silty, HC odours, etc.)	Slightly turbid no odour	clear	Slightly turbid	clear	clear	same	same	same	same		
	Turbidity (NTU)	/	/	/	/	/	/	/	/	/		
	Interval Purge Volume (L)	8	8	8	8	8	8	10	8	8		
	Cumulative Purge Volume (L):	8	16	24	32	40	48	58	66	74		
	YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method									
	Time on YSI (24hr):	12:31	Watera	Peristaltic	Disp. Bailer	Redi-flo						
	Actual time of measurement (24hr):	12:31	Analysis	X								

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.



Sample Site (Con't): PO9 - ETA - 2

 Sample Date (Con't): 11-Jul-15

 Sample Time: 12:35

Additional Purge Data:									
Purge Interval Time (5) min, Vol. ( ) L	12.3								
Depth to water (m)	5.895								
Temperature (°C)	1.9								
pH (pH Units)	5.82								
Cond. (µs/cm)	4745								
Specific Cond. (µs/cm)	857								
Redox (mV)	-53.6								
Appearance & Odour (Clear, Silty, HC odours, etc.)	clear								
Turbidity (NTU)	0.24								
Interval Purge Volume (L)	8								
Cumulative Purge Volume (L):	82								

General Notes (Condition of well, consumables, or other features):

- pH is not stabilizing, suspect there the 151 may need to be calibrated, will continue to record pH, but purging to 3 well volumes to be certain sample is representative ground water.

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	PO1-11	Project Number:	1343-005.10	Date:	11-Jun-15					
Approximate Date Drilled:		Client:	GY - AAM	Sampler:	AN/MM					
Piezometer Diameter / Screen Length:	2"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	Rainy ~8°C					
UTM Location	Z. 8E.580092N.6914486	Waypoint	GPS AN Name PO1-11	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad					
Photos	Cam. AN Nos. 714-716	Purge Method								
Duplicate Collected:	<input type="checkbox"/> Yes Name _____	Watterra	Peristaltic	Disp. Bailer	Redi-flo					
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis	<input checked="" type="checkbox"/>							
Initial Depth to Water (m):	0.982	Purge Start Time:	16:57	Purge End Time:						
Depth to Bottom (m):	11.012	Purge Interval Time (5) min, Vol. ( ) L	17:02	17:07	17:12	17:17	17:22	17:27		
Submerged Tubing Depth (m):	~10	Depth to water (m)	0.982	0.982	0.982	0.982	0.982	0.982		
Well Stick-up Height (m):	1.005	Temperature (°C)	4.9	4.8	4.7	4.6	4.6	4.6		
Estimated Water Volume (L):	20.04	pH (pH Units)	6.84	6.84	6.85	6.83	6.79	6.78		
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume	(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume	Cond. (µs/cm)	2135	2119	2116	2142	2163	2029		
		Specific Cond. (µs/cm)	3461	3455	3458	3508	3541	3358		
2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m		Redox (mV)	-61.8	-59.6	-57.0	-55.3	-52.0	-49.1		
		Appearance & Odour (Clear, Silty, HC odours, etc.)	Slight sulphur odour clear	same	same	same	same	same		
		Turbidity (NTU)	/	/	/	/	/	263		
		Interval Purge Volume (L)	1.5	1.0	2.0	2.0	2.0	2.0		
		Cumulative Purge Volume (L):	1.5	2.5	4.5	6.5	8.5	10.5		
YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method								
Time on YSI (24hr):	17:28	Watterra	Peristaltic	Disp. Bailer	Redi-flo					
Actual time of measurement (24hr):	17:28	Analysis	<input checked="" type="checkbox"/>							

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

11.012  
0.982  
10.020 x 2  
20.040



Sample Site (Con't): P01-11

Sample Date (Con't): Jun. 11/2015

Sample Time: 18:00

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	SRK08-10A	Project Number:	1343-005.10	Date:	June 11, 2015					
Approximate Date Drilled:		Client:	GY - AAM	Sampler:	JH + JC					
Piezometer Diameter / Screen Length:		Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	1.53/min 10°C					
UTM Location	Z.08 E. 6914056 N. 0582722	Waypoint	GPS <input checked="" type="checkbox"/> Name SRK08-10A	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad					
Photos	Cam. <input checked="" type="checkbox"/> Nos. 194, 195, 196	Purge Method								
Duplicate Collected:	<input type="checkbox"/> Yes Name _____	Watera	Peristaltic	Disp. Bailer	Redi-flo					
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis	<input checked="" type="checkbox"/>							
Initial Depth to Water (m):	10.862	Purge Start Time:	10:26	Purge End Time:	10:38					
Depth to Bottom (m):	13.740	Purge Interval Time ( ) min, Vol. (3) L	10:30	10:32	10:34	10:38	10:49			
Submerged Tubing Depth (m):	12.09	Depth to water (m)	3.91 <sup>1.28</sup>	11.455	11.545	11.759				
Well Stick-up Height (m):	0.71	Temperature (°C)	3.9	3.1	2.0	3.0	3.9			
Estimated Water Volume (L):	6L	pH (pH Units)	6.43	6.28	6.29	6.30	6.37			
<p><math>(DTB - DTW) \times 2</math> (for 2" well diameter) = 1 well volume</p> <p><math>(DTB - DTW) \times 1.1</math> (for 1.5" diameter) = 1 well volume</p> <p>2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m</p>	Cond. (µs/cm)	2364	2392	2334	2335	2380				
	Specific Cond. (µs/cm)	3957	4102	4020	4020	3985				
	Redox (mV)	112.6	116.2	118.5	119.5	120.4				
	Appearance & Odour (Clear, Silty, HC odours, etc.)	silty	silty	turbid	less turbid	less turbid				
	Turbidity (NTU)	-	-	-	45.7	-				
	Interval Purge Volume (L)	3L	3L	3L	3L	3L				
	Cumulative Purge Volume (L):	3L	6L	9L	12L	15L				
YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method								
Time on YSI (24hr):	10:50	Watera	Peristaltic	Disp. Bailer	Redi-flo					
Actual time of measurement (24hr):	10:50	Analysis	<input checked="" type="checkbox"/>							

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

\* \* \* YSI parameters were logged on YSI after sample was collected.  
Reading at 10:38 was last reading before sampling



Sample Site (Con't): SRK08-10A

Sample Date (Con't): June 11, 2015

Sample Time: 10:40

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):  
 - well in good condition

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	100 ml	
1 L (plastic)	General Chemistry	500 ml	-	-	1 L	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	SRK08-P9	Project Number:	1343-005. #08	Date:	Jun 11, 2015						
Approximate Date Drilled:		Client:	GY - AAM	Sampler:	JH + JC						
Piezometer Diameter / Screen Length:		Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	light rain 10°C						
UTM Location	Z. 68 E. 6913624 N. 0583625	Waypoint	GPS <input checked="" type="checkbox"/> Name SRK08-P9	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad						
Photos	Cam. <input checked="" type="checkbox"/> Nos. 197, 198, 199	Purge Method									
Duplicate Collected:	<input type="checkbox"/> Yes Name _____	Watterra	Peristaltic	Disp. Bailer	Redi-flo						
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis	X								
Initial Depth to Water (m):	3.999	Purge Start Time:	11:21	Purge End Time:	11:50						
Depth to Bottom (m):	6.189	Purge Interval Time (3) min, Vol. (0.5) L	11:25	11:28	11:31	11:34	11:37	11:40	11:43	11:46	11:49
Submerged Tubing Depth (m):	6.550	Depth to water (m)	4.053	4.123	4.167	4.224	4.280	4.335	4.383	4.442	4.486
Well Stick-up Height (m):	0.09	Temperature (°C)	2.6	2.0	1.9	1.9	1.9	1.9	2.1	2.0	1.9
Estimated Water Volume (L):	4.38	pH (pH Units)	7.26	7.01	6.98	7.01	7.03	7.04	7.04	7.04	7.04
$6.189 - 3.999 = 2.19 \times 2 = 4.38$ (DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB - DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	1499	1455	1393	1246	1114	1020	975	948	926	
	Specific Cond. (µs/cm)	2633	2600	2483	2223	1985	1820	1734	1692	1657	
	Redox (mV)	69.4	60.5	65.2	69.6	72.4	74.7	76.8	78.0	78.5	
	Appearance & Odour (Clear, Silty, HC odours, etc.)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	
	Turbidity (NTU)	-	-	-	-	-	-	-	-	-	
Interval Purge Volume (L)	0.5L	0.5L	0.5L	0.5L	0.5L	0.5L	0.5L	0.5L	0.5L	0.5L	
Cumulative Purge Volume (L):	0.5L	1.0L	1.5L	2.0L	2.5L	3L	3.5L	4.0L	4.5L		
YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method									
Time on YSI (24hr):	11:52	Watterra	Peristaltic	Disp. Bailer	Redi-flo						
Actual time of measurement (24hr):	11:52	Analysis	X								

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

Sample Site (Con't): SKK08-P9

Sample Date (Con't): June 11, 2015

Sample Time: 11:52

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L	11.52								
Depth to water (m)									
Temperature (°C)	2.0								
pH (pH Units)	7.05								
Cond. (µs/cm)	87								
Specific Cond. (µs/cm)	1583								
Redox (mV)	76.7								
Appearance & Odour (Clear, Silty, HC odours, etc.)	clear								
Turbidity (NTU)	1.67								
Interval Purge Volume (L)	0.5L								
Cumulative Purge Volume (L):	5.0L								

**General Notes (Condition of well, consumables, or other features):**

- Well has previously been broken at 0.09m above ground. It is now being protected by a wood frame and has a good well cap

- 6" Silkeal used

- To re-instate this well stick-up to its original size would require:

- Hack saw
- 2" PVC cuplar
- 90cm of 2" PVC
- New 3-plug

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	100 mL	
1 L (plastic)	General Chemistry	500 ml	-	-	<del>100</del> 1L	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	BH13B	Project Number:	1343-005.10	Date:	June 11, 2015	
Approximate Date Drilled:		Client:	GY - AAM	Sampler:	JH + SC	
Piezometer Diameter / Screen Length:	2"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	Rain 8°C	
UTM Location	Z18 E. 614490N. 0585746	Waypoint	GPS X Name BH13-A+B	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad	
Photos	Cam. X Nos 205, 204, 202, 203	Purge Method				
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra	Peristaltic	Disp. Bailer	
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis		X		
Initial Depth to Water (m):	2.557	Purge Start Time:	12:52	Purge End Time:	13:19	
Depth to Bottom (m):	4.404	Purge Interval Time (3) min, Vol. ( ) L	12:58	13:01	13:04	
Submerged Tubing Depth (m):	2.20	Depth to water (m)	2.617	2.657	2.693	
Well Stick-up Height (m):	0.75	Temperature (°C)	2.2	1.1	0.8	
Estimated Water Volume (L):	3.7L	pH (pH Units)	7.24	6.89	6.71	
<p><math>4.404 - 2.557 = 1.847 \times 2 = 3.694</math></p> <p>(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume</p> <p>(DTB - DTW) x 1.1 (for 1.5" diameter) = 1 well volume</p> <p>2" casing has 0.16 USgal/ft or 2.032 l/m</p> <p>1" casing has 0.04 USgal/ft or 0.508 l/m</p> <p>8" sand pack has 0.73 USgal/ft or 9.271 l/m</p> <p>6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m</p>	Cond. (µs/cm)	718	670	641	630	
	Specific Cond. (µs/cm)	1287	1234	1190	1167	
	Redox (mV)	89.1	94.7	99.0	101.0	
	Appearance & Odour (Clear, Silty, HC odours, etc.)	clear	clear	clear	clear	
	Turbidity (NTU)	-	-	-	-	
	Interval Purge Volume (L)	0.5L	0.5L	0.5L	0.5L	
	Cumulative Purge Volume (L):	0.5L	1.0L	1.5L	2L	
	YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method			
	Time on YSI (24hr):	13:19		Waterra	Peristaltic	Disp. Bailer
	Actual time of measurement (24hr):	13:19	Analysis		X	

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.



Sample Site (Con't): BH13-B

Sample Date (Con't): June 11, 2015

Sample Time: 13:21

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):

- Well in good condition  
- thin layer of ice at water table

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120 ml	
1 L (plastic)	General Chemistry	500 ml	-	-	1 L	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	BH14A	Project Number:	1343-005.108	Date:	June 11, 2015	
Approximate Date Drilled:		Client:	GY - AAM	Sampler:	JH + JC	
Piezometer Diameter / Screen Length:	2"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	light rain 10°C	
UTM Location	Z48 E69 4014 N. 0585582	Waypoint	GPS <input checked="" type="checkbox"/> Name BH14A+B	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad	
Photos	Cam. <input checked="" type="checkbox"/> Nos. 204, 205, 206	Purge Method				
Duplicate Collected:	<input type="checkbox"/> Yes Name _____	Watertra	Peristaltic	Disp. Bailer	Redi-flo	
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis	X			
Initial Depth to Water (m):	2.857	Purge Start Time:	13:53	Purge End Time:		
Depth to Bottom (m):	6.445	Purge Interval Time (3) min, Vol. (15) L	13:56   13:59   14:02   14:05   14:08   14:11   14:14   14:17   14:20			
Submerged Tubing Depth (m):	6.00	Depth to water (m)	2.969   1.126   4.240   4.306   4.357   4.404   4.457   4.491			
Well Stick-up Height (m):	0.045	Temperature (°C)	3.6   3.7   2.3   2.4   2.2   2.4   2.3   2.1			
Estimated Water Volume (L):	5.2 L	pH (pH Units)	6.51   6.48   6.41   6.41   6.40   6.41   6.42   6.42			
<p>5.6449 - 3.857 2.542, 2 = 5.184</p> <p>(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume</p> <p>(DTB - DTW) x 1.1 (for 1.5" diameter) = 1 well volume</p> <p>2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m</p>	Cond. (µs/cm)	2391   2534   2476   2474   2467   2474   2470   2463				
	Specific Cond. (µs/cm)	4037   4407   4362   4364   4377   4362   4368   4378				
	Redox (mV)	134.7   135.1   134.4   133.2   132.2   130.1   126.6   123.5				
	Appearance & Odour (Clear, Silty, HC odours, etc.)	clear   clear   clear   clear   clear   clear   clear   clear				
	Turbidity (NTU)	-   -   -   -   -   -   -   -				
	Interval Purge Volume (L)	0.2 L   0.5   0.5   1.3   0.5   0.5   0.5   0.5				
	Cumulative Purge Volume (L):	0.2 L   0.7 L   1.2   2.5   3   3.5   4   4.5				
	YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method			
	Time on YSI (24hr):	14:23	Watertra	Peristaltic	Disp. Bailer	Redi-flo
	Actual time of measurement (24hr):	14:23	Analysis	X		

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.



Sample Site (Con't): BH14A

Sample Date (Con't): June 11, 2015

Sample Time: 14:24

Additional Purge Data:									
Purge Interval Time ( <u>3</u> ) min, Vol. ( <u>  </u> ) L	14:23								
Depth to water (m)									
Temperature (°C)	1.9								
pH (pH Units)	6.42								
Cond. (µs/cm)	2453								
Specific Cond. (µs/cm)	4389								
Redox (mV)	121.2								
Appearance & Odour (Clear, Silty, HC odours, etc.)	clear								
Turbidity (NTU)	3.37								
Interval Purge Volume (L)	0.5								
Cumulative Purge Volume (L):	5 L								

purged additional ~500ml while logging YSI data

General Notes (Condition of well, consumables, or other features):

- Well in good condition  
6" silicone used

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120 mL	
1 L (plastic)	General Chemistry	500 ml	-	-	1 L	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	<del>BH14B</del> BH14B	Project Number:	1343-005.10	Date:	Jun 11, 2015		
Approximate Date Drilled:		Client:	GY - AAM	Sampler:	JH + JC		
Piezometer Diameter / Screen Length:	2"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	light rain 10°C		
UTM Location	Z.00 E.61464 N. 0585502	Waypoint	GPS x Name BH14+B	Recovery:	<input checked="" type="checkbox"/> Good → <input type="checkbox"/> Bad		
Photos	Cam. x Nos. 207, 208, 209	Purge Method					
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra	Peristaltic	Disp. Bailer		
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis	X	X			
Initial Depth to Water (m):	4.491	Purge Start Time:				Purge End Time:	14:39
Depth to Bottom (m):	10.114	Purge Interval Time ( ) min, Vol. (2) L	14:30	14:32	14:34	14:37	14:39
Submerged Tubing Depth (m):		Depth to water (m)	6.405	6.521	6.420	6.675	9.660
Well Stick-up Height (m):	0.67	Temperature (°C)	2.4	2.1	2.5	2.7	2.7
Estimated Water Volume (L):	11.5L	pH (pH Units)	6.67	6.65	6.70	6.77	6.78
$\frac{10.114 - 4.491}{5.72302} = 11.446$ (DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB - DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Conductivity (µs/cm)	2307	2243	2242	2263	2277	
	Specific Cond. (µs/cm)	4630	3980	3916	3922	3959	
	Redox (mV)	112.1	112.4	111.4	110.5	110.2	
	Appearance & Odour (Clear, Silty, HC odours, etc.)	turbid	turbid	less turbid	fairly clear	fairly clear	
	Turbidity (NTU)	-	-	-	-	32.8	
Interval Purge Volume (L)	3L	3L	3L	3L	3L		
Cumulative Purge Volume (L):	3L	6L	9L	12L	15L		
YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method					
Time on YSI (24hr):	14:39		Waterra	Peristaltic	Disp. Bailer	Redi-flo	
Actual time of measurement (24hr):	14:39	Analysis	X	X			

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.



Sample Site (Con't): BH14B

Sample Date (Con't): June 11 / 15

Sample Time: 14:40

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

**General Notes (Condition of well, consumables, or other features):**

- purged with Waterra, attempted to sample with peristaltic, however water too deep (stabilized at ~ 8.75m). Waited 15 mins for recharge. Sampled w/ Waterra due to no recharge - Sample still quite clear

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	100 ml	
1 L (plastic)	General Chemistry	500 ml	-	-	1L	

# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	PW14-06	Project Number:	1343-005.10	Date:	June 10, 2015					
Approximate Date Drilled:	?	Client:	GY - AAM	Sampler:	JH + JC					
Piezometer Diameter / Screen Length:	4" well	Project Name:	Faro 2015 GW Sampling Program Hemmera	Weather/Temperature:	light rain / 8°C					
UTM Location	Zone E. 6913307 N. 0584476	Waypoint	GPS <input checked="" type="checkbox"/> Name PW14-06*	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad					
Photos	Cam. <input checked="" type="checkbox"/> Nos. 177, 178, 179	Purge Method								
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra	Peristaltic	Disp. Bailer	Redi-flo				
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis				<input checked="" type="checkbox"/>				
Initial Depth to Water (m):	47.556	Purge Start Time:	11:40			Purge End Time:	13:46			
Depth to Bottom (m):	63.60	Purge Interval Time ( ) min, Vol. (15) L	11:45	12:12	12:18	12:23	12:45	12:52	13:32	13:46
*Submerged Tubing Depth (m):	pump on bottom	Depth to water (m)	47.240	47.715	47.765	47.550	SEE NOTES	-	-	
Well Stick-up Height (m):	1.00	Temperature (°C)	20.3	22.8	22.8	23.0	23.3	23.8	22.7	22.3
Estimated Water Volume (L):	126 L	pH (pH Units)	3.98	4.09	4.11	4.09	4.09	4.09	4.09	4.09
$\pi r^2 \times (DTB - DTW)$ (DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB - DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	15304	16635	16873	16874	16966	17052	16805	16749	
	Specific Cond. (µs/cm)	17015	17369	17684	17576	17469	17494	17562	17561	
	Redox (mV)	182.6	157.5	171.7	151.6	124.9	118.9	155.5	151.8	
	Appearance & Odour (Clear, Silty, HC odours, etc.)	light brown turbid	light brown turbid	light brown turbid	light brown turbid	light brown turbid	light brown turbid	clear colourless	clear colourless	
	Turbidity (NTU)									16.6
Interval Purge Volume (L)	15L	15L	15L	15L	15L	15L	15L	15L	20L	
Cumulative Purge Volume (L):	15L	30L	45L	60L	75L	90L	105L	125L		
YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method								
Time on YSI (24hr):	13:46		Waterra	Peristaltic	Disp. Bailer	Redi-flo				
Actual time of measurement (24hr):	13:46	Analysis				<input checked="" type="checkbox"/>				

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

\*Used old tubing which is stuck in screen

$4" = 10.16 \text{ cm} = 0.1016 \text{ m}$   
 $\pi (0.05 \text{ m})^2$   
 $= 0.00785 \text{ m}^2$   
 $\text{Vol} = (0.00785 \text{ m}^2) (16 \text{ m})$   
 $= 0.126 \text{ m}^3$   
 $0.126 \text{ m}^3 \times \frac{1000 \text{ L}}{\text{m}^3}$   
 $\approx 126 \text{ L}$

Sample Site (Con't): PW14-06

 Sample Date (Con't): June 10/15

 Sample Time: 13:46

\* Casing from 6" to 4" diameter ~4.2m

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

**General Notes (Condition of well, consumables, or other features):**

11:50 @ 18L, pump shut down → ~~pump overload~~ "under current"  
 ↳ adjusted flow, found ideal operation at 305.1 Hz  
 12:26 @ ~60L, had to turn pump up to 322 Hz, began flowing ~ 1min → ~~motor overload~~ "under current"  
 NOTE: Water level tape continuously became caught on lip between 6" & 4" casing, making it impossible to measure DTW while purging  
 12:52 @ 90L, pump failed again, turned down "under power" in controls to prevent motor overload "current"  
 @ 95L: pump failed "under current"  
 13:32 @ 106L "under current"

all pump shut downs were caused from "no motor load"

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120 mL	
1 L (plastic)	General Chemistry	500 ml	-	-	1 L	

\* just before "under current" pump failure, could hear generator speed up &amp; struggle

\* Consumables used: 75 m Water

\* while retrieving pump, old tubing stuck in well came out and was removed

put new tubing back in well for next event

- Well needs 6" slip cap

# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	P96-8A	Project Number:	1343-005.10	Date:	June 10, 2015			
Approximate Date Drilled:	-	Client:	GY - AAM	Sampler:	JC JH			
Piezometer Diameter / Screen Length:	2"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	sun / clouds / light rain			
UTM Location	Z08 E.0583227 N.6914077	Waypoint	GPS <del>HEMERA</del> Name P96-8A/B	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad			
Photos	Cam. WL Nos. 185-187	Purge Method						
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra	Peristaltic	Disp. Bailer	Redi-flo		
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis		✓				
Initial Depth to Water (m):	2.253	Purge Start Time:	16:28			Purge End Time:	16:56	
Depth to Bottom (m):	4.973	Purge Interval Time (5) min, Vol. (1) L	16:31	16:36	16:41	16:46	16:51	16:56
Submerged Tubing Depth (m):	4.5	Depth to water (m)	2.267	2.267	2.274	2.274	2.276	2.276
Well Stick-up Height (m):	0.6670	Temperature (°C)	5.0	4.9	4.9	4.8	4.6	4.6
Estimated Water Volume (L):	5.25 L	pH (pH Units)	3.56	3.56	3.56	3.55	3.54	3.54
$2.6 \times 2 \frac{L}{m} = 5.25 L$ (DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	5991	5973	5980	5981	5971	5973	
	Specific Cond. (µs/cm)	9687	9710	9730	9735	9760	9776	
	Redox (mV)	287.6	294.5	293.9	294.1	294.3	293.9	
	Appearance & Odour (Clear, Silty, HC odours, etc.)	clear	clear	clear	clear	clear	clear	
	Turbidity (NTU)	-	-	-	-	-	0.45	
	Interval Purge Volume (L)	0.5	1	1	1	1	1	
	Cumulative Purge Volume (L):	0.5	1.5	2.5	3.5	4.5	5.5	
YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method						
Time on YSI (24hr):	16:57		Waterra	Peristaltic	Disp. Bailer	Redi-flo		
Actual time of measurement (24hr):	16:57	Analysis		✓				

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.





Sample Site (Con't): P96-8A

Sample Date (Con't): June 10, 2015

Sample Time: 16:57

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):

→ Consumables used: 6" silicone

→ Well in good condition

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120 mL	
1 L (plastic)	General Chemistry	500 ml	-	-	1 L	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	P96-8B	Project Number:	1343-005.10	Date:	June 10/15					
Approximate Date Drilled:	-	Client:	GY - AAM	Sampler:	JC JH					
Piezometer Diameter / Screen Length:	2"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	Sun/clouds					
UTM Location	Z.08 E.0583227 N. 6914077	Waypoint	GPS <sup>Hemera</sup> Name P96-8A/B	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad					
Photos	Cam. <u>WL</u> Nos. <u>185-187</u>	Purge Method								
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra	Peristaltic	Disp. Bailer					
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis		✓	Redi-flo					
Initial Depth to Water (m):	2.20	Purge Start Time:	17:07	Purge End Time:	17:59					
Depth to Bottom (m):	9.426	Purge Interval Time (5) min, Vol. ( ) L	17:09	17:14	17:19					
Submerged Tubing Depth (m):	9.10	Depth to water (m)	2.203	2.207	2.200					
Well Stick-up Height (m):	0.61	Temperature (°C)	6.5	5.4	5.5					
Estimated Water Volume (L):	14.5L	pH (pH Units)	4.65	4.81	4.85					
$7.2 \text{ m} \times 2 \frac{\text{L}}{\text{m}} = 14.5 \text{ L}$ (DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	6018	5920	5940	5943	5903	5882	5850	5862	5840
	Specific Cond. (µs/cm)	9416	9446	9443	9446	9448	9442	9433	9422	9431
	Redox (mV)	191.8	159.4	150.1	143.6	139.5	136.5	132.2	129.4	128.4
	Appearance & Odour (Clear, Silty, HC odours, etc.)	clear	clear	clear	clear	Turned pump rate up to speed up purging clear	Turned pump up further clear	clear	clear	clear
	Turbidity (NTU)	-	-	-	-	-	-	-	-	-
	Interval Purge Volume (L)	0	1.5	1	1	1.5	1	2	1.5	1.5
	Cumulative Purge Volume (L):	0	1.5	2.5	3.5	5	6	8	9.5	11
	YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method							
Time on YSI (24hr):	18:00		Waterra	Peristaltic	Disp. Bailer					
Actual time of measurement (24hr):	18:00	Analysis		✓	Redi-flo					

continued on back

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.



Sample Site (Con't): P96-85

Sample Date (Con't): June 10, 2015

Sample Time: 18:00

Additional Purge Data:									
Purge Interval Time ( <u>5</u> ) min, Vol. ( <u>✓</u> ) L	17:54	17:59							
Depth to water (m)	2.200	2.200							
Temperature (°C)	5.1	5.1							
pH (pH Units)	4.94	4.96							
Cond. (µs/cm)	5845	5843							
Specific Cond. (µs/cm)	9424	9421							
Redox (mV)	126.4	125.4							
Appearance & Odour (Clear, Silty, HC odours, etc.)	clear	clear							
Turbidity (NTU)	-	1.41							
Interval Purge Volume (L)	2	2							
Cumulative Purge Volume (L):	13	15							

purged extra 0.5L while logging ysi data

General Notes (Condition of well, consumables, or other features):  
 - Well in good condition  
 - Consumables used: 6" silicone

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120 mL	
1 L (plastic)	General Chemistry	500 ml	-	-	1 L	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	SRK08-11B	Project Number:	1343-005.1008	Date:	June 11, 2015						
Approximate Date Drilled:		Client:	GY - AAM	Sampler:	JH + JC						
Piezometer Diameter / Screen Length:	2" PVC	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	light rain 8°C						
UTM Location	Z.08 E.0114573 N.0582585	Waypoint	GPS <input checked="" type="checkbox"/> Name SRK08-11A-B	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad						
Photos	Cam. <input checked="" type="checkbox"/> Nos. 191, 192, 193	Purge Method									
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra	Peristaltic	Disp. Bailer						
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis		<input checked="" type="checkbox"/>	Redi-flo						
Initial Depth to Water (m):	0.860	Purge Start Time:	8:45	Purge End Time:							
Depth to Bottom (m):	6.739	Purge Interval Time (5) min, Vol. ( / ) L	8:46	8:51	8:56	9:01	9:06	9:11	9:16	9:21	9:26
Submerged Tubing Depth (m):	6.039	Depth to water (m)	0.872	0.872	0.874	0.876	0.877	0.879	0.881	0.879	0.880
Well Stick-up Height (m):	1.00m	Temperature (°C)	4.0	2.8	2.5	2.4	2.3	2.1	2.1	2.1	2.1
Estimated Water Volume (L):	12 L	pH (pH Units)	7.39	6.94	6.75	6.66	6.62	6.59	6.57	6.56	6.56
$6.739 - 0.860 = 5.879 \times 2 = 12 \text{ litres}$ (DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	914	681	611	606	604	600	599	599	600	
	Specific Cond. (µs/cm)	1511	1181	1071	1067	1066	1067	1065	1065	1065	
	Redox (mV)	84.5	91.2	87.9	92.9	91.7	90.7	90.4	91.7	91.7	
	Appearance & Odour (Clear, Silty, HC odours, etc.)	clear	clear	clear	clear	clear	clear	clear	clear	clear	clear
	Turbidity (NTU)	-	-	-	-	-	-	-	-	-	1.54
	Interval Purge Volume (L)	<del>1.5L</del> 1.5L	1.5	1	1	2	1.5	1.5	2		
	Cumulative Purge Volume (L):	<del>1.5L</del> 1.5L	3	4	5	7	8.5	10	12		
YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method									
Time on YSI (24hr):	9:26		Waterra	Peristaltic	Disp. Bailer	Redi-flo					
Actual time of measurement (24hr):	9:26	Analysis		<input checked="" type="checkbox"/>							

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.



Sample Site (Con't): SRK08-11B

Sample Date (Con't): June 11, 2015

Sample Time: 9:27

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):

Well in good condition  
- 6" silicae used

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120 ml	
1 L (plastic)	General Chemistry	500 ml	-	-	1 L	

# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	SKK08-11A		Project Number:	1343-005.10 08		Date:	June 11, 2014		
Approximate Date Drilled:			Client:	GY - AAM		Sampler:	JH + JC		
Piezometer Diameter / Screen Length:			Project Name:	Faro 2015 GW Sampling Program		Weather/Temperature:	light rain 10°C		
UTM Location	Z.08E. 691457 N. 0582582		Waypoint	GPS <input checked="" type="checkbox"/> Name SKK08-11A-B		Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad		
Photos	Cam. <input checked="" type="checkbox"/> Nos. 138, 191, 190		Purge Method						
Duplicate Collected:	<input checked="" type="checkbox"/> Yes Name Dup-2			Waterra	Peristaltic	Disp. Bailer	Redi-flo		
Field Blank Collected	<input checked="" type="checkbox"/> Yes Name FB-1		Analysis	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
Initial Depth to Water (m):	0.452	Purge Start Time:	9:27			Purge End Time:	9:40		
Depth to Bottom (m):	12.448	Purge Interval Time ( ) min, Vol. (5) L	9:30	9:32	9:34	9:36	9:38	9:40	
Submerged Tubing Depth (m):	12.00	Depth to water (m)	0.542	0.820	0.950	1.080	1.170	1.220	
Well Stick-up Height (m):	0.64	Temperature (°C)	2.5	2.4	2.4	2.3	2.3	2.4	
Estimated Water Volume (L):	24	pH (pH Units)	6.90	6.95	6.96	6.97	6.97	6.97	
$12.448 - 0.452 = 12 \times 2 \frac{1}{2} = 24 \text{ L}$ (DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB - DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	606	586	591	595	597	598		
	Specific Cond. (µs/cm)	1064	1030	1041	1048	1052	1052		
	Redox (mV)	84.09	84.3	84.8	85.2	85.5	86.11		
	Appearance & Odour (Clear, Silty, HC odours, etc.)	turbid	less turbid	clear	clear	clear	clear		
	Turbidity (NTU)	-	-	-	-	-	3.55		
	Interval Purge Volume (L)	5L	5L	5L	5L	5L	5L		
	Cumulative Purge Volume (L):	5L	10L	15L	20L	25L	25L		
	YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Sample Method					
	Time on YSI (24hr):	09:43			Waterra	Peristaltic	Disp. Bailer	Redi-flo	
	Actual time of measurement (24hr):	09:43		Analysis		<input checked="" type="checkbox"/>			

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.



Sample Site (Con't): SRK 08-11A  
 Sample Date (Con't): June 11, 2015  
 Sample Time: 09:44

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):

- Field blank batch # 4 - Jun - 15
- Duplicate + Field blank collected here
- well in good condition
- 6" of silicone used

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120 mL	
1 L (plastic)	General Chemistry	500 ml	-	-	1L	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	P03-06-02	Project Number:	1343-005.10	Date:	Jun. 15/2015					
Approximate Date Drilled:	unknown	Client:	GY - AAM	Sampler:	AN, JH					
Piezometer Diameter / Screen Length:	1/2" / unknown	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	Sunny / cloudy ~15°C					
UTM Location	Z. _ E. _ N. _	Waypoint	GPS AN Name	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad					
Photos	Cam. AN Nos. _____	Purge Method								
Duplicate Collected:	<input type="checkbox"/> Yes Name _____	Analysis	Watterra	Peristaltic	Disp. Bailer	Redi-flo				
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis	manual							
Initial Depth to Water (m):	12.221	Purge Start Time:	8:49	Purge End Time:	9:01					
Depth to Bottom (m):	23.665	Purge Interval Time ( ) min, Vol. (1.0) L	8:51	8:53	8:55	8:57	8:59	9:01		
Submerged Tubing Depth (m):	~22.6	Depth to water (m)	could not measure draw down due well diameter.							
Well Stick-up Height (m):	0.77	Temperature (°C)	6.0	4.7	3.9	3.9	4.0	4.1		
Estimated Water Volume (L):	~2.0	pH (pH Units)	5.1	5.3	5.1	5.3	5.1	5.3		
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	5.47	5.84	5.92	5.91	5.92	5.89			
	Specific Cond. (µs/cm)	Used per interval to measure								
	Redox (mV)									
	Appearance & Odour (Clear, Silty, HC odours, etc.)	Brown yellow turbid	Same	Same	Same	Same	Same	Same		
Turbidity (NTU)	/	/	/	/	/	1515	AV			
Interval Purge Volume (L)	1.0	1.0	1.0	1.0	1.0	1.0				
Cumulative Purge Volume (L):	1.0	2.0	3.0	4.0	5.0	6.0				
YSI Field Parameters Logged:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Sample Method								
Time on YSI (24hr):		Analysis	Watterra	Peristaltic	Disp. Bailer	Redi-flo				
Actual time of measurement (24hr):		Analysis	X							

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.





Sample Site (Con't): P03-06-02

Sample Date (Con't): Jan. 15/2015

Sample Time: 09:05

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

**General Notes (Condition of well, consumables, or other features):**

Micro watera found in well below stickup. blocking ability to sample/measure DTB. Tubing retrieved using 1/4" peri. tubing with sharpened end. Had to cut 1/2" of well casing to complete micro watera extraction. Therefore well is 1" shorter. Stick up measurement was collected following extraction.

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1060	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	PO9-S154	Project Number:	1343-005.10	Date:	15-Jun-15
Approximate Date Drilled:		Client:	GY - AAM	Sampler:	JC/MM
Piezometer Diameter / Screen Length:	2"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	sunny ~15°C
UTM Location	Z8 E584511N. 6913114	Waypoint	GPS/HEM Name PO9-S154*	Recovery:	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Bad
Photos	Cam. File Nos. 296-298	Purge Method			
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra	Peristaltic	Disp. Bailer
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis		X	
Initial Depth to Water (m):	4.163	Purge Start Time:	10:26	Purge End Time:	
Depth to Bottom (m):	4.448	Purge Interval Time ( ) min, Vol. (0.2) L	10:28	10:31	10:35
Submerged Tubing Depth (m):	~4.3	Depth to water (m)	4.321	4.294	4.335
Well Stick-up Height (m):	0.97	Temperature (°C)	6.5	4.1	4.1
Estimated Water Volume (L):	0.6	pH (pH Units)	6.45	6.55	6.54
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Conductivity (µs/cm)	>3999	>3999	73999	73999
	Specific Cond. (µs/cm)				
	Redox (mV)				
	Appearance & Odour (Clear, Silty, HC odours, etc.)	clear slightly turbid	same	same	same
	Turbidity (NTU)	/	/	/	29.6
Interval Purge Volume (L)	0.25	0.25	0.20	0.25	0.20
Cumulative Purge Volume (L):	0.25	0.50	0.70	0.95	1.15
YSI Field Parameters Logged:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Sample Method			
Time on YSI (24hr):	HANNA		Waterra	Peristaltic	Disp. Bailer
Actual time of measurement (24hr):		Analysis		X	

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

→ @ time of sample.

Sample Site (Con't): P09-S154

Sample Date (Con't): 15-Jun-15

Sample Time: 13:25

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):

- purged dry, will return to sample.

- new 6" silicon tubing added

- DTW @ 13:21 4.185

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	500	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	PO9-5155	Project Number:	1343-005.10	Date:	15-Jun-15	
Approximate Date Drilled:		Client:	GY - AAM	Sampler:	JC/MM	
Piezometer Diameter / Screen Length:	2"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	sunny ~15C	
UTM Location	Z.08 E. 0584515N. 6913114	Waypoint	GPS <sup>Mem</sup> Name PO9-5155*	Recovery:	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Bad	
Photos	Cam #12 Nos. 296-292	Purge Method				
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra	Peristaltic	Disp. Bailer	
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis		X		
Initial Depth to Water (m):	3.870	Purge Start Time:	9:49	Purge End Time:	10:09	
Depth to Bottom (m):	4.605	Purge Interval Time (3) min, Vol. ( ) L	9:53	9:57	10:00	
Submerged Tubing Depth (m):	~4	Depth to water (m)	3.995	4.099	4.160	
Well Stick-up Height (m):	1.14	Temperature (°C)	6.2	4.1	4.4	
Estimated Water Volume (L):	1.5	pH (pH Units)	6.40	6.41	6.53	
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	73999	73999	73999	73999	
	Specific Cond. (µs/cm)					
	Redox (mV)					
	Appearance & Odour (Clear, Silty, HC odours, etc.)	slightly turbid	same	same	same	same
	Turbidity (NTU)	/	/	/	/	56.9 ← taken @ time of sample
	Interval Purge Volume (L)	0.25	0.35	0.30	0.30	0.30
Cumulative Purge Volume (L):	0.25	0.6	0.90	1.20	1.50	
YSI Field Parameters Logged:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Sample Method				
Time on YSI (24hr):	HANNA		Waterra	Peristaltic	Disp. Bailer	
Actual time of measurement (24hr):		Analysis		X		

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

Sample Site (Con't): P09-8155

Sample Date (Con't): 15-Jun-15

Sample Time: 13:15

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

**General Notes (Condition of well, consumables, or other features):**  
 - 6" of silicon added.  
 - purged dry, will return to sample.  
 - DTW @ 13:11 (upon return).  
 4.340

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	800	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	P96-06	Project Number:	1343-005.10	Date:	Jun. 14/2015						
Approximate Date Drilled:	unknown	Client:	GY - AAM	Sampler:	AN, JC						
Piezometer Diameter / Screen Length:	2" / unknown	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	Sunny ~25°C						
UTM Location	Z.0 E.58490 N.6913312	Waypoint	GPS AN Name P96-06	Recovery:	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad						
Photos	Cam. AN Nos. 780-782	Purge Method									
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra	Peristaltic	Disp. Bailer	Redi-flo					
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis	manual								
Initial Depth to Water (m):	11.751	Purge Start Time:	14:29	Purge End Time:	14:42						
Depth to Bottom (m):	18.085	Purge Interval Time ( ) min, Vol. (3) L	14:32	14:35	14:37	14:39	14:41	14:42			
Submerged Tubing Depth (m):	~16.0	Depth to water (m)	11.750	11.750	11.760	11.745	11.746	11.746			
Well Stick-up Height (m):	0.600	Temperature (°C)	2.0	1.8	1.8	1.7	1.8	1.8			
Estimated Water Volume (L):	~13.0	pH (pH Units)	6.70	6.60	6.55	6.55	6.57	6.53			
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume	Cond. (µs/cm)	646	713	713	707	703	713				
	Specific Cond. (µs/cm)	1153	1277	1281	1275	1262	1281				
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume	Redox (mV)	265.6	256.7	249.7	245.6	242.4	238.5				
	Appearance & Odour (Clear, Silty, HC odours, etc.)	clear	same	same	same	same	same				
2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Turbidity (NTU)	/	/	/	/	/	234				
	Interval Purge Volume (L)	3.0	3.0	3.0	3.0	3.0	3.0				
	Cumulative Purge Volume (L):	3.0	6.0	9.0	12.0	15.0	18.0				
YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method									
Time on YSI (24hr):	14:42		Waterra	Peristaltic	Disp. Bailer	Redi-flo					
Actual time of measurement (24hr):	14:42	Analysis	<del>X</del>								

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

Sample Site (Con't): Pa6-06

Sample Date (Con't): Jun 14/2015

Sample Time: 14:45

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, consumables, or other features):

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	S1B	Project Number:	1343-005.10	Date:	14-Jun-15	
Approximate Date Drilled:	/	Client:	GY - AAM	Sampler:	JH/MM	
Piezometer Diameter / Screen Length:	2"	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	sunny ~18°C	
UTM Location	Z. 8 E. 584430 N. 6913120	Waypoint	GPS+HEMName S1B*	Recovery:	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Bad	
Photos	Cam. <del>PLR</del> Nos. 278-280	Purge Method				
Duplicate Collected:	<input type="checkbox"/> Yes Name		Waterra	Peristaltic	Disp. Bailer	
Field Blank Collected	<input type="checkbox"/> Yes Name	Analysis		X		
Initial Depth to Water (m):	4.566	Purge Start Time:	14:39	Purge End Time:	14:46	
Depth to Bottom (m):	5.175	Purge Interval Time ( ) min, Vol. (0.4) L	14:48	14:52	14:55	
Submerged Tubing Depth (m):	~5	Depth to water (m)	4.871	5.041	5.060	
Well Stick-up Height (m):	1.160	Temperature (°C)	6.8	4.3	6.4	
Estimated Water Volume (L):	1.2	pH (pH Units)	6.28	6.41	6.47	
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	758	767	726	791	
	Specific Cond. (µs/cm)	7				
	Redox (mV)					
	Appearance & Odour (Clear, Silty, HC odours, etc.)	Slightly turbid	same	same		
	Turbidity (NTU)	/	/	/		
	Interval Purge Volume (L)	0.4	0.4	0.2	0.3	
	Cumulative Purge Volume (L):	0.4	0.8	1.0	1.3	
	YSI Field Parameters Logged:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Sample Method			
	Time on YSI (24hr):	HANNA		Waterra	Peristaltic	Disp. Bailer
	Actual time of measurement (24hr):		Analysis			

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.





Sample Site (Con't): S1B

Sample Date (Con't): 15-Jun-15

Sample Time: 9:30

June 15, 2015 following sample collection

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L	9:32								
Depth to water (m)	-								
Temperature (°C)	7.7								
pH (pH Units)	6.69								
Cond. (µs/cm)	936								
Specific Cond. (µs/cm)	-								
Redox (mV)	-								
Appearance & Odour (Clear, Silty, HC odours, etc.)	slightly turbid								
Turbidity (NTU)	13.7								
Interval Purge Volume (L)	-								
Cumulative Purge Volume (L):	-								

**General Notes (Condition of well, consumables, or other features):**

- new 6" silicon tubing added
- new perit tubing added ~ 6.5m
- purged dry, will return to check DTW later + sample
- DTW 4.915 @ 15:38, will sample
- DTW June 15 4.590 @ 9:13

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input type="checkbox"/> HNO <sub>3</sub>	100 ml	
1 L (plastic)	General Chemistry	500 ml	-	-	1 L	



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	MW14-14	Project Number:	1343-005.10	Date:	Jun. 14/2015	
Approximate Date Drilled:	unknown	Client:	GY - AAM	Sampler:	AN, JC	
Piezometer Diameter / Screen Length:	1" / unknown	Project Name:	Faro 2015 GW Sampling Program	Weather/Temperature:	Over	
UTM Location	Z. 8 E. 584819 N. 6913246	Waypoint	GPS AN Name MW14-14	Recovery:	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Bad	
Photos	Cam. AN Nos. * Photos collected	Purge Method				
Duplicate Collected:	<input type="checkbox"/> Yes Name _____		Waterra	Peristaltic	Disp. Bailer	
Field Blank Collected	<input type="checkbox"/> Yes Name _____	Analysis		X	Redi-flo	
Initial Depth to Water (m):	1.504	Purge Start Time:	15:40	Purge End Time:	15:50	
Depth to Bottom (m):	3.518	Purge Interval Time (3) min, Vol. ( ) L	15:41	15:44	15:47	
Submerged Tubing Depth (m):	~3.0	Depth to water (m)	2.085	2.645	3.205	
Well Stick-up Height (m):	0.925	Temperature (°C)	5.7	4.7	5.8	
Estimated Water Volume (L):	~4.0	pH (pH Units)	6.95	6.81	6.81	
(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume  (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume  2" casing has 0.16 USgal/ft or 2.032 l/m 1" casing has 0.04 USgal/ft or 0.508 l/m 8" sand pack has 0.73 USgal/ft or 9.271 l/m 6 5/8" sand pack has 0.50 USgal/ft or 6.35 l/m	Cond. (µs/cm)	841	669	525	940	
	Specific Cond. (µs/cm)	1327	1083	788	9525	
	Redox (mV)	327.6	278.9	248.7	216.1	
	Appearance & Odour (Clear, Silty, HC odours, etc.)	light brown clear.	Same	Same	Turbid Grey dark. logged.	
	Turbidity (NTU)	/	/	/	/	
	Interval Purge Volume (L)	0.2	0.3	0.3	0.2	
	Cumulative Purge Volume (L):	0.2	0.5	0.8	1.0	
	YSI Field Parameters Logged:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample Method			
	Time on YSI (24hr):	15:53		Waterra	Peristaltic	Disp. Bailer
	Actual time of measurement (24hr):	15:53	Analysis			Redi-flo

\*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

Sample Site (Con't): MW14-14

Sample Date (Con't): June 15, 2015

Sample Time: 8:30

Additional Purge Data:									
Purge Interval Time ( ) min, Vol. ( ) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

**General Notes (Condition of well, consumables, or other features):**

On June 15, 2015, DTW = 1.680 @ 8:38.  
turbidity @ time of sample 38.1

**Sample Collection**

Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub>	120	
1 L (plastic)	General Chemistry	500 ml	-	-	~600	

## **APPENDIX D**

### **Response to Comments from Draft Report Version**

**Response to Comments from Draft Report Version (as Received September 23, 2015).**

Comment No.	Page	Comment	Response
1	1	Please add label for the Haul Road on Fig. 1-1.	Label for Haul Road has been added to Figure 1-1.
2	2	Can we add a sentence in this section up front that states that samples were successfully collected 77 of the wells?	The text has been updated to include this information.
3	10	Table 3-1 note#2 mentions a Hanna 991300 field meter. Under which circumstances was this instrument used?	This text has been corrected. A Hanna 991300 was used at some wells after one of the program YSI Pro Plus units malfunctioned, and was the only alternate meter used for general parameters. The reference to the PC35 Tester has been removed.
4	17	Can we be confident in the field measurements recorded from P01-01A? I noticed that the temperature was recorded at -8.8°C	We feel that only conductivity, ORP, and turbidity are considered reliable from this well due to a meter malfunction. Accordingly, other parameter readings have been removed from the field data table so as to prevent any potential misinterpretation.
5	18	Rather than "exceeded the CCME..." where the pH (field and/or lab) were measured <6.5, use instead "did not meet minimum guideline" or similar. I've highlighted these instances in the text below.	The text has been updated to better describe the result as per your comment – we have reviewed all results to ensure they are consistent.
6	20	I think only 12 of the wells were below CCME guidelines for pH? Please confirm.	We have checked and it appears that pH was below guideline for 14 wells (<6.5). The report has not been changed at this time.
7	21	Not clear, there were 17 wells sampled? All four samples where the Hanna 991300 wasn't used?	This statement has been clarified to reflect the number of samples where Turbidity exceeded 50 NTU (there were 5), and it is now not described in relation to the total number of wells sampled.
8	21	Why was this considered unreliable? Do we have confidence in other in-situ measurements collected from V35?	We have updated the text. All equipment was working well at the time and the well had been allowed time to recharge, therefore there we have no reason to consider the other readings to be unreliable despite the apparent elevated temperature. It is not known whether a brief time on the surface may have resulted in increased temperature for the field parameters, or otherwise why the temperature appears elevated. A note has also been added to Table 3-1 to reflect these observations.
9	24	Would you include S2A in this list? See top of page 21, describes some damage.	Yes, S2A has been added to the recommended list for well repairs.