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## 2016 HYDROGEOLOGY BASELINE REPORT

KUDZ ZE KAYAH PROJECT

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BMC-16-01-620\_008\_2016 Hydrogeology Baseline\_Rev0\_170217

February 2017

Prepared for:



**BMC MINERALS (No.1) LTD.**

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## EXECUTIVE SUMMARY

BMC Minerals (No. 1) Ltd. retained Alexco Environmental Group Inc. (AEG) to conduct baseline groundwater monitoring and water sampling at the Kudz Ze Kayah (KZK) property from May 2016 through March 2017. This report builds upon the hydrogeology baseline information collected by Tetra Tech EBA Inc. (EBA) during 2015 and reported in the document entitled 2015 Baseline Hydrogeology Assessment Kudz Ze Kayah, Yukon (EBA, 2016). This AEG baseline report will be updated after the data from the scheduled March 2017 monitoring event is available.

The 2016 field work conducted at the KZK site consisted of:

- Monthly groundwater sampling (May to November 2016) by AEG at 44 new and existing bedrock and overburden monitoring wells (total of seven sampling events);
- Update and refine the baseline water quality characterization using all water chemistry data collected during 2015 and 2016;
- Eight new (2016) monitoring wells that were installed by Knight Piésold Ltd. (KP), but developed and sampled by AEG;
- 52 bedrock packer tests performed in 16 open boreholes by KP;
- Conduct and analyze short-term pumping tests conducted by AEG in the new (2016) monitoring wells;
- Compile and evaluate all hydraulic testing conducted during 2015 and 2016; and
- Evaluate groundwater level elevations across the site.

The 2016 data were compiled by AEG and combined with data from the 2015 field work presented in EBA (2016). Additionally, the data collected by Cominco Ltd. (Cominco) as part of the Initial Environmental Evaluation (Cominco, 1996) in the 1990's is also presented within this report.

The principal hydrogeologic units at KZK are bedrock and overburden. The overburden consists of two subunits:

- Fine-grained lower permeability sediments composed of silts and fine sands; and
- Coarse-grained higher permeability sands and gravels.

In the depth range of 10 m to 70 m below ground surface, the bedrock hydraulic conductivity generally ranges between  $1 \times 10^{-7}$  m/s to between  $1 \times 10^{-5}$  m/s and does not appear to exhibit a trend of increasing or decreasing hydraulic conductivity with depth. The geometric mean of short-term tests conducted in bedrock is  $1.2 \times 10^{-6}$  m/s, which is similar to the results of a longer term bedrock pumping test ( $1.7 \times 10^{-6}$  m/s).

For tests conducted in the fine-grained overburden, the measured hydraulic conductivities have a geometric mean of  $5.2 \times 10^{-6}$  m/s. Based on two field tests, including a 2015 long-term pumping test conducted by EBA, the hydraulic conductivity of the coarse-grained overburden is about  $1.3 \times 10^{-4}$  m/s.

Continuous groundwater level monitoring was conducted in eight monitoring wells across the site from mid-November 2015 through November 2016. With varying levels of intensity, the water levels in both bedrock and overburden wells exhibited the following seasonal trends:

- Falling water levels from mid-November 2015 through April 2016;
- Rising water levels from May through September 2016; and
- Falling water levels during October and November 2016.

In most monitoring wells, the maximum-minimum water level difference ranged between 2 m and 5 m; however, the maximum observed difference was 12 m.

Groundwater quality results were compared against the Tier 1 Industrial Land-use Federal Interim Groundwater Quality Guidelines (FIGWQG), which indicated exceedances for regulated anions and nutrients (sulphate, fluoride, and ammonia), as well as for metals (aluminum, arsenic, cadmium, copper, iron, lead, selenium, and zinc). Concentrations of nutrients, anions, and metals did not vary between overburden and bedrock wells, with the exception of sulphate and fluoride. In both cases, deeper wells had higher concentrations. Groundwater sampled in the ABM open pit area generally returned higher anion, nutrient, and metal concentrations, likely due to the subsurface mineralization. Groundwater concentrations of cadmium, iron, and zinc were elevated in the ABM open pit area relative to the rest of the KZK property. This is likely due to the mineralization of ABM open pit area. Additionally, sulphate concentrations were typically more elevated within the pit area likely due to the oxidation of the sulphidic minerals in the deposit.

Project wide, the groundwater field pH ranged from circumneutral to slightly alkaline (5.68 to 8.50, or an average value of 7.38) for both bedrock and overburden wells. Monitoring wells MW15-10S and MW15-10D had lower pH values compared to the average site pH, with a range of 5.82 to 6.24, and 5.8 to 6.17, respectively. These two wells are located near the KZ-9 east seep, which is also characterized by low pH water (pH 5.8 to 6.0), suggesting groundwater found in wells MW15-10S and MW15-10D are fed from the same source as this seep.

## LIST OF ACRONYMS

µm	Micrometre
AEG	Alexco Environmental Group Inc.
BMC	BMC Minerals (No. 1) Ltd.
BCMoE	British Columbia Ministry of Environment
CAEAL	Canadian Association for Environmental Analytical Laboratories
CCME	Canadian Council of Ministers of the Environment
CEQG	Canadian Environmental Quality Guidelines
COC	Chain of Custody
Cominco	Cominco Ltd.
CRC ICP-MS	Collision Inductively Coupled Plasma Mass Spectrometry
DL	Detection Limit
DOC	Dissolved Organic Carbon
EBA	Tetra Tech EBA Inc.
FIGWQG	Federal Interim Groundwater Quality Guidelines
ICP-OES	Inductively Coupled Plasma Optical Emission Spectrometry
IEC	International Electrotechnical Commission
ISO	International Organization for Standardization
KP	Knight Piésold Ltd.
KZK	Kudz Ze Kayah
LGO	Low Grade Ore
masl	Metres above sea level
mbgs	Metres below ground surface
mBToC	Metres below top of casing
ORP	Oxidation-reduction Potential
PAL	Protection of Aquatic Life
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RPD	Relative Percent Difference
ROM	Run-of-mine
TSS	Total Suspended Solids
YESAB	Yukon Environmental and Socio-economic Assessment Board
YG	Yukon Government

## GLOSSARY

**Chain of Custody:** paperwork that chronologically documents the collection, transportation, processing, and analysis of a sample.

**Detection Limit:** the lowest quantity of a constituent that can be distinguished from the absence of that constituent using the analytical technique employed, generally at a 1% confidence limit (i.e. it is the smallest amount of a constituent that can be measured with a 99% certainty of detection).

**EQWin:** database management software that is used to archive and interrogate water quality data collected for the Kudz Ze Kayah Project.

**Initial Environmental Evaluation:** document produced by Cominco Ltd. in 1996 that summarizes baseline studies at the Kudz Ze Kayah property, describes the baseline information, Mine plan, waste material characterization, closure plan, environmental management, potential impacts and associated mitigation measures, and socio-economic impacts associated with the Project as it was defined in 1996.

**Oxidation-reduction Potential:** a measure of how oxidizing or reducing a water sample is and can shed light on the geochemical conditions of the water body from which the water sample was collected.

**Practical Quantification Limit:** defined here as five times the detection limit.

**Relative Percent Difference:** calculated as the difference between the constituent concentrations of two replicate samples divided by the average of the two constituent concentrations, expressed as a percentage.

**Theis Equation:** presented in Theis (1935) as a method for estimating the transmissivity and storativity of an aquifer using drawdown data from a pumping/recovery test.

## TABLE OF CONTENTS

<b>1</b>	<b>INTRODUCTION .....</b>	<b>1</b>
1.1	SCOPE OF 2016 BASELINE PROGRAM .....	1
1.2	HISTORICAL DATA .....	4
1.2.1	<i>1995 Hydrologic Investigation</i> .....	4
1.2.2	<i>1995 Groundwater Quality Investigation</i> .....	5
<b>2</b>	<b>METHODOLOGY .....</b>	<b>8</b>
2.1	MONITORING WELLS .....	8
2.2	FIELD METHODOLOGY .....	11
2.2.1	<i>Well Development</i> .....	11
2.2.2	<i>Groundwater Level Measurements</i> .....	11
2.2.3	<i>Hydraulic Well Testing</i> .....	12
2.3	WATER CHEMISTRY ANALYSIS .....	13
2.4	QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) .....	14
2.4.1	<i>Groundwater Sampling QA/QC</i> .....	14
2.4.2	<i>Laboratory Quality Control Sample Analysis</i> .....	15
2.4.3	<i>Field Variability</i> .....	15
2.4.4	<i>Field and Travel Blanks</i> .....	17
2.5	GUIDELINES .....	17
2.6	DATA QUALITY ASSESSMENT .....	19
<b>3</b>	<b>RESULTS AND DISCUSSION .....</b>	<b>20</b>
3.1	BOREHOLE HYDRAULIC TESTING COMPILATION .....	20
3.1.1	<i>Overburden Hydraulic Conductivity</i> .....	24
3.1.2	<i>Bedrock Hydraulic Conductivity</i> .....	24
3.2	GROUNDWATER ELEVATIONS .....	25
3.3	GROUNDWATER QUALITY .....	30
3.3.1	<i>ABM Open Pit Area</i> .....	31
3.3.2	<i>Class A Storage Facility Area</i> .....	38
3.3.3	<i>Class B Storage Facility Area</i> .....	45
3.3.4	<i>Class C Storage Facility Area</i> .....	52
3.3.5	<i>Site Groundwater Quality Observations</i> .....	57
<b>4</b>	<b>SUMMARY AND CONCLUSIONS .....</b>	<b>62</b>
<b>5</b>	<b>REFERENCES .....</b>	<b>64</b>

## LIST OF TABLES

Table 1-1: 1995 Piezometer Installations.....	4
Table 1-2: 1995 Hydraulic Conductivity Testing by Golder Associates (Golder, 1996a).....	5
Table 1-3: Historical Water Quality Summary (Cominco, 1996) .....	6
Table 1-4: Historical Water Quality Data (Cominco, 1996).....	7
Table 2-1: Summary of Kudz Ze Kayah Groundwater Monitoring Program .....	9
Table 2-2: Analytical Methods used in the Laboratory .....	14
Table 2-3: Duplicate Analytes with RPD >25% and Meeting the PQL .....	16
Table 2-4: Duplicate Analytes with RPD >25% and <i>Not</i> Meeting the PQL.....	16
Table 2-5: Field Blank Analytes >2X's DL .....	17
Table 2-6: Summary of FIGWQG Industrial Tier1 Guidelines Used for Comparisons (FCSAP, 2012) .....	18
Table 3-1: EBA 2015 Slug Tests and Packer Tests .....	20
Table 3-2: EBA 2015 Long-Term Pumping Tests .....	21
Table 3-3: 2016 Knight Piésold Bedrock Packer Test Results.....	22
Table 3-4: AEG 2016 Short-Term Pumping Tests .....	23
Table 3-5: Summary Statistics for In-situ Parameters ABM Open Pit Area.....	32
Table 3-6: Summary Statistics for Guideline Anions and Nutrients ABM Open Pit Area.....	33
Table 3-7: Summary Statistics for Metals ABM Open Pit Area .....	37
Table 3-8: Summary Statistics for In-situ Parameters Class A Storage Facility Area .....	40
Table 3-9: Summary Statistics for Guideline Anions and Nutrients Class A Storage Facility Area.....	40
Table 3-10: Summary Statistics for Metals in Class A Storage Facility Area .....	44
Table 3-11: Summary Statistics for In-situ Parameters Class B Storage Facility Area.....	47
Table 3-12: Summary Statistics for Guideline Anions and Nutrients Class B Storage Facility Area.....	48
Table 3-13: Summary Statistics for Metals in Class B Storage Facility Area .....	51
Table 3-14: Summary Statistics for Insitu Parameters Class C Storage Facility Area.....	53
Table 3-15: Summary Statistics for Guideline Anions and Nutrients Class C Storage Facility Area.....	53
Table 3-16: Summary Statistics for Metals in Class C Storage Facility Area .....	56
Table 3-17: Summary Statistics Anions and Nutrients All Areas .....	60

Table 3-18: Summary Statistics Metals All Areas ..... 61

## LIST OF FIGURES

Figure 1-1: Project Location Map ..... 3

Figure 2-1: Groundwater Well Locations ..... 10

Figure 3-1: Measured Bedrock Hydraulic Conductivity versus Depth ..... 25

Figure 3-2: BH95G-2 Groundwater Elevation Hydrograph ..... 26

Figure 3-3: BH95G-22 Groundwater Elevation Hydrograph ..... 27

Figure 3-4: BH95G-33D Groundwater Elevation Hydrograph..... 27

Figure 3-5: BH95G-131 Groundwater Hydrograph ..... 28

Figure 3-6: MW15-01 Groundwater Elevation Hydrograph ..... 28

Figure 3-7: MW15-04S Groundwater Elevation Hydrograph..... 29

Figure 3-8: MW15-04D Groundwater Elevation Hydrograph..... 29

Figure 3-9: MW15-07S Groundwater Elevation Hydrograph..... 30

Figure 3-10: Dissolved Iron Concentration vs ORP within the ABM Open Pit area ..... 58

## LIST OF APPENDICES

APPENDIX A 2016 PUMPING TEST RESULTS

APPENDIX B GROUNDWATER ELEVATIONS

APPENDIX C GROUNDWATER QUALITY PLOTS

C-1 PIT GROUNDWATER QUALITY PLOTS

C-2 AREA A GROUNDWATER QUALITY PLOTS

C-3 AREA B GROUNDWATER QUALITY PLOTS

C-4 AREA C GROUNDWATER QUALITY PLOTS

APPENDIX D GROUNDWATER QUALITY SUMMARY STATISTICS

D-1 PIT GROUNDWATER QUALITY SUMMARY STATISTICS

D-2 AREA A GROUNDWATER QUALITY SUMMARY STATISTICS

D-3 AREA B GROUNDWATER QUALITY SUMMARY STATISTICS

D-4 AREA C GROUNDWATER QUALITY SUMMARY STATISTICS

APPENDIX E GROUNDWATER QUALITY DATA 2015-2016

APPENDIX F LABORATORY CERTIFICATES OF ANALYSIS

APPENDIX G TETRA TECH BASELINE HYDROGEOLOGY ASSESSMENT, OCTOBER 2016



## 1 INTRODUCTION

BMC Minerals (No. 1) Ltd. (BMC) retained Alexco Environmental Group Inc. (AEG) to conduct hydrogeology baseline studies at its Kudz Ze Kayah (KZK) property (i.e., the Project) to update and expand on existing baseline information for the Project area. BMC proposes the development of the Project involving the design, construction, operation, closure and reclamation of a mine in southeast Yukon and in the Kaska Traditional Territory. The Project encompasses the ABM deposit containing copper, lead, zinc, gold, and silver. BMC acquired the KZK property in January 2015 from Teck Resources Ltd.

The Project is located approximately 260 km northwest of Watson Lake and 115 km southeast of Ross River (Figure 1- 1). Access to the Project is via a 24 km long, all weather, single lane gravel tote road that connects the Project to the Robert Campbell Highway. The Project is in the northern foothills of the Pelly Mountains of the Yukon Plateau and in the Finlayson Creek watershed.

In March 2015, a data gap analysis was undertaken by Tetra Tech EBA Inc. (EBA) to review the historic baseline groundwater quality data available and based on the review of historical data and current regulatory requirements, a baseline water quality program was designed to update the dataset and fill in any data gaps. The baseline hydrogeology program was implemented in May 2015 by EBA and this report discusses 2015 Baseline Hydrogeology Assessment Kudz Ze Kayah, Yukon (see Appendix G; EBA, 2016), as well as the new data collected from April to November 2016.

Site activities performed to date for the Project have primarily been exploration activity and associated infrastructure (accommodation, offices, core storage, and equipment laydown areas). Subsequently, the baseline groundwater monitoring program documents the natural background chemistry of the groundwater and flow paths in the Project's local and regional study area.

### 1.1 SCOPE OF 2016 BASELINE PROGRAM

Groundwater monitoring at KZK was initiated in 1995 by Cominco Ltd. (Cominco) through the installation of 40 groundwater piezometers. During September 1995, Cominco performed water level monitoring in the piezometers and some open exploration boreholes, and minor water quality sampling at 11 wells to characterise the surface water Baseflow of Geona Creek. These results are summarized in Section 1.2 from the information provided in Section 3 of the Initial Environmental Evaluation Kudz Ze Kayah Project, Yukon Territory (Cominco Ltd., 1996). During 2015/2016, EBA performed hydraulic testing and groundwater sampling (May, August, September, November 2015 and March 2016). The 2015 Baseline Hydrogeology Assessment Kudz Ze Kayah, Yukon (EBA, 2016) also includes the 1995 Cominco data.

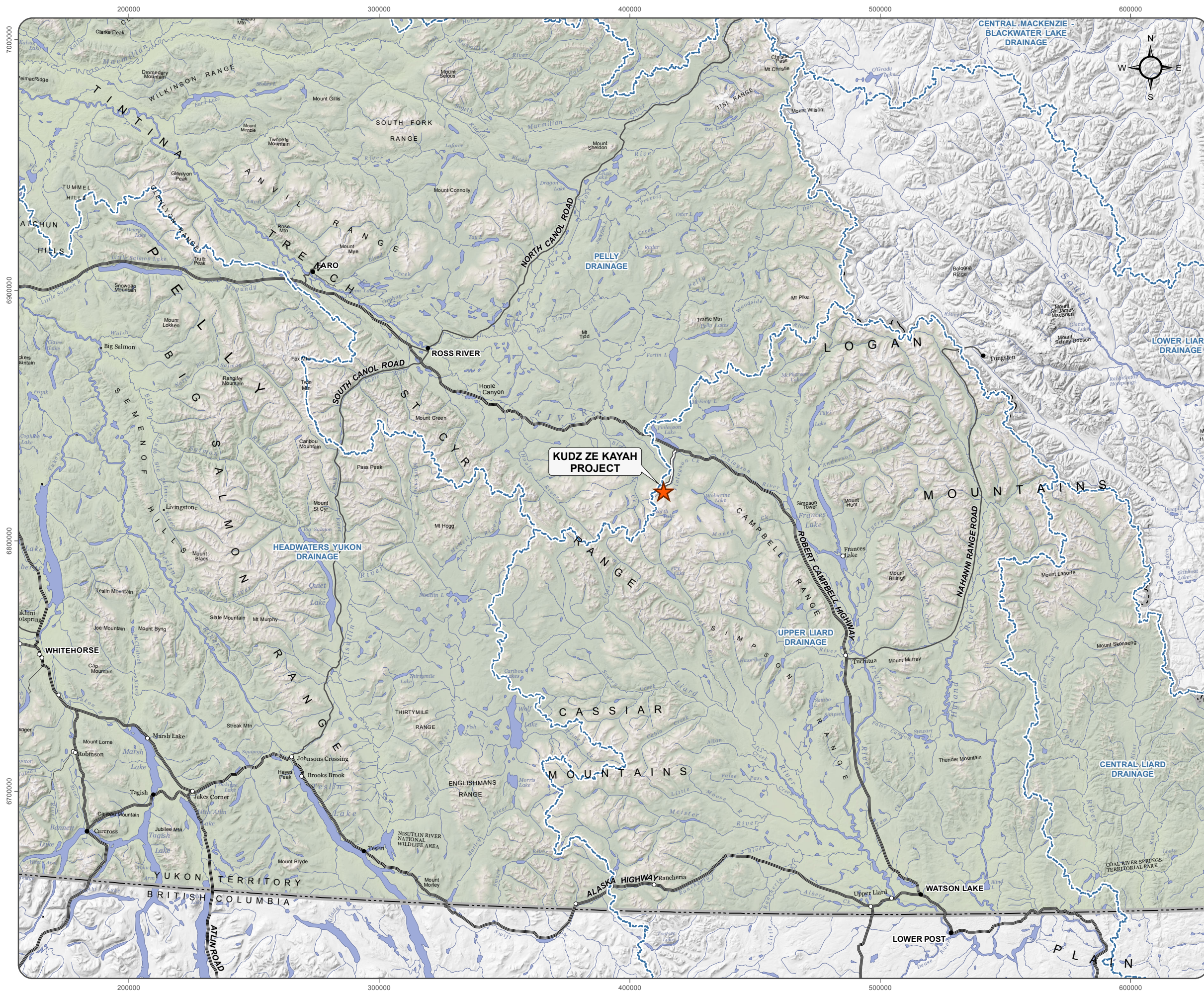
Beginning in May 2016 the KZK groundwater baseline program was performed by AEG. Monitoring/sampling was conducted monthly from May to November 2016 and a field trip is planned in March 2017 for a total of eight sampling events. The scope and purpose of this AEG report is to update to the EBA baseline report with 2016 data to support BMC's Project Proposal submission to the Yukon Environmental and Socio-economic Assessment Board (YESAB).

The 2016 scope of work included the following:

- Monthly groundwater sampling (May to November 2016) by AEG at 44 new and existing bedrock and overburden monitoring wells (total of seven sampling events);
- Update and refine the baseline water quality characterization using all water chemistry data collected during 2015 and 2016;

- Eight new (2016) monitoring wells installed by Knight Piésold Ltd. (KP), but developed and sampled by AEG;
- 52 bedrock packer tests performed in 16 open boreholes by KP;
- Conduct and analyze short-term pumping tests conducted by AEG in the new (2016) monitoring wells;
- Compile and evaluate all hydraulic well testing conducted during 2015 and 2016; and
- Evaluate groundwater level elevations across the site.

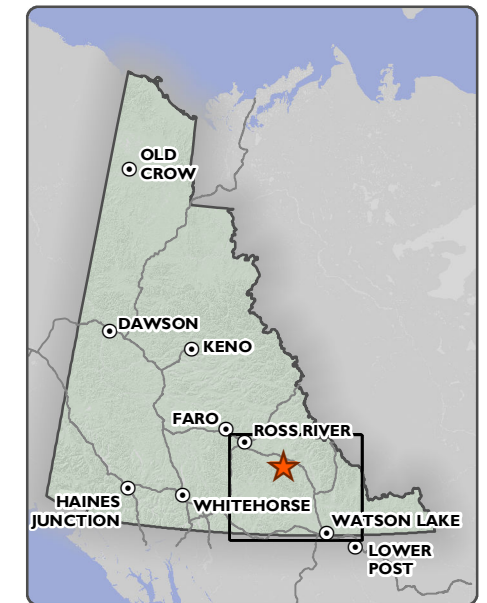




**KUDZ ZE KAYAH PROJECT**

**FIGURE 1 - 1  
KUDZ ZE KAYAH PROJECT LOCATION**

DECEMBER 2016



 **KUDZ ZE KAYAH PROJECT**



Digital elevation model created by the Yukon Department of the Environment interpolated from the digital 1:50,000 Canadian National Topographic Database (NTDB Edition 2) contour and watercourse layers. Obtained from Geomatics Yukon.  
Canvec compiled by Natural Resources Canada at a scale of 1:10,000 - 1:50,000. Reproduced under license from Her Majesty the Queen in Right of Canada, as represented by the Minister of Natural Resources Canada. All rights reserved. Drainage areas obtained from National Hydrology Network 2011.  
Datum: NAD 83; Projection UTM Zone 9N  
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1:1,500,000 when printed on 11 x 17 inch paper





## 1.2 HISTORICAL DATA

During 1995 a geotechnical and hydrogeological site investigation was conducted by Golder Associates Ltd. (Golder) with the purpose of characterising the hydrogeology around the proposed open pit, Class B Storage Facility, Class C Storage Facility, and four optional tailings dam locations. The investigation also addressed mine dewatering requirements for the ABM open pit and identifying a process water source (Golder, 1996a, 1996b).

### 1.2.1 1995 Hydrologic Investigation

Forty piezometers, listed in Table 1-1, were installed to target the originally proposed site infrastructure. Water levels were measured in the piezometers, as well as selected open exploration boreholes.

**Table 1-1: 1995 Piezometer Installations**

Location	Piezometers
ABM Open pit area	<ul style="list-style-type: none"> <li>• BH95G-20</li> <li>• BH95G-21</li> <li>• BH95G-22</li> <li>• BH95G-23</li> <li>• BH95G-24</li> <li>• BH95G-25</li> <li>• BH95G-26</li> <li>• BH95-129</li> <li>• BH95-131</li> <li>• BH95-135</li> <li>• BH95-146</li> <li>• BH95-148</li> <li>• BH95-150</li> </ul>
South of Open pit	<ul style="list-style-type: none"> <li>• BH95G-29</li> </ul>
Class B Storage Facility	<ul style="list-style-type: none"> <li>• BH95G-32</li> <li>• BH95G-33</li> </ul>
Class C Storage Facility	<ul style="list-style-type: none"> <li>• BH95G-30</li> <li>• BH95G-31</li> </ul>
Mill Site	<ul style="list-style-type: none"> <li>• BH95G-35</li> <li>• BH95G-36</li> <li>• BH95G-37</li> <li>• BH95G-20M</li> </ul>
Geona Creek Valley	<ul style="list-style-type: none"> <li>• BH95G-2</li> <li>• BH95G-3</li> <li>• BH95G-4</li> <li>• BH95G-5</li> <li>• BH95G-6</li> <li>• BH95G-7</li> <li>• BH95G-8</li> <li>• BH95G-9</li> <li>• BH95G-10</li> <li>• BH95G-12</li> <li>• BH95G-13</li> <li>• BH95G-14</li> <li>• BH95G-15</li> <li>• BH95G-17</li> <li>• BH95G-18</li> <li>• BH95G-19</li> <li>• BH95G-21</li> <li>• BH95G-27</li> </ul>

During (or shortly after) the drilling of select boreholes, single-well rising and falling head slug tests were performed by Golder to characterize the hydraulic conductivity of overburden, upper fractured bedrock, and deeper massive bedrock. Table 1-2 is a summary of the 1995 test results.

**Table 1-2: 1995 Hydraulic Conductivity Testing by Golder Associates (Golder, 1996a)**

Soil/Rock Type	Borehole ID	Hydraulic Conductivity (K) <sup>1</sup> m/s	Soil/Rock Description	Geometric Mean
Overburden	BH95G-21S	$8.35 \times 10^{-7}$	Silty SAND some gravel (TILL)	$4.1 \times 10^{-6}$
	BH95G-22	$1.34 \times 10^{-5}$	Gravelly SAND trace silt	
	BH95G-23	$2.95 \times 10^{-5}$	SAND some gravel some silt	
	BH95G-24	$6.24 \times 10^{-6}$	Sandy GRAVEL trace to some silt	
	BH95G-25S	$1.02 \times 10^{-6}$	SAND and GRAVEL trace to some silt	
	BH95G-26	$2.06 \times 10^{-6}$	SAND and GRAVEL some silt	
	BH95G-29	$4.88 \times 10^{-6}$	SAND and GRAVEL some silt (TILL)	
Fractured Upper Bedrock	BH95G-15D	$1.06 \times 10^{-7}$	Argillite with calcite bands	$7.1 \times 10^{-7}$
	BH95G-21D	$3.07 \times 10^{-7}$	Porphyroblastic Schist – Mafic volc/dyke	
	BH95G-20	$4.72 \times 10^{-7}$	Schist	
	BH95G-21	$2.49 \times 10^{-6}$	Schist	
	BH95G-25	$1.32 \times 10^{-6}$	Quartz Schist	
	BH95G-33D	$2.46 \times 10^{-6}$	-	
Massive Bedrock	BH95G-131	$2.47 \times 10^{-7}$	-	$8.1 \times 10^{-8}$
	BH95G-129	$2.63 \times 10^{-8}$	-	

1. Depth of hydraulic testing, methodology of test and subsequent analysis, and raw data were unavailable to confirm results. These results are as reported in Feasibility Level Geotechnical and Hydrogeological Site Investigation (Golder, 1996b).

In the 2015 Baseline Hydrology Assessment, Kudz Ze Kayah, Yukon (EBA, 2016), EBA provides the following summary of the Golder conceptual model:

*The conceptual hydrogeological model created by Golder expected the groundwater table to generally mimic topography, with the groundwater table located near surface in the valley bottom and greater than 200 m below the mountains. They anticipated the groundwater table to be within the competent and fractured bedrock on the valley flanks and in the overburden in the valley bottoms. They found that the groundwater flows from the mountains to the valley bottoms. Artesian conditions encountered in the valley bottom indicated discharging groundwater, which is the result of the steep topography and upward hydraulic gradients.*

### 1.2.2 1995 Groundwater Quality Investigation

In 1995, a single round of groundwater sampling was conducted on September 4th for the purpose of characterising the baseflow of Geona Creek and South Creek (Cominco, 1996), and not as part of a regular monitoring program to characterise groundwater chemistry across the site. Groundwater was sampled at 11 sites, from a combination of wells and exploration boreholes (Table 1-3 and Table 1-4).

A complete description of the 1995 groundwater quality program and results is summarized by EBA in the 2015 *Baseline Hydrogeology Assessment, Kudz Ze Kayah, Yukon* (EBA, 2016), and is provided below:

One piezometer below the proposed tailings dam (BH95G-13D), and two in the area of the proposed open pit (BH95G-26 and BH95G-29) were sampled, and analyzed for a range of non-metal "general parameters" as well as total and dissolved metals. The general parameters included pH, conductivity, suspended solids, dissolved solids, hardness, alkalinity, nitrogen species, phosphorous and sulphate. Three other piezometers, located on the north and south sides of the open pit (BH95G-21 and BH95G-23), and west of the proposed Class C Storage Area (95G-31) were also sampled. These samples were analyzed for total and dissolved metals only. Flowing exploration boreholes were sampled including one each on the north and south sides of the open pit (T94- 23 and T94-49). These samples were analyzed for general parameters and total and dissolved metals. Three other borehole samples (T94-14, T94-26 and T94-30) were analyzed for total and dissolved metals only. All of the exploration boreholes were cased through the overburden, and are open for the remaining length of the borehole in bedrock.

Analytical results showed that groundwater chemistry was similar to surface water chemistry (Table [1-3]). The groundwater pH was similar to that of surface water. Alkalinity, total dissolved solids and hardness were slightly higher in groundwater than in surface water. Sulphate concentrations were variable, with two wells (one shallow, one deep) having sulphate concentrations more than double the concentrations in surface water and the remaining three having similar concentration to surface water. Concentrations of nitrate, nitrite and ammonia were generally low except for a moderate level of nitrate-N (0.13 mg/L) in shallow well BH95G-26. The two shallow overburden wells (BH95G-26 and BH95G-29) had phosphorus concentrations an order of magnitude or more above those measured in surface water. Metal concentrations in both shallow and deep groundwater were low. In particular, copper and lead concentrations in all groundwater samples were equal to or lower than the concentrations in surface water. Exceptions to the pattern of low metals were elevated concentrations of arsenic and iron in the three deep bedrock wells within the orebody (T94-49, T94-30 and T94-13) and elevated arsenic, iron, cadmium and zinc in one overburden well.

The deep well (T94-49) with the highest arsenic and iron concentrations (170 µg/L and 4300 µg/L, respectively) also had elevated sulphate (71.4 mg/L) and the lowest pH and alkalinities of any of the wells measured. Zinc was also somewhat elevated (160 µg/L). Sulphate, pH and alkalinity were not measured in the shallow well that had elevated arsenic, iron, cadmium and zinc (BH95G-26).

**Table 1-3: Historical Water Quality Summary (Cominco, 1996)**

Borehole	Location	Well Screen (mbgs)	Flowing	Analyses		Field Measurements			
				General Parameters	Metals	pH	Cond (µS/cm)	Temp (°C)	DO (mg/L)
BH95G-13D	Tailings Dam	39.4-50.3	Y	X		8.2	202	3	4.2
BH95G-26	Open Pit	10.0-14.3	N	X		7.9	330	2.5	3.5
BH95G-29	Open Pit	14.3-19.2	N	X		8	228	2.5	2.4
BH95G-21	Open Pit	5.3-10.0	N		X	7.8	218	2	7.6
BH95G-23	Open Pit	8.8-12.8	Y		X	8	228	2.5	2.4
BH95G-31	Class C Storage	2.4-10.0	N		X	8	160	2	7.4
T94-23	Open Pit	-	Y	X		8.1	252	2.5	1.9
T94-49	Open Pit	-	Y	X		7.9	398	2.5	2
T94-14	Open Pit	-	Y		X	7.9	398	2.5	2
T94-26	Open Pit	-	Y		X	8.1	235	3.5	1.8
T94-30	Open Pit	-	Y		X	8	235	2.3	3.2

**Table 1-4: Historical Water Quality Data (Cominco, 1996)**

PARAMETER	UNIT	BH95G-13	BH95G-31	BH95G-26	BH95G-21	BH95G-23	BH95G-29	T94-23	T94-26	T94-49	T94-30	T94-14
Specific Conductance	µS/cm	350	-	783	-	-	516	567	-	449	-	-
Non-filterable Residue	mg/L	4	-	826	-	-	28	6	-	14	-	-
Filterable Residue (TDS)		210	-	386	-	-	224	463	-	240	-	-
Hardness, Dissolved		177	143	320	193	111	204	236	201	170	201	355
Alkalinity Total 4.5		160	-	254	-	-	168	185	-	98.9	-	-
Ammonia Nitrogen		0.01	-	<0.005	-	-	<0.005	0.009	-	0.016	-	-
Nitrate Nitrogen		<0.02	-	0.13	-	-	<0.02	<0.02	-	<0.02	-	-
Nitrite Nitrogen		<0.005	-	<0.005	-	-	<0.005	<0.005	-	<0.005	-	-
Phosphorus - Total		<0.003	-	0.187	-	-	0.511	0.003	-	0.013	-	-
Sulphate		13.4	-	72.9	-	-	38.1	47.5	-	71.4	-	-
<b>Dissolved Metals</b>												
Silver	µg/L	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.05	<0.01	0.03
Aluminum		7	15	<61	10	15	17	7	7	7	9	13
Arsenic		0.26	0.06	0.39	0.7	61	3.8	0.29	0.06	170	33	23
Barium		73	97	82	37	36	55	38	25	17	28	24
Cadmium		<0.01	0.02	0.16	<0.01	6	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt		<0.4	0.4	0.4	<0.4	4.2	<0.4	<0.4	<0.4	0.7	<0.4	<0.4
Chromium		0.5	11	8.7	0.3	1.3	0.5	0.3	0.3	0.6	0.3	0.3
Copper		0.2	0.7	0.3	0.2	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Iron		320	54	38	8	4800	500	590	440	4300	2100	1800
Mercury		0.02	-	0.04	-	<0.01	0.04	0.06	-	<0.01	<0.01	7
Manganese		160	10	56	46	570	120	46	20	240	250	20t
Molybdenum		2.9	0.5	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Nickel		<1	8	4	<1	9	<1	<1	<1	1	<1	<1
Lead		<0.1	<0.1	<0.1	<0.1	0.3	0.2	<0.1	<0.1	<0.1	<0.1	<0.1
Selenium		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc		2	3	27	3	2700	4	<1	<1	160	11	<1

## 2 METHODOLOGY

### 2.1 MONITORING WELLS

There are currently 44 groundwater wells in the Project monitoring network, which are a combination of older wells installed by Cominco in 1995 (now refurbished), and new wells installed in 2015 by EBA and 2016 by KP. The 1995 wells are constructed with unthreaded 1¼ inch schedule 80 PVC pipe and the 2015/2016 wells are constructed with unthreaded 1¼ inch schedule 40 PVC pipe. The PVC well screens are slotted and have lengths ranging from 1.70 m to 14.6 m. The wells have sand packs, bentonite pellet seals, and above-ground steel well protectors. The well casings are sealed with either J-plugs or pressed-on PVC caps. Twelve wells are dual completions with a bentonite seal between two screened intervals. The well locations are shown on Figure 2-1 and completion information is summarized Table 2-1.

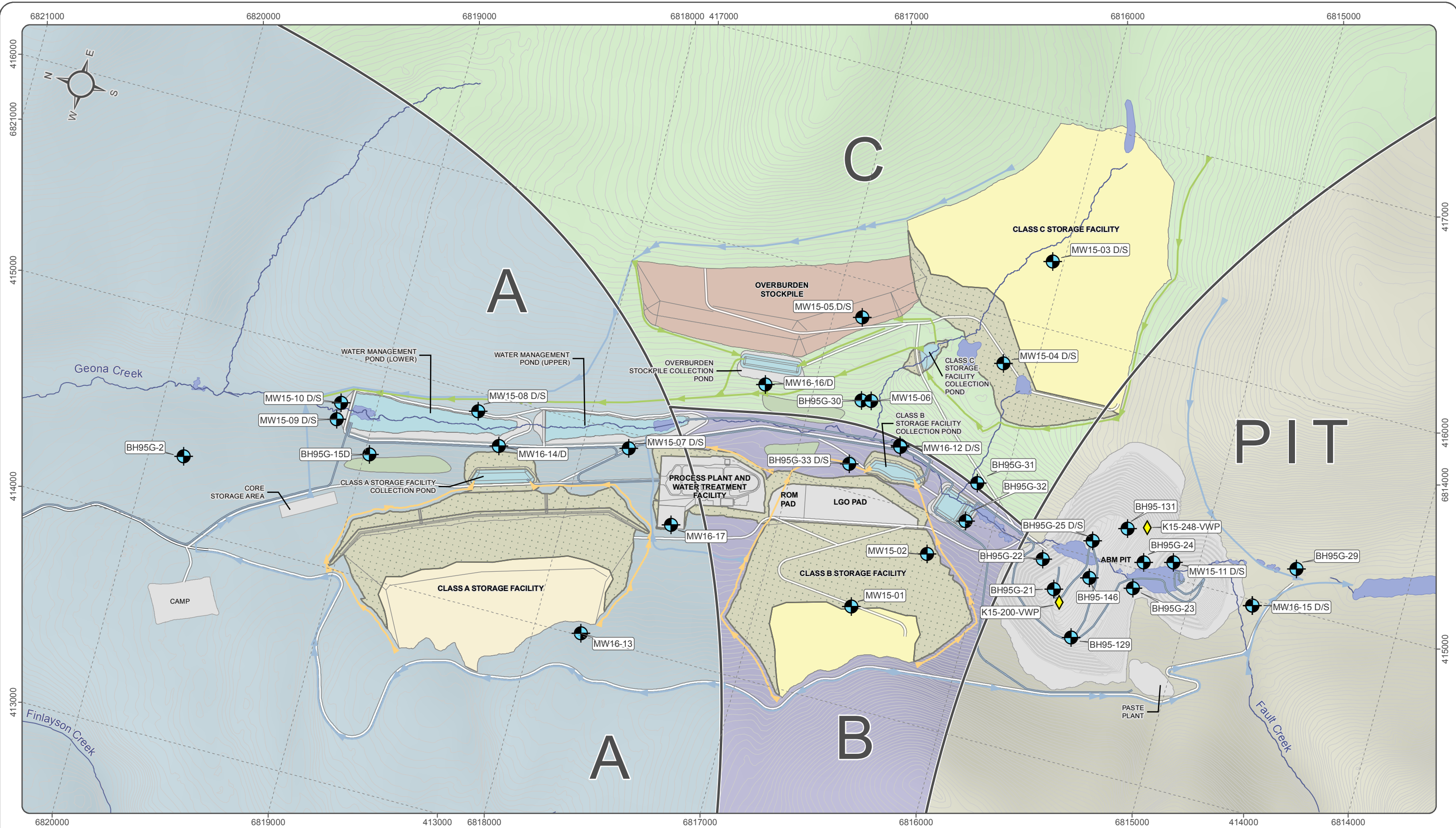


**Table 2-1: Summary of Kudz Ze Kayah Groundwater Monitoring Program**

Well ID	Insitu Parameters Water Level Water Quality	Submerged Transducer and Datalogger	Depth-to-Water (Oct 2016 – mBToC)	Aquifer Monitored	Borehole Depth (mbgs)	Screen Interval (mbgs)	
						From	To
MW15-01	x	x	11.289	Bedrock	18.83	10.0	18.8
MW15-02	x		Artesian	Bedrock	31.58	23.0	31.7
MW15-03S	x		3.861	Overburden	7.46	4.1	7.1
MW15-03D	x		2.215	Bedrock	15.98	10.1	16.0
MW15-04S	x	x	6.3	Overburden	14.09	11.2	14.1
MW15-04D	x	x	6.336	Bedrock	31.28	27.1	32.9
MW15-05S	x		Dry	Overburden	6.98	4.6	7.6
MW15-05D	x		11.633	Bedrock	27.45	22.4	29.8
MW15-06	x		Artesian	Overburden	8.94	6.5	9.4
MW15-07S	x	x	1.584	Overburden	10.09	8.1	11.0
MW15-07D	x		Frozen	Bedrock	32.26	26.3	32.1
MW15-08S	x		Artesian	Overburden	11.64	8.7	11.6
MW15-08D	x		Blocked	Bedrock	35.96	29.8	35.6
MW15-09S	x		Artesian	Overburden	18.48	11.4	17.3
MW15-09D	x		Blocked	Bedrock	40.73	35.1	40.9
MW15-10S	x		Frozen	Overburden	9.55	6.6	9.6
MW15-10D	x		Artesian	Bedrock	31.47	25.7	31.5
MW15-11S	x		1.826	Overburden	7.01	4.15	7.05
MW15-11D	x		Frozen	Bedrock	35.30	20.6	35.2
MW16-12S	x		1.162	Overburden	8.00	2.6	4.3
MW16-12D	x		Artesian	Bedrock	28.20	20.5	27.6
MW16-13	x		Frozen	Bedrock	27.90	20.3	27.7
MW16-14D	x		Artesian	Bedrock	40.20	30.8	38.8
MW16-15S	x		4.61	Overburden	6.00	3.1	5.3
MW16-15D	x		8.748	Bedrock	42.20	28.8	36.6
MW16-16D	x		17.815	Bedrock	40.30	31.5	38.8
MW16-17	x		3.697	Bedrock	31.10	20.3	27.7
BH95G-2	x	x	4.457	Bedrock	18.29	15.2	19.8
BH95G-15D	x		4.657	Bedrock	22.56	19.5	21.6
BH95G-21	x		1.981	Bedrock	8.97	6.1	9.1
BH95G-22	x	x	2.374	Bedrock	5.65	2.8	5.8
BH95G-23	x		Blocked	Overburden	12.45	9.8	12.8
BH95G-24	x		Frozen	Bedrock	8.14	6.4	9.4
BH95G-25S	x		1.597	Overburden	11.26	8.5	11.5
BH95G-25D	x		4.686	Bedrock	20.02	17.8	20.8
BH95G-29	x		Frozen	Overburden	15.33	15.6	18.6
BH95G-30	x		0.86	Bedrock	18.10	16.2	19.2
BH95G-31	x		Frozen	Bedrock	7.64	7.0	10.0
BH95G-32	x		4.842	Bedrock	14.61	12.2	15.2
BH95G-33S	x	x	6.134	Overburden	5.27	2.8	5.8
BH95G-33D	x		5.783	Bedrock	11.76	9.1	12.1
BH95-129	x		7.973	Bedrock	149.88	154.5	160.0
BH95-131	x	x (+Baro)	31.018	Bedrock	126.88	123.5	128.0
BH95-146	x		Artesian	Bedrock	136.67	134.1	138.7
K15-200-VWP	Grouted-in Vibrating Wire Transducers and Datalogger			Bedrock	n/a	n/a	n/a
K15-248-VWP	Grouted-in Vibrating Wire Transducers and Datalogger			Bedrock	n/a	n/a	n/a

## Notes:

Mbgs: meters below ground surface  
mBToC: meters below top of casing



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Datum: NAD 83, Map Projection: UTM Zone 9N

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1:17,000 (when printed on 11 x 17 inch paper)

0 250 500 750 Metres

- Vibrating Wire Piezometer
- Groundwater Monitoring
- Existing Watercourse
- Existing Waterbodies
- Proposed Mine Feature Footprint
- Proposed Class A Storage Facility
- Proposed Class B and C Storage Facility
- Proposed Overburden Stockpile
- Proposed Topsoil Stockpile
- Proposed Progressive Reclamation
- Proposed Pond
- Proposed Pipeline
- Proposed Non Contact Diversion
- Proposed Class A & B
- Proposed Contact Class C Diversion



**KUDZ ZE KAYAH PROJECT**

**FIGURE 2 - 1**

**CURRENT GROUNDWATER MONITORING LOCATIONS BY AREA AND PROPOSED SITE PLAN (YEAR 10)**

DECEMBER 2016

D:\Project\AI\Projects\Kudz\_Ze\_Kayah\Maps\01\_WaterQuality\02-Groundwater\Baseline\_Rprt\GW\_20161206.mxd  
(Last edited by: mducharme, 12/6/2016/10:12 AM)



## 2.2 FIELD METHODOLOGY

### 2.2.1 Well Development

All refurbished and newly installed wells were developed using the following methodology:

1. Waterra tubing, equipped with a foot valve, was inserted into the well and pulled up from the bottom approximately 0.5 m;
2. The tubing was connected to an inertial Waterra pump, fixed to the well protector;
3. Water was pumped from the well at the maximum operating speed of the pump;
4. A minimum of five to seven well volumes were removed from the well;
5. Field chemical parameters (pH, specific conductance, oxygen reduction potential (ORP), dissolved oxygen, and temperature) were measured at regular time intervals during pumping;
6. Turbidity (water clarity) was visually observed throughout development; and
7. Development was deemed complete when the field parameters had stabilized and there was minimal visual turbidity. Development generally continued until the pumped water was clear; however, if this was not possible, additional water volumes were purged until there was no visible change in turbidity.

### 2.2.2 Groundwater Level Measurements

As part of monitoring program, water-level measurements were made in all monitoring wells. In most wells, the depth-to-water (in metres below top of PVC casing) was measured using an electric water-level sounder. Based on the surveyed top-of-casing elevations, the depth-to-water measurements were converted to piezometric (hydraulic head) elevations in metres above sea level (masl). These measurements were performed prior to any groundwater collection disturbances such as purging or sampling.

In eight wells, water levels were continuously monitored using a submerged pressure transducer and datalogger. The accuracy of these measurements was corroborated by periodic hand measurements. Two boreholes (K15-200 and K15-248) were completed with multiple grouted-in vibrating wire pressure transducers that were positioned at different depths to provide vertical piezometric profiles (that is, hydraulic head elevation versus depth below ground surface). Dataloggers for the submerged transducers and vibrating wire transducers were downloaded during each field trip and the data were transferred to spreadsheets to generate water-level hydrographs expressed in masl.

As described in EBA (2016), all 2015 monitoring wells and exploration hole collars were surveyed by Challenger Geomatics using professional surveying equipment with an absolute vertical accuracy of about  $\pm 0.03$  m. The coordinates of the monitoring wells installed during 2016 were located by KP using a real-time kinematic differential GPS unit with an accuracy of  $\pm 4.0$  m. Elevations were then taken from a topographic map with 1.0 m contours provided by BMC in February 2016.

Groundwater sample collection procedures at all monitoring wells followed the AEG established Standard Data Collection Protocol for Groundwater Monitoring Well Sampling, which conforms to the Yukon Environment's Contaminated Sites Regulation, Protocol #7 (YG, 2011). An overview of the sampling process is presented below.

Prior to sampling, the static water level was measured in the well using an electric sounder. Groundwater quality samples were collected after a minimum of three well volumes had been purged from the well. Field parameters (pH, specific conductance, oxidation reduction potential (ORP), dissolved oxygen, and temperature) were measured after each well

volume had been removed using a YSI Professional Plus multimeter and then compared to previous measurements to assess water chemistry stabilization.

After the field parameters stabilized, the groundwater samples were collected. In order to maintain the chemical integrity of the samples, AEG employed quality assurance/quality control (QA/QC) practices during collection. This included wearing clean, disposable nitrile gloves during collection and placing the water sample in laboratory grade bottleware provided by the analytical laboratory specific to the analyte(s) being tested. Dissolved mercury and dissolved organic carbon parameter water samples were filtered using a 45 µm filter in the field at the time of sample collection. Dissolved metals were collected in falcon tubes and filtered/preserved by the laboratory. Preservatives were added to bottled samples for measuring total mercury, dissolved mercury, dissolved organic carbon, and nutrients as directed by the laboratory. The samples were packed on ice in a cooler and shipped to the laboratory via courier with an accompanying chain of custody (COC) form specifying the analyte(s) to be tested.

### 2.2.3 Hydraulic Well Testing

Short-term pumping/recovery tests were performed by AEG in seven new monitoring wells installed during 2016. The following test procedure was followed at each well:

- The depth-to-water was measured using an electric sounder;
- A Solinst M2 levellogger was set to a one second measurement interval and submerged below water in the well. The levellogger hung securely from stainless steel cable;
- Waterra tubing equipped with a foot valve was installed down the well and positioned just above the levellogger;
- The Waterra Powerpack inertial pump was installed at the top of the protective well casing, and the tubing was secured;
- The equipment was left untouched for a minimum of five minutes to allow the water level in the well to recovery back to static;
- The pump was turned on and operated at its maximum flow rate for 20 to 30 minutes;
- During pumping the discharge rate was measured every five minutes by measuring the time to fill a 500 mL measuring cup;
- The pump was then shut off and without removing any equipment from the well, the water level recovery was monitored by the levellogger for approximately 20 minutes; and
- All equipment was removed from the well and the levellogger data were downloaded to a laptop computer.

During the 2016 drilling of geotechnical test holes, KP performed 52 single- and straddle-packer injection tests in bedrock open boreholes. The procedures used to perform these tests and the associated data analyses are provided in KP (2016).

## 2.3 WATER CHEMISTRY ANALYSIS

Groundwater samples were collected monthly from May to November 2016 and were analyzed for the following field and laboratory parameters:

### Field parameters

- pH;
- Specific conductance;
- Temperature;
- ORP;
- Dissolved oxygen; and
- Turbidity.

### Laboratory parameters

- pH;
- Specific conductance;
- Total suspended solids (TSS);
- Major anions (chloride, fluoride, sulphate, nitrate, nitrite, phosphate)
- Alkalinity and acidity;
- Ammonia;
- Dissolved organic carbon (DOC);
- Hardness
- Metals package – total concentrations (including phosphorous and mercury); and
- Metals package - dissolved concentrations (including phosphorous and mercury).

A subset of field duplicates was collected during each sampling event to evaluate replication of sampling procedures and laboratory accuracy. All laboratory analyses were performed by Maxxam Analytics International Corp. (Maxxam). Maxxam is an accredited International Organization for Standardization (ISO)/International Electrotechnical Commission (IEC) 17025 testing laboratory located in Burnaby, British Columbia. Maxxam is certified by the Canadian Association for Environmental Analytical Laboratories (CAEAL). The certificates of analysis provided by Maxxam for the 2016 samples are provided in Appendix F. A summary of the laboratory analysis technique used for each parameter is presented in Table 2-2.

**Table 2-2: Analytical Methods used in the Laboratory**

Parameter	Analytical Method	Source Method
Acidity	Titration	2310 B (Rice et al., 2012)
Alkalinity	Titration	2320 B (Rice et al., 2012)
Dissolved Organic Carbon	Persulphate Oxidation	5310 C (Rice et al., 2012)
Total Suspended Solids	Dry to Constant Weight	2540 D (Rice et al., 2012)
Chloride	Automated Colourimetry	4500-Cl- G (Rice et al., 2012)
Fluoride	Ion Specific Electrode	4500-F C (Rice et al., 2012)
Sulphate	Automated Colourimetry	4500-SO42- E (Rice et al., 2012)
Phosphorus	Ascorbic Acid Method (Colourimetry)	4500-P E (Rice et al., 2012)
Nitrite-N	Cadmium Reduction Flow Injection	4500-NO3- I (Rice et al., 2012)
Nitrate-N		4500-NO3- I (Rice et al., 2012)
Ammonia-N	Automated Phenate (Colourimetry)	4500-NH3- G (Rice et al., 2012)
Total Metals (34 elements) <sup>1</sup>	Major elements using Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES), and Trace elements using Collision Inductively Coupled Plasma Mass Spectrometry (CRC ICP-MS)	CRC ICP-MS United States Environmental Protection Agency (USEPA) Method 6020 ICP-OES EPA Method 6010 (USEPA, 2007)
Total Mercury	Cold Vapour Atomic Fluorescence	British Columbia Ministry of Environment (BCMOE) (2013)
Dissolved Metals (34 elements) <sup>1</sup>	Major elements using Coupled Plasma Optical Emission Spectrometry (ICP-OES), and Trace elements using Collision Inductively Coupled Plasma Mass Spectrometry (CRC ICP- MS)	CRC ICP-MS USEPA Method 6020 ICP-OES EPA Method 6010 (USEPA, 2007)
Dissolved Mercury	Cold Vapour Atomic Fluorescence	BCMOE (2013)

<sup>1</sup>. CRC ICP-MS scan includes: Al, Sb, As, Ba, Be, Bi, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Ni, P, K, Se, Si, S, Ag, Na, Sr, Ti, Sn, Ti, U, V, Zn, & Zr.

## 2.4 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

### 2.4.1 Groundwater Sampling QA/QC

QA/QC practices in the groundwater monitoring program follow the methods described in AEG's Protocols and in Standard Methods for Examination of Water and Wastewater (Rice et al., 2012). The monitoring program includes a comprehensive QA/QC program to ensure validity of the data collected including the establishment of data quality objectives and documentation of sample variability due to natural variability and analytical variability. The QA/QC program includes the following:

- All field staff are familiar with and follow work methods for groundwater monitoring and sample collection that are based on generally accepted best industry practices (Rice et al., 2012). The sampling procedures include measures to avoid sample contamination in the field during sample collection, as well as during sample handling and shipping;
- Blind field duplicates are collected at a rate of one duplicate per 10 samples collected. The field duplicates are clearly linked to one of the monitoring wells on sampling logs and field notes, but not on the chain of custody forms;
- A field and travel blank are collected for each monthly sampling event;

- All samples are sent to Maxxam in Burnaby, BC, a Canadian Association for Laboratory Accreditation member, for analysis. The laboratory also conducts an internal QA/QC program, including split duplicates (one per 10 samples);
- Following each sampling event, AEG conducts a review of all analytical results and QA/QC results received from the laboratory to ensure data quality and to flag any potential issues (e.g., data quality issues from the information provided by the lab, conduct an ion balance for each sample – typically <5% is acceptable, etc.). Additionally, the QA/QC program includes a review of the relative percent difference in duplicates and parameters measured in field blanks and trip blanks to assess data quality; and
- During the August 2016 sampling event 10 duplicate samples, a field blank, and a travel blank were collected (in addition to the monthly routine sampling) and sent to ALS Canada Ltd.'s (a Canadian Association for Laboratory Accreditation member) laboratory. The intention of this additional QA/QC sampling is to ensure data quality from a third party (independent) accredited laboratory.

Relative Percent Difference (RPD) was used to determine field variability and is equal to the difference between the sample and duplicate value, divided by the average of the sample and duplicate value, and expressed as a percent. When RPD was greater than 25%, a subsequent check was performed against the laboratory detection limit (DL) to establish if the practical quantitation limit (PQL) was met. The PQL is five times the DL and is defined as the minimum concentration that can be measured within specified limits of precision and accuracy. Both results need to be above the PQL for the analyte to be considered to be 'meeting the PQL'. If one result from the sample or duplicate is >5X DL and one result is <5X DL, then the 'PQL is not met'. An analyte with results below the PQL indicates that the parameter being analyzed is not present in a sufficient amount to be reliably quantified. Typically, as parameters approach their detection limit, higher variability is more likely to occur. A RPD >25% is flagged for further comment or consideration.

#### **2.4.2 Laboratory Quality Control Sample Analysis**

Overall quality control sample analysis from method blanks, laboratory duplicates, matrix spikes, and blank spikes met the Maxxam acceptability criteria and consequently the data were issued.

#### **2.4.3 Field Variability**

During the monitoring program field duplicates were collected to measure field variability between simultaneous grab samples. A total of 20 field duplicates were collected during seven months between May 2016 and November 2016 as part of the groundwater quality monitoring program. The highest variability was observed in May 2016 for a duplicate collected from BH95G-33D; 15 analytes had RPD >25% and eleven of those met the PQL.

For all 20 field duplicates, analytes with RPD greater than 25% and meeting the PQL are provided in Table 2-3, while analytes that were >25% and did not meet the PQL are listed in Table 2-4.

There is relatively low variability between simultaneous grab samples; however, results indicate that there is natural variability at any given sampling location. This natural variability appears to be more than the variability introduced from laboratory analytical methods.

**Table 2-3: Duplicate Analytes with RPD >25% and Meeting the PQL**

Analyte	Number of times RPD >25% and PQL met	Analyte	Number of times RPD >25% and PQL met
Aluminum (Al), total	3	Molybdenum (Mo), dissolved	1
Ammonia (N)	2	Molybdenum (Mo), total	3
Arsenic (As), dissolved	1	Nickel (Ni), dissolved	3
Arsenic (As), total	2	Nickel (Ni), total	1
Barium (Ba), total	1	Nitrite (N)	1
Beryllium (Be), total	1	Phosphorus (P), total	3
Bismuth (Bi), total	1	Phosphorus, Total Dissolved	9
Cadmium (Cd), total	1	Phosphorus, total-colourimetric	7
Chromium (Cr), total	2	Silver (Ag), total	4
Cobalt (Co), dissolved	1	Sodium (Na), total	1
Cobalt (Co), total	2	Sulphate, dissolved	2
Copper (Cu), dissolved	1	Thallium (Tl), total	1
Copper (Cu), total	3	Titanium (Ti), total	2
Iron (Fe), dissolved	3	Total Acidity	2
Lead (Pb), dissolved	3	Total Suspended Solids	5
Lead (Pb), total	3	Uranium (U), total	1
Lithium (Li), total	1	Zinc (Zn), dissolved	1
Manganese (Mn), dissolved	2	Zinc (Zn), total	2
Manganese (Mn), total	3	Zirconium (Zr), dissolved	1
		Zirconium (Zr), total	3

**Table 2-4: Duplicate Analytes with RPD >25% and Not Meeting the PQL**

Analyte	Number of times RPD >25% and PQL not met	Analyte	Number of times RPD >25% and PQL not met
Aluminum (Al), dissolved	3	Lithium (Li), total	1
Aluminum (Al), total	1	Manganese (Mn), dissolved	1
Ammonia (N)	5	Manganese (Mn), total	1
Antimony (Sb), dissolved	2	Mercury (Hg), dissolved	1
Antimony (Sb), total	2	Molybdenum (Mo), total	1
Arsenic (As), dissolved	1	Nickel (Ni), total	1
Arsenic (As), total	1	Nitrate (N)	2
Bismuth (Bi), total	2	Nitrite & Nitrate, as N	3
Cadmium (Cd), dissolved	1	Nitrite (N)	2
Chloride	4	Phosphorus (P), dissolved	3
Chromium (Cr), total	2	Phosphorus (P), total	2
Cobalt (Co), dissolved	2	Phosphorus, Total Dissolved	2
Copper (Cu), dissolved	4	Phosphorus, total-colourimetric	1
Copper (Cu), total	1	Silver (Ag), total	3
Dissolved Organic Carbon	4	Thallium (Tl), dissolved	3
Iron (Fe), dissolved	1	Tin (Sn), total	3
Lead (Pb), dissolved	4	Total Acidity	3
Lead (Pb), total	1	Zinc (Zn), dissolved	3
Lithium (Li), dissolved	3	Zirconium (Zr), total	6



## 2.4.4 Field and Travel Blanks

Additional field quality control samples include field blanks and trip blanks, where de-ionized water is handled, processed and analyzed in the same manner as the site water samples. Blanks can provide an indication of sample contamination occurring in the field (field blank) or lab (method blanks) and at any point in between (trip blanks). Concentrations of parameters should not be detectable, though a PQL of >2 times the reportable detection limit allows for slight “noise” around the detection limit.

Field blanks were processed by taking de-ionized water (analyte free media) to the sample station, opening it and exposing it to ambient air and ‘collecting’ it in the sample bottles. These samples were treated the same as the actual water samples, preserved and filtered as necessary, and their analysis can provide an indication of contamination that may be affecting the actual samples.

Seven field blanks were collected between May 2016 and November 2016. Field blank analytes with concentrations >2 times the DL are shown in Table 2-5. In June, July and October, 2016, three analytes were detected in the field blanks at concentrations >2 times the DL, but not more than 10 times the DL. Aluminum and ammonia were the detected parameters in the field blanks. Ammonia is typically between two and three times the DL, while aluminum concentrations in the field blanks were typically more than an order of magnitude below the guideline. Such contamination is likely related to the bottles, preservative, and/or laboratory handling, although sporadic contamination during fieldwork cannot be ruled out.

**Table 2-5: Field Blank Analytes >2X's DL**

Analyte	Number of times > 2X DL
Aluminum (Al), total	1
Ammonia (N)	2

Trip blanks (sample of de-ionized water) are supplied and prepared by the lab and are meant to accompany the sample bottles provided by the lab for the monitoring program. The trip blank travels with the sample bottles to the sample stations and is returned unopened back to the lab with the collected samples. The purpose of the trip blank is to identify any potential contamination (e.g., cross contamination from other samples or ambient air conditions) to which the samples may be exposed. Seven trip blanks were analyzed between May 2016 and November 2016; no analyte concentrations were >2 times the DL.

Since laboratory method blanks showed no notable results >2 times the DL, it can be assumed that the original lab water is not a source of contamination. For the purposes of this data quality assessment, periodic field and trip blank results >2 times the DL do not call sample results into question; rather the relevance and potential for actual sample results to have been affected have been considered when interpreting results.

## 2.5 GUIDELINES

Groundwater quality samples results were compared to the Federal Interim Groundwater Quality Guidelines (FIGWQG). The FIGWQG are intended to be used as an interim measure until Canadian Environmental Quality Guidelines (CEQG) for groundwater are developed by the Canadian Council of Ministers of the Environment (CCME). The guidelines are primarily risk-based numerical guidelines set at levels at which it is believed that unacceptable adverse effects on environmental or human health will not occur (FCSAP, 2012). There are three tiers to the guidelines and Tier 1 is used as it allows for direct application of the generic numerical guideline. Furthermore, there are different values for different land uses; agricultural,

residential/parkland, commercial and industrial. Industrial was selected as the land use most comparable. The guideline values are listed below in Table 2-6.

**Table 2-6: Summary of FIGWQG Industrial Tier1 Guidelines Used for Comparisons (FCSAP, 2012)**

Parameter	Units	Water Quality Guideline
pH (field)	pH units	6.5-9
Chloride	mg/L	120
Fluoride	mg/L	0.12
Sulphate, dissolved	mg/L	100
Ammonia (N) <sup>a</sup>	mg/L	0.282 for a pH of 8.5 and Temperature of 10°C
Nitrite (N)	mg/L	0.06
Nitrate (N)	mg/L	3
Aluminum (Al), dissolved <sup>a</sup>	mg/L	= 0.005 if pH < 6.5 = 0.1 if pH ≥ 6.5
Antimony (Sb), dissolved	mg/L	2
Arsenic (As), dissolved	mg/L	0.005
Barium (Ba), dissolved	mg/L	2.9
Beryllium (Be), dissolved	mg/L	0.0053
Boron (B), dissolved	mg/L	5
Cadmium (Cd), dissolved <sup>a</sup>	mg/L	$= 10^{0.83(\log[\text{hardness}]) - 2.46} \times 0.001$
Chromium (Cr), dissolved	mg/L	0.0089
Copper (Cu), dissolved <sup>a</sup>	mg/L	=0.002 if water hardness is 0 to < 82 mg/L = $0.0002 \times e^{0.8545[\ln(\text{hardness})] - 1.465}$ if water hardness is hardness ≥ 82 to ≤ 180 mg/L = 0.004 if water hardness is ≥ 180 mg/L
Iron (Fe), dissolved	mg/L	0.3
Lead (Pb), dissolved <sup>a</sup>	µg/L	When the hardness is 0 to ≤ 60 mg/L, the CWQG is 1 µg/L At hardness >60 to ≤ 180 mg/L the CWQG is calculated using this equation: $\text{CWQG } (\mu\text{g/L}) = e^{1.273[\ln(\text{hardness})] - 4.705}$ At hardness >180 mg/L, the CWQG is 7 µg/L If the hardness is unknown, the CWQG is 1 µg/L
Mercury (Hg), dissolved	mg/L	0.000026
Molybdenum (Mo), dissolved	mg/L	0.073
Nickel (Ni), dissolved <sup>a</sup>	µg/L	When the water hardness is 0 to ≤ 60 mg/L, the CWQG is 25 µg/L At hardness > 60 to ≤ 180 mg/L the CWQG (µg/L) = $e^{0.76[\ln(\text{hardness})] + 1.06}$ At hardness >180 mg/L, the CWQG is 150 µg/L If the hardness is unknown, the CWQG is 25 µg/L
Selenium (Se), dissolved	mg/L	0.001
Silver (Ag), dissolved	mg/L	0.0001
Thallium (Tl), dissolved	mg/L	0.0008
Titanium (Ti), dissolved	mg/L	0.1
Uranium (U), dissolved	mg/L	0.015
Zinc (Zn), dissolved	mg/L	0.03

<sup>a</sup>The freshwater aquatic life guidelines vary depending on water pH, hardness, and temperature. As per FCSAP (2012) recommendation the water quality guideline applicable (i.e. long term freshwater aquatic) to the site is taken from the CWQG for the Protection of Aquatic Life (CCME 1999) and the formula provided.

## 2.6 DATA QUALITY ASSESSMENT

All water quality data have been compiled into an EQWin® software database. This continually growing database allows for the assessment of water quality trends for specific parameters of interest.

During the data assessment it was noticed that dissolved iron concentrations within the pit area were not consistent between the 2015 and 2016 data. In general, the 2016 dissolved iron concentrations were markedly lower than the 2015 dataset. This is ascribed to different sampling approaches employed for the dissolved samples collected in 2015 versus 2016. In 2015, the samples were filtered and preserved in the field; however, in order to achieve low level detection limits, Maxxam advised AEG not to filter and preserve in the field. Instead, the 2016 samples for dissolved metals were submitted to Maxxam unfiltered and unpreserved for filtration and acidification in the laboratory. The lower dissolved iron concentrations observed in the 2016 samples is thought to be due to precipitation of iron-bearing phases during transit to Maxxam, removing a portion of dissolved iron from the sample prior to processing in the laboratory. This would be most prominent in samples collected from anoxic wells where the majority of dissolved iron would be present as Fe(II). Upon exposure to the atmosphere, the Fe(II) would oxidize quickly at the circumneutral to mildly alkaline pH of the groundwaters, and the resulting Fe(II) would hydrolyse to precipitate iron (oxyhydr)oxides. The total iron data do not show the same marked differences between the 2015 and 2016 datasets. Given the uncertainty associated with the dissolved iron dataset, it is the total iron data that are discussed here.

### 3 RESULTS AND DISCUSSION

#### 3.1 BOREHOLE HYDRAULIC TESTING COMPILATION

During 2015, borehole hydraulic conductivity tests were conducted by EBA, and the associated methodologies and test analyses are reported in EBA (2016). These tests included two long-term pumping tests at water wells, slug tests in completed monitoring wells, and bedrock packer injection tests in open boreholes. Results of the 2015 slug and packer tests conducted by EBA are summarized in Table 3-1.

**Table 3-1: EBA 2015 Slug Tests and Packer Tests**

Drillhole ID	Slug Tests				Packer Tests			
	Geologic Material	Top of Screen (m) <sup>a</sup>	Bottom of Screen (m) <sup>a</sup>	Hydraulic Conductivity (m/s)	Geologic Material	Top of Interval (m) <sup>a</sup>	Bottom of Interval (m) <sup>a</sup>	Hydraulic Conductivity (m/s)
MW15-01	Bedrock	10	18.8	$1.20 \times 10^{-6}$	Bedrock	12.5	20.0	$1.00 \times 10^{-6}$
MW15-02	Bedrock	23	31.7	-	Bedrock	12.5	32.0	$1.90 \times 10^{-7b}$
MW15-03S	Overburden	4.1	7.1	$8.50 \times 10^{-6}$	-	-	-	-
MW15-03D	Bedrock	10.1	16	$1.90 \times 10^{-6}$	-	-	-	-
MW15-04	-	-	-	-	Bedrock	16.4	26.9	$4.20 \times 10^{-7}$
MW15-04S	Overburden	11.2	14.1	$1.10 \times 10^{-5}$	-	-	-	-
MW15-04D	Bedrock	27.1	32.9	$9.20 \times 10^{-7}$	-	-	-	-
MW15-05S	Overburden	4.6	7.6	-	-	-	-	-
MW15-05D	Bedrock	22.4	29.8	$1.30 \times 10^{-6}$	Bedrock	22.5	30.0	$6.90 \times 10^{-8}$
MW15-06	Overburden	6.5	9.4	$1.50 \times 10^{-6}$	-	-	-	-
MW15-07S	Overburden	8.1	11	$4.50 \times 10^{-6}$	-	-	-	-
MW15-07D	Bedrock	26.3	32.1	-	Bedrock	16.5	33.0	$1.90 \times 10^{-7}$
MW15-08S	-	-	-	-	-	-	-	-
MW15-08D	Bedrock	29.8	35.6	$1.30 \times 10^{-7}$	Bedrock	19.5	36.0	$4.30 \times 10^{-7}$
MW15-09S	Overburden	11.4	17.3	$1.60 \times 10^{-6}$	-	-	-	-
MW15-09D	Bedrock	35.1	40.9	-	Bedrock	34.5	39.0	$1.00 \times 10^{-5}$
MW15-10S	Overburden	6.6	9.6	$2.00 \times 10^{-6}$	-	-	-	-
MW15-10D	Bedrock	25.7	31.5	-	Bedrock	28.5	33.0	$4.80 \times 10^{-6}$
MW15-11S	Overburden	4.15	7.05	$3.60 \times 10^{-5}$	-	-	-	-
MW15-11D	Bedrock	20.6	35.2	-	-	-	-	-

<sup>a</sup> All reported depths refer to vertical depth below ground surface

<sup>b</sup> Poor quality data, provided for qualitative purposes only

- Test not conducted or results unreliable

During 2015, long-term pumping tests were conducted by EBA at WW15-01 and WW15-02 to estimate the bulk hydraulic conductivities of the permeable overburden and fractured bedrock units. The results are presented in Table 3-2.

**Table 3-2: EBA 2015 Long-Term Pumping Tests**

Well	Geologic Material	Method	Transmissivity (T)	Test Interval Length	Hydraulic Conductivity (K)	Storativity (S)	Best Estimate $\kappa^{(a)}$
			[m <sup>2</sup> /s]	[m]	[m/s]	[unitless]	[m/s]
Pumping Well WW15-01	Overburden	Cooper-Jacob	$5.1 \times 10^{-4}$	4.2	$1.2 \times 10^{-4}$	(b)	$1.1 \times 10^{-4}$
	Overburden	Theis Recovery	$3.8 \times 10^{-4}$	4.2	$9.0 \times 10^{-5}$	(b,c)	
	Overburden	Mean	$4.5 \times 10^{-4}$	4.2	$1.1 \times 10^{-4}$	n/a	
Observation Well BH95G-23	Overburden	Cooper-Jacob	$5.1 \times 10^{-4}$	4.2	$1.2 \times 10^{-4}$	$6.4 \times 10^{-4}$ (d)	
	Overburden	Theis Recovery	$4.0 \times 10^{-4}$	4.2	$9.6 \times 10^{-5}$	(c)	
	Overburden	Mean	$4.6 \times 10^{-4}$	4.2	$1.1 \times 10^{-4}$	n/a	
Pumping Well WW15-02	Bedrock	Cooper-Jacob	$7.6 \times 10^{-5}$	34	$2.2 \times 10^{-6}$	(b)	$1.7 \times 10^{-6}$
	Bedrock	Theis Recovery	$3.9 \times 10^{-5}$	34	$1.1 \times 10^{-6}$	(b,c)	
	Bedrock	Mean	$5.8 \times 10^{-5}$	34	$1.7 \times 10^{-6}$	n/a	

- (a) Mean of individual hydraulic conductivity, K, results
- (b) Storativity cannot be reliably measured from pumping well data
- (c) Storativity cannot be measured from Theis recovery analysis
- (d) Artesian storage coefficient

During 2016, KP performed packer injection tests in 16 drill holes to evaluate the hydraulic conductivity of bedrock at multiple depths along each open hole to create a profile of the hydraulic properties. The packer tests were conducted in locations of proposed infrastructure, such as the storage facilities and pit to support the geotechnical evaluation for the Prefeasibility Study Report (KP, 2016b). The methodology, data, and results are provided in the 2016 Geotechnical Site Investigation Data Report (KP, 2016a). These results are summarized in Table 3-3. The locations of these wells are shown on Figure 2-1.

**Table 3-3: 2016 Knight Piésold Bedrock Packer Test Results**

Drillhole ID	Top of Interval (m bgs)	Bottom of Interval (m bgs)	Hydraulic Conductivity (m/s)	Drillhole ID	Top of Interval (m bgs)	Bottom of Interval (m bgs)	Hydraulic Conductivity (m/s)
K16-379	7.1	15.7	$7. \times 10^{-6}$	K16-410	8.2	14.7	$1. \times 10^{-5}$ <sup>4</sup>
	13.7	24.7	$2. \times 10^{-6}$		15	22.2	$1. \times 10^{-5}$
	24.2	35.2	$2. \times 10^{-6}$		21.7	31.2	$3. \times 10^{-7}$
	31.7	39.7	$1. \times 10^{-6}$	K16-411	23.5	28.1	$3. \times 10^{-6}$
K16-387	6.5	16	$4. \times 10^{-7}$		26.1	34.1	$8. \times 10^{-7}$
	14	25	$4. \times 10^{-7}$	K16-412	20.5	26.7	$4. \times 10^{-7}$
	23	34	$3. \times 10^{-7}$		32.5	38.7	$3. \times 10^{-6}$
K16-389	13	21	$6. \times 10^{-7}$	MW16-12D	8.2	19.2	$8. \times 10^{-6}$
	21	31.5	$1. \times 10^{-6}$		17.2	28.2	$3. \times 10^{-6}$
	31	42	$7. \times 10^{-7}$	MW16-13	3.5	9.9	$5. \times 10^{-5}$ <sup>5</sup>
K16-390	9.6	16.1	$1. \times 10^{-6}$		7.9	18.9	$9. \times 10^{-8}$ <sup>5</sup>
	13.6	23.6	$4. \times 10^{-7}$		16.9	27.9	$1. \times 10^{-7}$ <sup>5</sup>
	23.1	38.6	$2. \times 10^{-7}$ <sup>1</sup>	MW16-14	13.2	22.2	$9. \times 10^{-6}$
K16-392	7.7	19.2	$1. \times 10^{-6}$		20.2	31.2	$1. \times 10^{-5}$
	17.2	28.2	$1. \times 10^{-6}$ <sup>2</sup>		28.2	40.2	$2. \times 10^{-6}$
	25.2	37.2	$1. \times 10^{-5}$	MW16-15D	10.2	18.2	$4. \times 10^{-7}$
	35.2	46.2	<sup>3</sup>		16.2	27.2	$5 \times 10^{-7}$
K16-395	4.2	13.2	$2. \times 10^{-6}$		27.2	42.2	$2. \times 10^{-6}$
	11.2	22.2	$6. \times 10^{-7}$	MW16-16	6	13.3	$5. \times 10^{-6}$
	20.2	32.7	$7. \times 10^{-7}$		11.3	22.3	$1. \times 10^{-5}$ <sup>4</sup>
	32.2	46.2	$4. \times 10^{-7}$		20.3	31.3	$1. \times 10^{-6}$ <sup>4</sup>
K16-402	8.1	18.1	$2. \times 10^{-7}$ <sup>4</sup>		29.3	40.3	$3. \times 10^{-6}$
	16.1	27.1	$1. \times 10^{-7}$	MW16-17	5.1	13.1	$4 \times 10^{-7}$
	25.1	37.6	$2. \times 10^{-5}$		11.1	22.1	$7. \times 10^{-7}$
	37.1	48.1	$3. \times 10^{-6}$		20.1	31.1	$7. \times 10^{-7}$
	46.1	60.1	$3. \times 10^{-6}$				
	58.1	70.6	$4. \times 10^{-6}$				

bgs Vertical depth below ground surface,

- Pressure applied during testing exceeded the maximum allowable injection pressure ( $P_{MAX}$ ).  $P_{MAX}$  is calculated in the literature as the vertical distance from the ground surface to the top of the test interval multiplied by a factor of safety of 0.98 PSI/m - 1.64 PSI/m (Read and Stacey, 2009). Test results do not appear to have been affected by the high pressure applied as they are consistent with other testing.
- Estimated hydraulic conductivity less certain because injected flow not well constrained during testing.
- Shut-in pressure and artesian flow recorded only.
- Water level at or below transducer (top of test interval) based on plotted transducer data. Initial water level assumed to be at the mid-point of the test interval for analysis. Hydraulic conductivity estimated provided for qualitative purposes only as the initial water level assumed and testing methodology/analysis valid only for saturated conditions.
- Estimate of hydraulic conductivity less certain because of small head applied during testing.

AEG performed short-term (low flow rate) pumping tests in seven new monitoring wells that were installed by KP during 2016, and these test results are summarized in Table 3-4. The eighth well installed by KP (MW16-13) was not tested by AEG as the well froze shortly after installation. The well locations are shown on Figure 2-1, and associated data plots, equations, and inputs used to estimate hydraulic conductivity are provided in Appendix A.

**Table 3-4: AEG 2016 Short-Term Pumping Tests**

Well ID	Geologic material	Top of test interval <sup>(a)</sup>	Bottom of test interval <sup>(a)</sup>	Saturated test interval length <sup>(a)</sup>	Pumping duration	Average pumping rate	Specific capacity transmissivity	Theis recovery transmissivity	Best estimate transmissivity <sup>(g)</sup>	Best estimate hydraulic conductivity <sup>(b)</sup>
				L	T	Q	T	T	T	K
		[m bgs]	[m bgs]	[m]	[min]	[L/sec]	[m <sup>2</sup> /day]	[m <sup>2</sup> /day]	[m <sup>2</sup> /day]	[m/s]
MW16-12S	Overburden	2.60	4.16	1.56	26.08	0.0309	0.736	1.125	0.930	6.9 x 10 <sup>-6</sup>
MW16-15S	Overburden	3.61	5.26	1.65	27.17	0.0263	> 21 <sup>(f)</sup>	<sup>(e)</sup>	> 21	> 1.5 x 10 <sup>-4</sup>
MW16-12D	Bedrock	20.45	26.83	6.38	30.05	0.0833	4.232		4.232	7.7 x 10 <sup>-6</sup>
MW16-14D	Bedrock	30.75	37.83	7.08	27.83	0.0735	0.929	0.570	0.750	1.2 x 10 <sup>-6</sup>
MW16-15D	Bedrock	28.80	36.06	7.26	29.55	0.0610	1.483	1.039	1.261	2.0 x 10 <sup>-6</sup>
MW16-16D	Bedrock	31.30	38.38	7.08	<sup>(c)</sup>	<sup>(c)</sup>	<sup>(d)</sup>	<sup>(d)</sup>	<sup>(d)</sup>	<sup>(d)</sup>
MW16-17	Bedrock	20.30	27.11	6.81	30.12	0.0536	0.750	1.068	0.909	1.5 x 10 <sup>-6</sup>

bgs Vertical depth below ground surface

a Test interval length is generally from the top to the bottom of the sand pack. If the static water level is below the top of sand pack, the test interval is from the static water level to the bottom of the sand pack.

b Average hydraulic conductivity of geologic materials within the test interval.

c Three brief intermittent pumping periods over a total duration of 34.7 minutes.

d Cannot be analyzed due to oscillations and discontinuous pumping.

e Recovery too rapid for reliable analysis.

f Insufficient drawdown; analysis provides lower-bound transmissivity.

g Average of specific capacity and Theis recovery transmissivities if both values calculated.

### 3.1.1 Overburden Hydraulic Conductivity

Overburden at the KZK site generally consists of two material types:

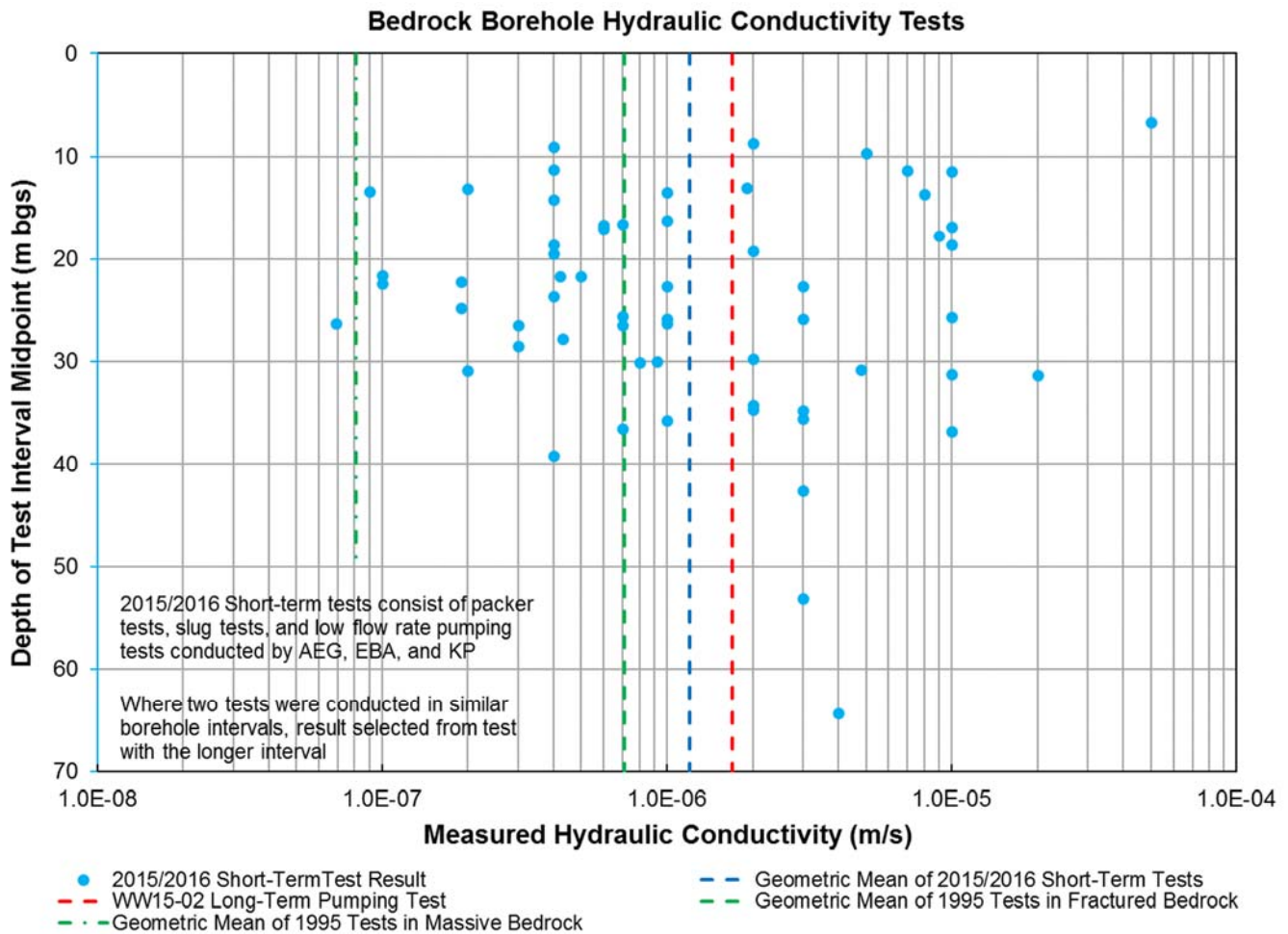
- Fine-grained lower permeability sediments composed of silts and fine sands, and
- Coarse-grained higher permeability sands and gravels.

The results of ten 2015/2016 tests conducted in the overburden are bimodal, reflecting the presence of these two material types. Eight tests were conducted in wells completed in the fine-grained overburden, and the geometric mean of hydraulic conductivities measured by these tests is  $5.2 \times 10^{-6}$  m/s. The two tests conducted in sands and gravels have a geometric mean of  $1.3 \times 10^{-4}$  m/s (or 25 times greater than the fine-grained tests). For comparison, the geometric mean of the 1995 tests conducted in "overburden" is  $4.1 \times 10^{-6}$  m/s, which is similar to the geometric mean of 2015/2016 tests conducted in fine-grained overburden ( $5.2 \times 10^{-6}$  m/s).

### 3.1.2 Bedrock Hydraulic Conductivity

Based on borehole tests conducted during 2015/2016, Figure 3-1 is a plot of measured bedrock hydraulic conductivity versus the depth of the test interval midpoint. The short-term tests consist of the packer tests, slug tests, and low flow rate pumping tests discussed in previous sections. In many open boreholes, a series of packer tests was performed at different depths to create a vertical profile of bedrock hydraulic conductivity. Many of these holes were subsequently completed as monitoring wells and tested for hydraulic conductivity using well testing methods. At seven locations, a tested monitoring well had a completion interval that was similar to the borehole interval previously packer tested, resulting in two hydraulic conductivity values for essentially the same depth interval. To avoid double-counting these occurrences on Figure 3-1, the plotted point is the hydraulic conductivity value that was measured for the longest of the two test intervals, regardless of the test methodology. As shown on Figure 3-1, most of the bedrock hydraulic conductivities lie within a range of  $1 \times 10^{-7}$  and  $1 \times 10^{-5}$  m/s. For the depth range of 10 m to 70 m below ground surface, there is no apparent trend of increasing or decreasing hydraulic conductivity with depth. The geometric mean of the plotted tests is  $1.2 \times 10^{-6}$  m/s, which is similar to the result of the long-term bedrock pumping test conducted in water well WW15-02 by EBA ( $1.7 \times 10^{-6}$  m/s). For comparison, the plot shows the geometric mean of 1995 tests conducted in "upper fractured bedrock" ( $7.1 \times 10^{-7}$  m/s), which is similar to, but somewhat lower than, the geometric mean of the 2015/2016 tests. Also shown is the geometric mean of two 1995 tests performed in relatively unfractured "massive bedrock" ( $8.1 \times 10^{-8}$  m/s), which is at the low end of the 2015/2016 values.





**Figure 3-1: Measured Bedrock Hydraulic Conductivity versus Depth**

### 3.2 GROUNDWATER ELEVATIONS

In each of eight monitoring wells across the site, groundwater elevation was continuously measured using a Solinst M10 levellogger, which is a combination pressure transducer and datalogger. These wells are BH95G-2, BH96G-22, BH95G-33D, BH95G-131, MW15-01, MW15-04D, MW15-04S, and MW15-07S. A barometric pressure logger was installed at BH95G-131 to provide data for correcting the water level readings to account for variable atmospheric pressure. Levelloggers were installed during October/November 2015 for most wells, and during May 2016 for MW15-04D and MW15-04S. Plots of the data logger elevations and manual water readings are presented in Figure 3-2 through Figure 3-9. The plots of all of the water levels collected across the site are provided in Appendix B. Comparison of the levellogger and manual readings show good correspondence.

The continuously monitoring wells exhibited the following general trends:

- Falling water levels from mid-November 2015 through April 2016;
- Rising water levels from May through September 2016; and

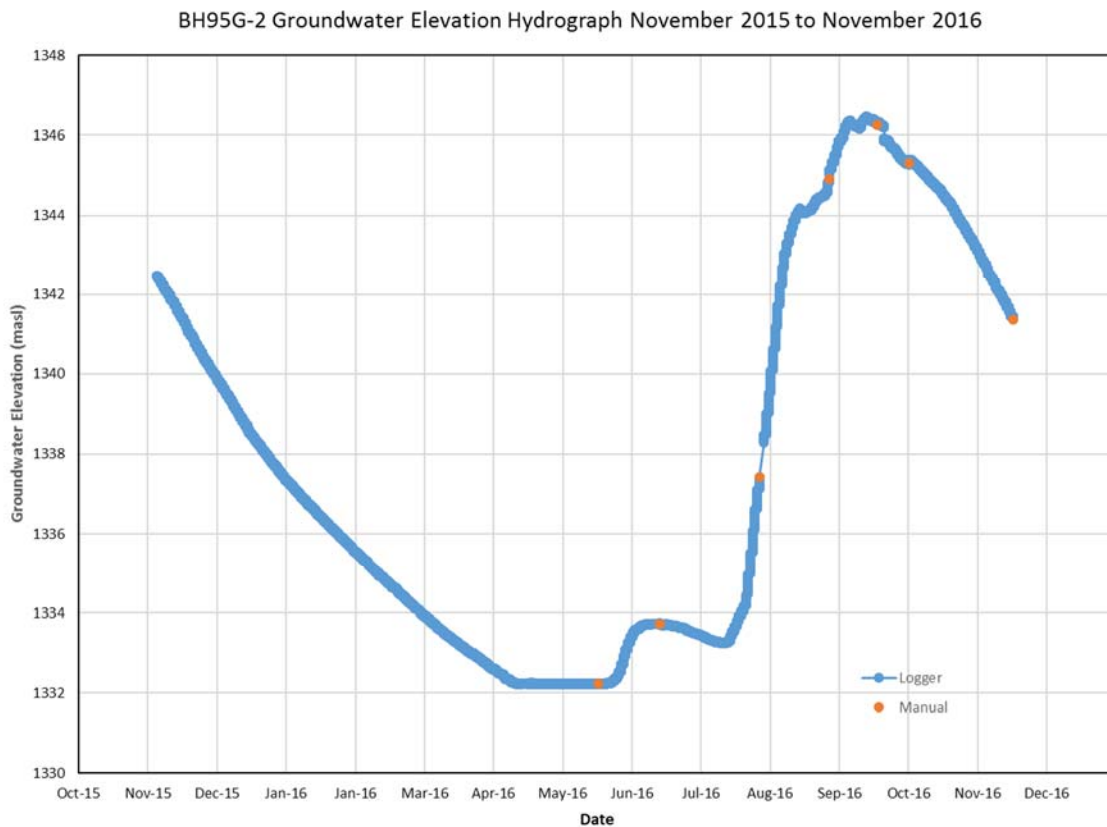
- Falling water levels during October and November 2016.

In most wells, the minimum and maximum water levels differed by 2 m to 5 m. However, there was a 12 m water level difference in BH95G-2 and less than 1 m difference in MW15-07S. The BH95G-2 data show an extended horizontal line during April and May 2016 when it is assumed that the water level briefly dropped below the logger level.

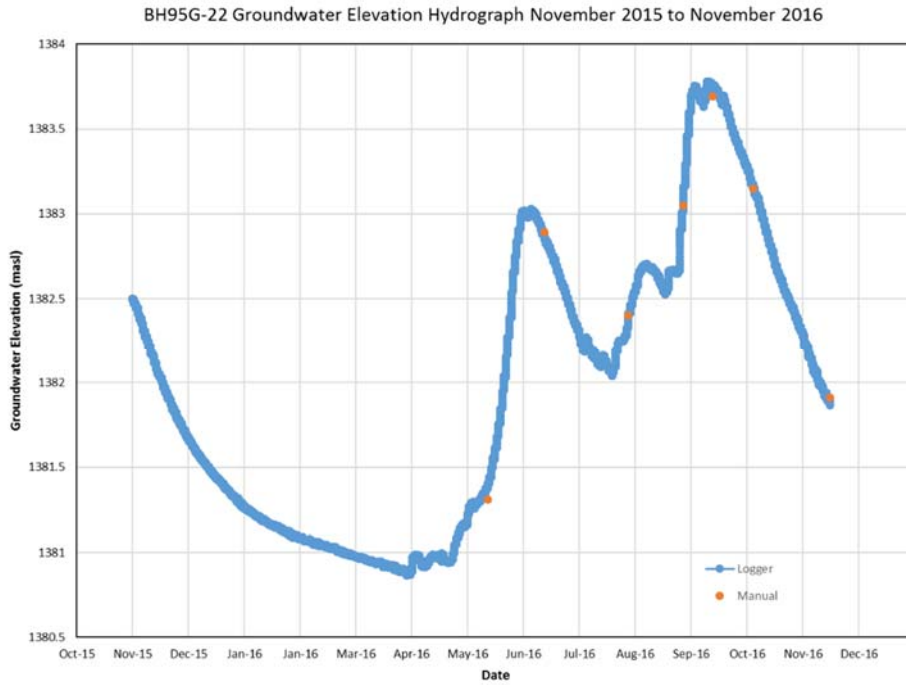
For well BH95G-131, the raw data indicated a shift of about 2.6 m on June 16, 2016, which aligns with a sampling event at this well. It is assumed that the position of the levellogger was shifted during sampling, and as such a correction has been applied to the data to align the water levels before and after this date.

The levellogger data for MW15-01 are more complex, showing gross trends similar to the general trends discussed above, but with large superimposed fluctuations. Continued monitoring and data analysis at this well will provide more information to evaluate the cause of the observed irregular groundwater levels.

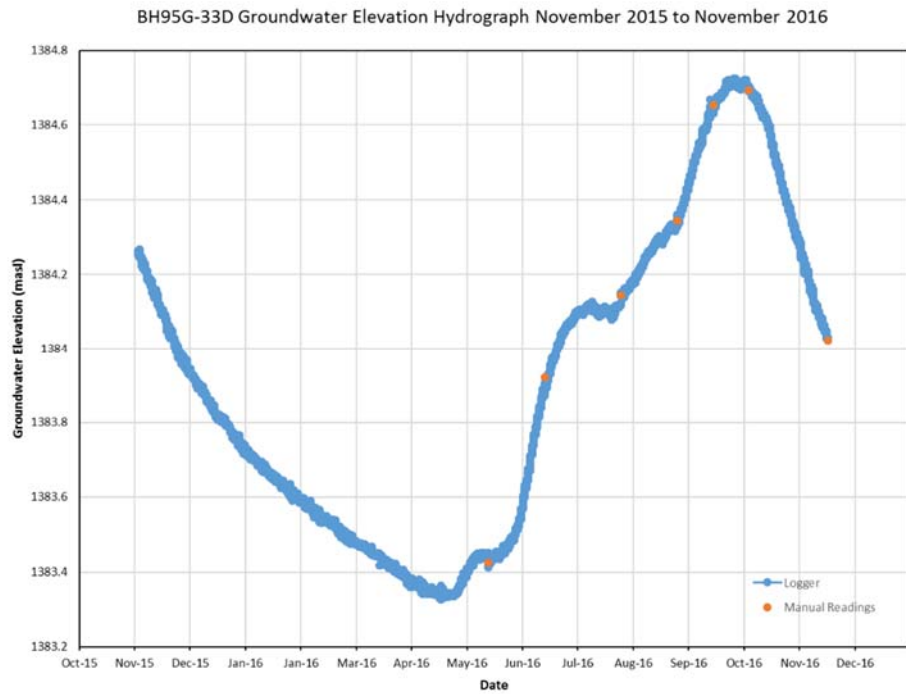
MW15-07S was frozen during the November 2016 so the hydrograph ends in October 2016. The gross trends in the levellogger data are similar to the general trends discussed above, but with several superimposed fluctuations during fall 2016.



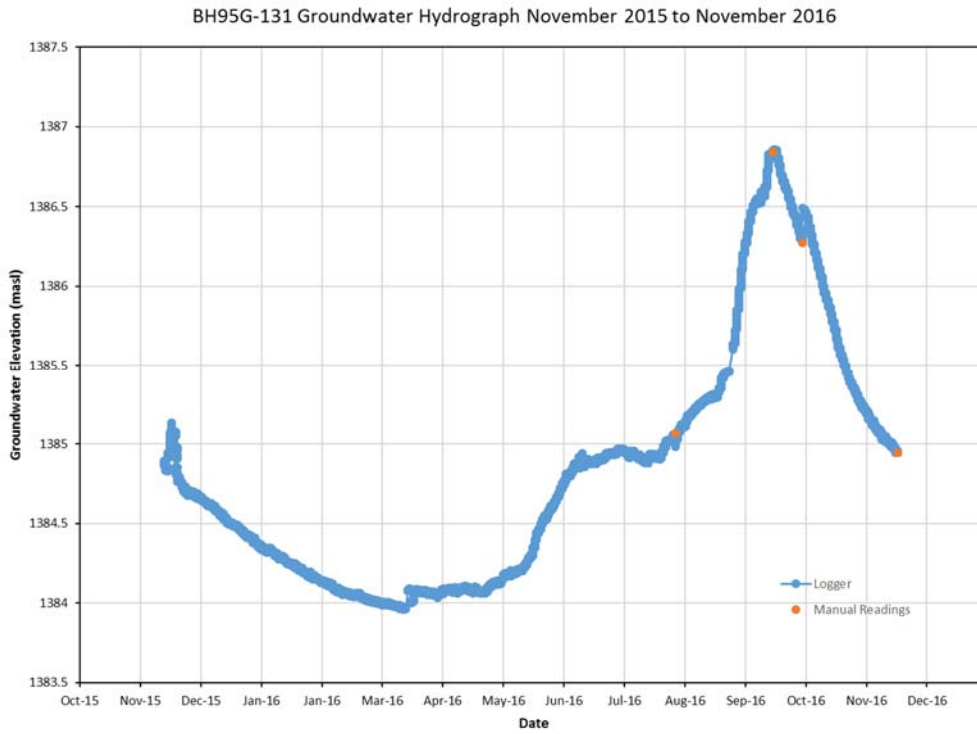
**Figure 3-2: BH95G-2 Groundwater Elevation Hydrograph**



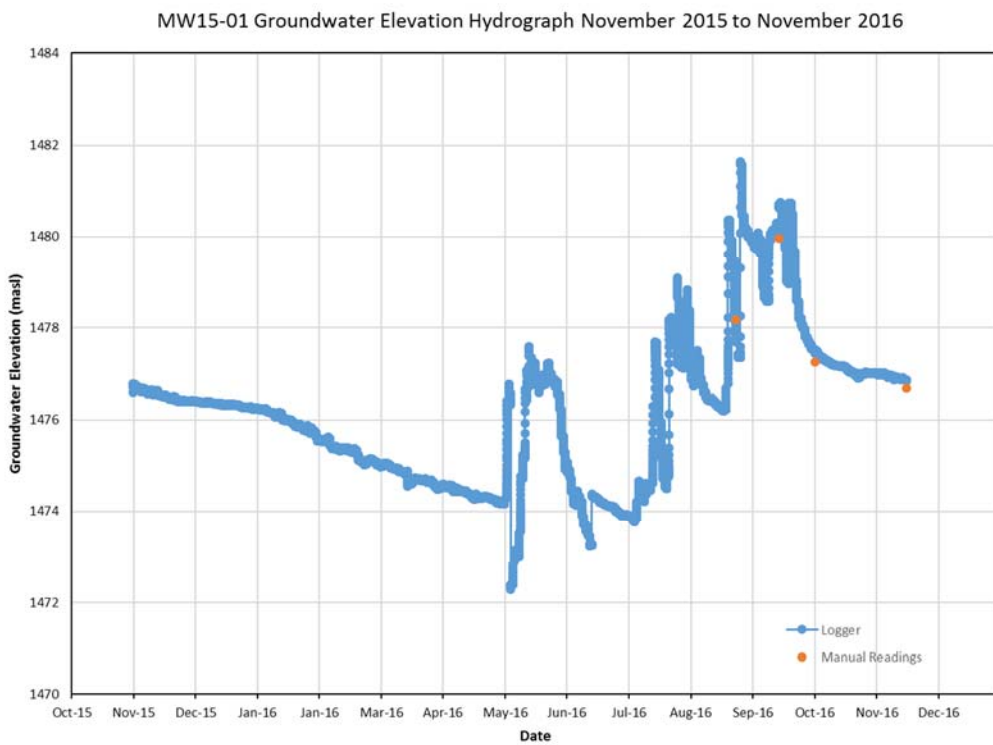
**Figure 3-3: BH95G-22 Groundwater Elevation Hydrograph**



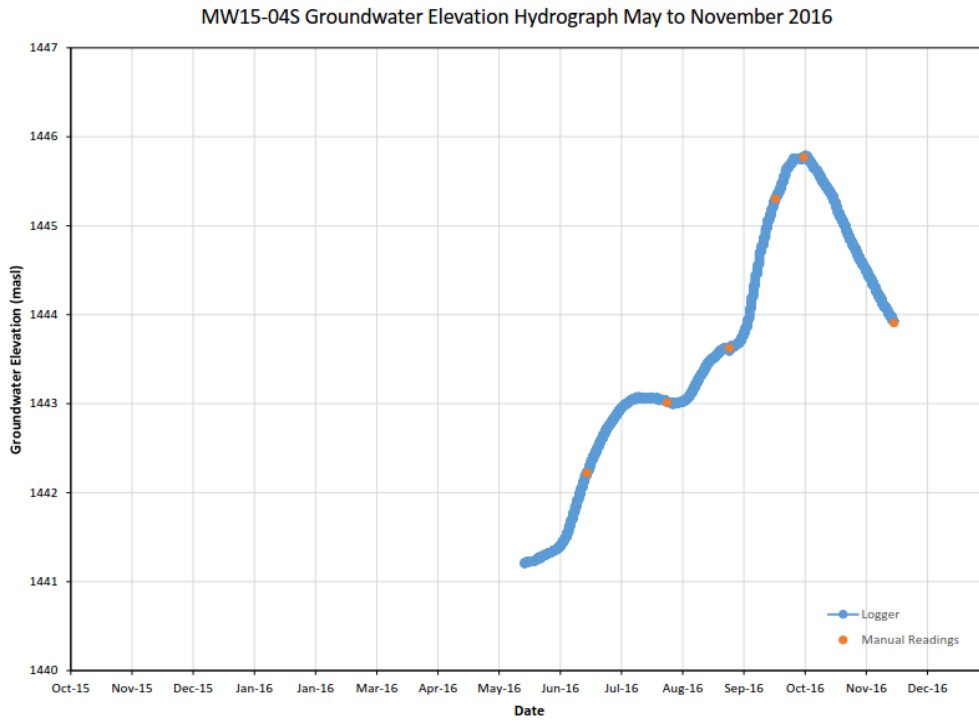
**Figure 3-4: BH95G-33D Groundwater Elevation Hydrograph**



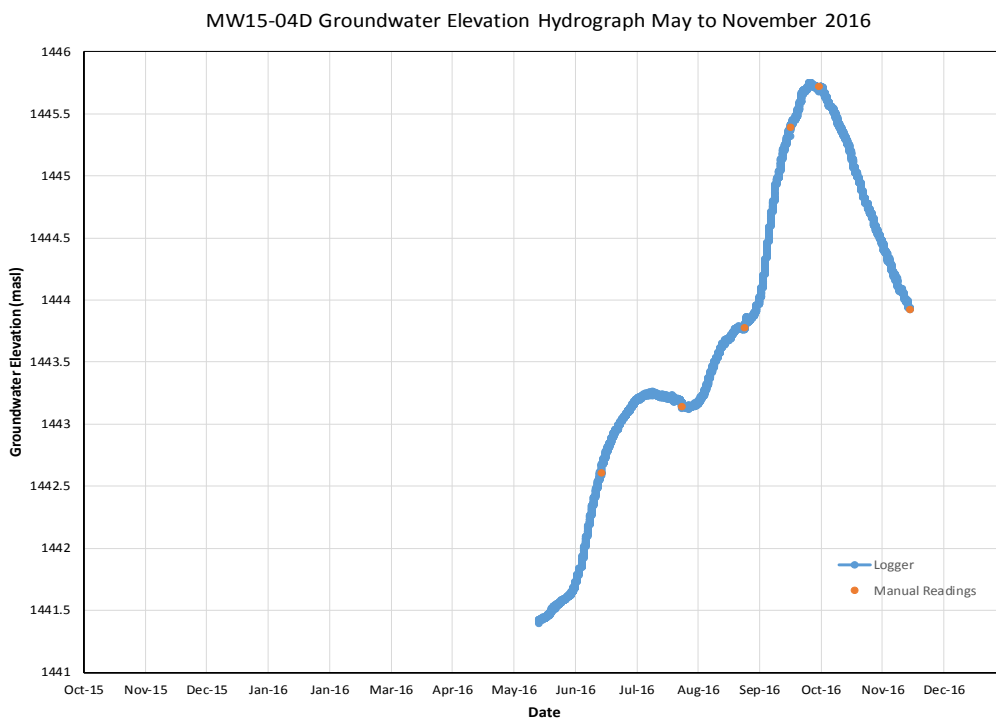
**Figure 3-5: BH95G-131 Groundwater Hydrograph**



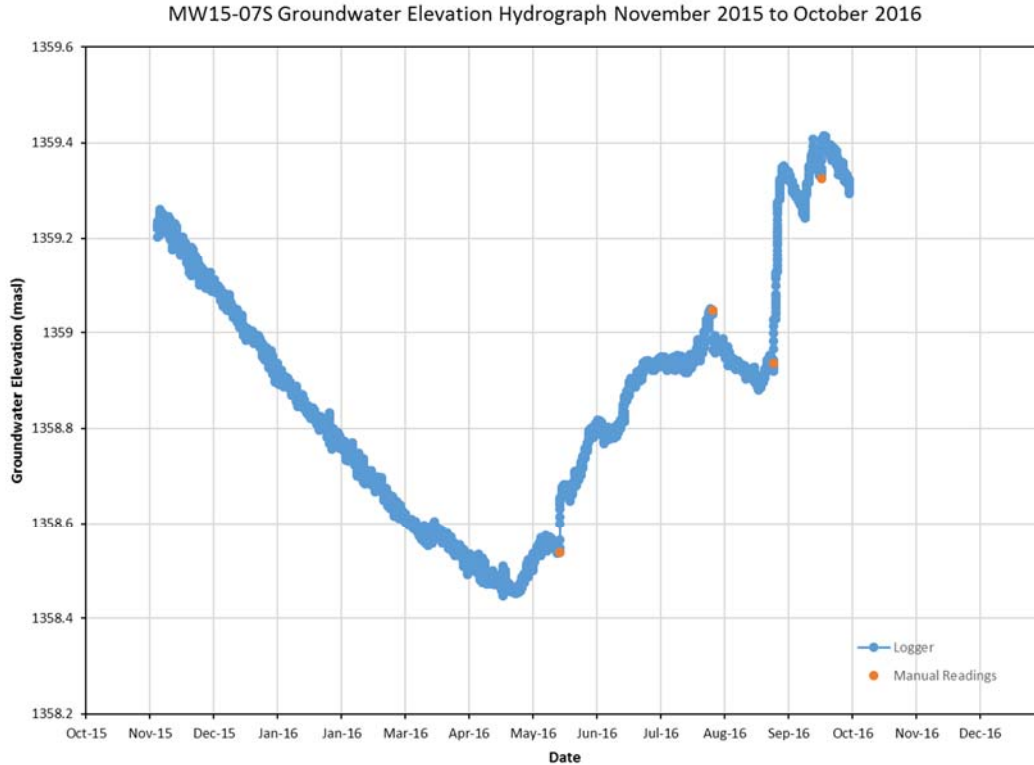
**Figure 3-6: MW15-01 Groundwater Elevation Hydrograph**



**Figure 3-7: MW15-04S Groundwater Elevation Hydrograph**



**Figure 3-8: MW15-04D Groundwater Elevation Hydrograph**



**Figure 3-9: MW15-07S Groundwater Elevation Hydrograph**

### 3.3 GROUNDWATER QUALITY

To simplify the discussion of water quality data, results are delineated by geography in terms of areas around proposed Project areas: ABM open pit area; Class A Storage Facility (Area A); Class B Storage Facility (Area B); and Class C Storage Facility (Area C). The Insitu parameters and FIGWQG anions (sulphate, chloride, fluoride, nitrite, nitrate) and nutrients (ammonia, phosphorus) are discussed for each area. The groundwater trace element discussion is largely focussed on those elements that exhibited frequent FIGWQG exceedances in numerous samples collected across the KZK groundwater monitoring well network (aluminum, arsenic, cadmium, copper, iron, lead, selenium, and zinc); however, elements that showed sporadic exceedances are also presented. All of the summary statistics tables are based on the water quality dataset collected between May 2015 and November 2016. Where results were below laboratory detection levels, one half the detection limit was used in the calculation of summary statistics as well as presented on graphs. Figures that display the temporal changes in the concentration of metals of interest are presented in Appendix C, the summary statistics of all of the wells by areas are provided in Appendix D, all of the raw data is provided in Appendix E, and the laboratory Certificates of Analysis are provided in Appendix F.

As a comparison to the 2015/16 data, the September 4th, 1995 data will be presented where available, since only select parameters were analysed during the 1995 sampling event, as discussed in Section 1.2.2. Additionally, fewer metals were analysed in 1995, of which four elements (cadmium, copper, lead, and selenium) had detection limits that were too high for comparison with the 2015/16 data. Nine of the eleven wells were collected from the ABM open pit area, five of which were from flowing, open boreholes. Of the other two samples from that period, one well is in the Class C Storage Facility area, and the other was in a location of previously proposed mine workings that are not part of the current mine plan.

### 3.3.1 ABM Open Pit Area

#### 3.3.1.1 Setting

The ABM open pit area contains the proposed ABM open pit, as shown on Figure 2-1. It also includes the Fault Creek drainage and the headwater ponds of Geona Creek. The ABM open pit area is in the south end of the KZK property in a broad valley. Fourteen monitoring wells populate this area, which comprise a combination of wells screened in overburden (six wells) and bedrock (eight wells). Four of these wells were frozen for most of the year (BH95G-21, BH95G-29, MW15-11D, MW15-11S). Wells BH95G-23 and BH95G-24 each have a single data point in August 2015; however, further sampling was not possible due to ice and frost heaving resulting in pinched or frozen wells.

#### 3.3.1.2 Physical Parameters and Nutrients

The bedrock and overburden wells in the ABM open pit area were generally circumneutral (pH range 5.98 to 7.90), as shown in Table 3-5 and the Insitu parameter summary table provided in Appendix D-1. Only one sample from one well returned a pH measurement (pH 5.98; well BH95G-22) that was outside the FIGWQG pH range of 6.5 to 9.0; the average pH in this well was 7.21. The average pH from the 4 September 1995 data was slightly alkaline with an average of 7.97, which is just higher than the maximum recorded pH within the 2015/16 dataset (7.90). Well water dissolved oxygen levels ranged from 2% to 96% saturation, suggesting the groundwater ranged from sub-oxic/anoxic to oxic. The data suggest that temperature varied seasonally between -0.1°C and 10°C, and five of the fourteen wells are frozen for most or all of the year.

Within the ABM open pit area, fluoride, dissolved sulphate, and ammonia exceeded the FIGWQG guidelines (Table 3-6). The plots of these parameters for the ABM open pit area wells can be found in Appendix C. Overall, fluoride seems to be the parameter that fluctuated the least in any given well, with relatively consistent concentrations in each well. Fluoride concentrations exceeded the guideline (0.12 mg/L) in every sampling event at BH95G129, BH95G-146, MW15-11D, and MW15-11S, and exceeded at least once in BH95G-25S, BH95G-29, and MW16-15D. The highest concentrations of fluoride were in monitoring well BH95G-146, which ranged from 0.28 mg/L to 0.31 mg/L, and the next highest were in BG95G-129 which ranged from 0.18 mg/L to 0.22 mg/L. These were followed by MW15-11S and MW15-11D, which had similar concentrations to each other. The trends for the all of the monitoring wells in terms of fluoride concentrations were fairly constant over the period of record, with little to no seasonality apparent.

The range of sulphate concentrations observed for the ABM open pit area was 33.4 mg/L to 279 mg/L. Dissolved sulphate had a distinct split between the monitoring wells that exceeded the FIGWQG (100 mg/L) and those that were below the guideline. Dissolved sulphate concentrations exceeded the guideline in every sampling event at BH95G-131, BH95G-146, BH95G-25D, and BH95G-25S, and exceeded for at least one sampling event at BH95G-24 and MW15-11S. The remainder of the wells did not exceed the guideline. These elevated sulphate concentrations may be related to leaching of the orebody and/or sulphidic rocks proximal to the mineralization. Three of the four wells that exceeded were bedrock wells: BH95G-146 typically had the highest dissolved sulphate concentrations, ranging from 232 mg/L to 279 mg/L, followed by BH95G-25D, ranging from 220 mg/L to 257 mg/L, and BH95G-131, ranging from 215 mg/L to 247 mg/L. Well BH95G-25S was the fourth well that consistently exceeded the guideline, with concentrations ranging from 171 mg/L to 203 mg/L, but is a shallow overburden well.

Samples collected from MW15-11S were above the sulphate guideline in November 2015 and March 2016, at 128 mg/L and 138 mg/L respectively, but were at the guideline or lower for the rest of the events in 2016 (the lowest concentration was



61.5 mg/L). BH95G-24 has a single data point recorded in August 2015 but samples could not be collected from this well for the rest of 2015 or in 2015 as the well was either broken or frozen. The single sample available had a dissolved sulphate concentration of 135 mg/L. The remainder of the sulphate concentrations in samples collected from the pit area monitoring wells were below the guideline. BH95G-129, a deep bedrock well, had relatively consistent dissolved sulphate concentrations ranging between 33.4 mg/L and 54.6 mg/L, which also encompassed the dissolved sulphate range for wells BH95G-21, BH95G-22 and BH95G-29. The 4th September 1995 data for sulphate (57.5 mg/L) was within the minimum and maximum range of the 2015/16 data (33.4 to 279 mg/L), but below the 2015/16 average (117.14 mg/L).

Ammonia-N concentrations exceeded the guideline (threshold is pH- and temperature-dependent; it is 0.282 mg/L at pH 8.5 and temperature of 10°C) for 40% of the sampling events in well BH95G-25S, with one exceedance each observed for wells BH95G-146, BH95G-22, BH95G-23, BH95G-29, and MW15-11S. Concentrations of ammonia-N in wells BH95G-22, MW15-11S, BH95G-29, and BH95G-146 fluctuated by an order of magnitude over the period of record. In contrast, ammonia-N levels in monitoring wells BH96G-21 and BH95G-25D were relatively stable and consistently below the guideline. The 4<sup>th</sup> September 1995 data for ammonia-N (0.013 mg/L) was within the minimum and maximum range of the 2015/16 data (0.011 to 0.78 mg/L), but well below the 2015/16 average (0.14 mg/L).

**Table 3-5: Summary Statistics for In-situ Parameters ABM Open Pit Area**

Station Name	pH (field)	Specific Conductance (lab)	Temperature (field)	Dissolved Oxygen (field)	Dissolved Oxygen (field)	ORP (field)
	pH units	µS/cm	°C	mg/L	%	mV
BH95G-129	6.82-7.90 (7.53)	353-387 (372)	0.95-3.4 (2.16)	1.3-4.1 (2.7)	12-31 (21.4)	-76.5-213 (3.8)
BH95G-131	7.05-7.66 (7.23)	1090-1160 (1127)	1.5-4.7 (2.92)	0.67-5.8 (3.34)	20-35.1 (27.8)	-51.8-66 (-20.4)
BH95G-146	6.67-7.76 (7.43)	740-771 (758)	2.9-4.7 (3.6)	1.1-3.38 (2.4)	10-31.4 (21.9)	-57.5--19.4 (-43.5)
BH95G-21	7.3-7.65 (7.52)	400-411 (405)	0.7-4.3 (2.2)	0-3.1 (1.5)	12-27 (17)	-67.8-246.8 (8.9)
BH95G-22	5.98-7.56 (7.21)	315-391 (348)	1.17-10 (3.69)	6.27-11 (8.09)	53.5-96 (75.2)	68.4-390 (209.8)
BH95G-23	7.02-7.02 (7.02)	267-267 (267)	0.5-0.5 (0.5)	1.14-1.14 (1.14)	-	-
BH95G-24	7.24-7.24 (7.24)	768-768 (768)	0.6-0.6 (0.6)	0.82-0.82 (0.82)	-	-
BH95G-25D	7-7.26 (7.14)	1020-1070 (1047)	1-3.8 (2)	0-2.6 (1.27)	9-22 (13.6)	-42.3-175 (2.3)
BH95G-25S	7.13-7.5 (7.25)	895-981 (940)	0.1-3.3 (1.8)	0-11.3 (2.55)	2-26.9 (12.4)	-91.6-111.5 (-47.7)
BH95G-29	7.35-7.56 (7.45)	428-441 (436)	-0.1-3.4 (2.2)	0.8-2.1 (1.24)	8-20 (12)	-56.2--36.3 (-48)
MW15-11D	7.41-7.55 (7.5)	546-567 (560)	2-2.5 (2.2)	1.6-2.7 (2.2)	13-21 (18)	-60.5--37 (-51.9)
MW15-11S	7.21-7.79 (7.5)	556-701 (612)	0.59-4.3 (2.21)	1-3.2 (1.62)	9-17 (12.3)	-81.3-448 (61.4)
MW16-15D	7.4-7.9 (7.66)	375-387 (381)	1.4-3.8 (2.5)	1.2-3.4 (1.87)	11-29 (17)	-52.9-206.1 (17.8)
MW16-15S	6.92-7.49 (7.1)	256-274 (263)	1.1-8.3 (3.7)	7.2-8.8 (7.8)	61.3-88 (70.9)	118-320.4 (178.3)

## - ## is the minimum and maximum range for the well for 2015-2016 data  
 (##) is the average concentration, concentrations less than the DL were taken as ½ DL values  
 - Indicates no data available for this parameter



**Table 3-6: Summary Statistics for Guideline Anions and Nutrients ABM Open Pit Area**

	Chloride	Fluoride	Sulphate dissolved	Ammonia (N)	Nitrite (N)	Nitrate (N)	Phosphorus, Total-colourimetric	Phosphorus Total Dissolved
Station Name	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
FIGWQG-Industrial-Tier1	120	0.12	100	0.282	0.06	3		
BH95G-129								
Average	0.93	0.21	40.9	0.037	0.0014	0.0017	0.0201	0.0138
Minimum	0.25	0.18	33.4	0.031	0.001	0.001	0.0068	0.0035
Maximum	2.5	0.22	54.6	0.048	0.0023	0.0055	0.0424	0.0372
Count Over Guideline	0	8	0	0	0	0	0	0
% Over Guideline	0	100	0	0	0	0	0	0
BH95G-131								
Average	0.91	0.085	229	0.041	0.001	0.0018	0.1554	0.0556
Minimum	0.57	0.069	215	0.032	0.001	0.001	0.0106	0.0076
Maximum	1.3	0.099	247	0.054	0.001	0.0033	0.383	0.178
Count Over Guideline	0	0	9	0	0	0	0	0
% Over Guideline	0	0	100	0	0	0	0	0
BH95G-146								
Average	0.44	0.3	251	0.157	0.0013	0.0021	0.1101	0.0894
Minimum	0.25	0.28	232	0.022	0.001	0.001	0.0034	0.001
Maximum	0.8	0.31	279	0.78	0.0021	0.0053	0.429	0.433
Count Over Guideline	0	7	7	1	0	0	0	0
% Over Guideline	0	100	100	14.3	0	0	0	0
BH95G-21								
Average	0.82	0.094	47.1	0.068	0.0014	0.0031	1.2873	0.1124
Minimum	0.25	0.083	46	0.019	0.001	0.001	0.0072	0.001
Maximum	1.9	0.1	48.6	0.27	0.0038	0.0048	7.33	0.393
Count Over Guideline	0	0	0	0	0	0	0	0
% Over Guideline	0	0	0	0	0	0	0	0
BH95G-22								
Average	0.59	0.055	44.2	0.082	0.0062	0.33	1.1471	0.0965
Minimum	0.25	0.047	35.1	0.011	0.001	0.105	0.0158	0.0025
Maximum	1.3	0.07	52.8	0.51	0.026	0.768	6.61	0.358
Count Over Guideline	0	0	0	1	0	0	0	0
% Over Guideline	0	0	0	9.1	0	0	0	0
BH95G-23								
Average	0.25	0.06	72.8	0.5	0.001	0.001	0.0918	0.0214
Minimum	0.25	0.06	72.8	0.5	0.001	0.001	0.0918	0.0214
Maximum	0.25	0.06	72.8	0.5	0.001	0.001	0.0918	0.0214
Count Over Guideline	0	0	0	1	0	0	0	0
% Over Guideline	0	0	0	100	0	0	0	0
BH95G-24								
Average	0.63	0.067	135	0.062	0.0062	0.0054	0.0065	0.004
Minimum	0.63	0.067	135	0.062	0.0062	0.0054	0.0065	0.004
Maximum	0.63	0.067	135	0.062	0.0062	0.0054	0.0065	0.004
Count Over Guideline	0	0	1	0	0	0	0	0
% Over Guideline	0	0	100	0	0	0	0	0
BH95G-25D								
Average	1.2	0.093	236	0.101	0.0015	0.008	0.1382	0.0598
Minimum	0.8	0.083	220	0.07	0.001	0.001	0.0059	0.0034
Maximum	2	0.1	257	0.2	0.0058	0.053	0.413	0.365
Count Over Guideline	0	0	9	0	0	0	0	0
% Over Guideline	0	0	100	0	0	0	0	0
BH95G-25S								

	Chloride	Fluoride	Sulphate dissolved	Ammonia (N)	Nitrite (N)	Nitrate (N)	Phosphorus, Total-colourimetric	Phosphorus Total Dissolved
Average	0.97	0.12	191	0.33	0.0021	0.0017	0.6064	0.0328
Minimum	0.51	0.11	171	0.16	0.001	0.001	0.0047	0.0024
Maximum	1.3	0.14	203	0.91	0.0095	0.0041	3.28	0.113
Count Over Guideline	0	4	10	4	0	0	0	0
% Over Guideline	0	40	100	40	0	0	0	0
<b>BH95G-29</b>								
Average	1.18	0.12	47.6	0.33	0.0053	0.0015	1.4303	0.891
Minimum	0.88	0.11	44	0.06	0.001	0.001	0.0316	0.001
Maximum	1.6	0.13	50.2	1.2	0.0159	0.0022	3.35	2.31
Count Over Guideline	0	1	0	1	0	0	0	0
% Over Guideline	0	20	0	20	0	0	0	0
<b>MW15-11D</b>								
Average	1.11	0.16	67.8	0.114	0.001	0.0015	0.0272	0.015
Minimum	0.84	0.15	63.1	0.071	0.001	0.001	0.008	0.0041
Maximum	1.3	0.17	74.5	0.19	0.001	0.0025	0.0376	0.0351
Count Over Guideline	0	3	0	0	0	0	0	0
% Over Guideline	0	100	0	0	0	0	0	0
<b>MW15-11S</b>								
Average	4.35	0.16	92.5	0.182	0.0059	0.0264	0.0998	0.0191
Minimum	0.93	0.13	61.5	0.054	0.001	0.001	0.0168	0.0114
Maximum	24	0.19	138	0.64	0.0216	0.0871	0.35	0.0384
Count Over Guideline	0	7	2	2	0	0	0	0
% Over Guideline	0	100	28.6	28.6	0	0	0	0
<b>MW16-15D</b>								
Average	0.8	0.112	71.4	0.048	0.001	0.0019	0.2867	0.137
Minimum	0.25	0.099	66.8	0.041	0.001	0.001	0.0286	0.0223
Maximum	1.6	0.13	82.6	0.054	0.001	0.0033	0.577	0.567
Count Over Guideline	0	1	0	0	0	0	0	0
% Over Guideline	0	20	0	0	0	0	0	0
<b>MW16-15S</b>								
Average	0.75	0.053	41.4	0.0351	0.0015	0.431	0.605	0.1988
Minimum	0.25	0.047	36.6	0.0094	0.001	0.362	0.211	0.0184
Maximum	1	0.057	44.6	0.061	0.0036	0.537	1.25	0.641
Count Over Guideline	0	0	0	0	0	0	0	0
% Over Guideline	0	0	0	0	0	0	0	0

### 3.3.1.3 Metals

Within the ABM open pit area, the main parameters that exceeded the FIGWQG guidelines were arsenic, cadmium, copper, iron, selenium, and zinc (Table 3-7 and Appendix D-1). Dissolved arsenic was generally below the guideline (0.005 mg/L) with a few exceptions, such as the single sample event for BH95G-23, which was an order of magnitude above the guideline (0.075 mg/L), and the single event for BH95G-24 (0.010 mg/L). Monitoring well MW16-15D was the only well to be consistently above the arsenic guideline, with dissolved arsenic concentrations that ranged from 0.012 mg/L to 0.019 mg/L. This well was installed in July 2016 and therefore has only five sampling results to date. Samples collected from well BH95G-131 were generally below the guideline (ranging from 0.0003 to 0.0045 mg/L), with the exception of the single event in March 2016. Monitoring wells BH95G-129, BH95G-25S, and BH95G-29 returned arsenic concentrations that oscillated around the guideline, with exceedances observed for 25%, 40%, and 60% of the samples, respectively. Arsenic concentrations in groundwater collected from well BH95G-22 were an order of magnitude lower than the guideline, and comprised the lowest concentration of dissolved arsenic observed in the pit area with concentrations ranging from 0.00002 mg/L to 0.0003 mg/L.

The remainder of the wells had dissolved arsenic concentrations that were all below the guideline. The average arsenic concentration from the 4th September 1995 data was 0.0325 mg/L, within the minimum and maximum ranged collected in the 2015/16 dataset (0.000024 to 0.075 mg/L).

Within the ABM open pit area there were no exceedances of the FIGWQG guideline for dissolved aluminium concentrations (0.1 mg/L if pH  $\geq$ 6.5, 0.005 mg/L if pH <6.0). Overall, the spread of aluminum concentrations varied by two orders of magnitude between all of the pit wells. Samples collected from wells MW15-11S, BH95G-21, BH95G-22, and BH95G-131 ranged by an order of magnitude each within the period of record. The highest concentration recorded was in MW15-11S in November 2015 (0.0462 mg/L), but otherwise had lower concentrations between 0.00077 mg/L and 0.00302 mg/L. Well BH95G-22 had two sampling events with higher dissolved aluminum concentrations in May 2015 (0.038 mg/L) and November 2015 (0.03 mg/L), but generally ranged between 0.00089 mg/L to 0.0132 mg/L. MW16-15D, a new well in the pit area with only five data points, generally had consistent concentrations ranging between 0.00465 mg/L and 0.0127 mg/L. Samples collected from wells BH95G-131, and BH95G-25S were below the detection limit (0.0005 mg/L) for most of the samples recorded. The average aluminum concentration from the 4th September 1995 data was 0.013 mg/L, within the minimum and maximum ranged collected in the 2015/16 dataset (<0.0005 to 0.038 mg/L).

Only two monitoring wells within the ABM open pit area exceeded the FIGWQG for dissolved copper: MW16-15S, which exceeded the copper guideline in every sample collected (ranging between 0.0037 mg/L to 0.0055 mg/L), and BH95G-22, which had a single exceedance (0.00644 mg/L) in August 2015. Groundwater copper concentrations measured in wells MW16-15D and BH95G-21 generally had stable concentrations ranging from 0.00005 mg/L to 0.00015 mg/L and 0.00005 to 0.00028 mg/L, respectively. Wells BH95G-146, BH95G-25S, and BH95G-21 shared similar dissolved copper concentrations and trend for most of the period of record. For the three months that MW15-11D was not frozen, dissolved copper concentrations were always below the detection limit (i.e., <0.00005 mg/L).

Within the ABM open pit area, the concentrations of total iron within the monitoring wells ranged by three orders of magnitude, from 0.63 mg/L to 405 mg/L. BH95G-22 was most consistently the well with the higher iron concentrations (ranging from 12.5 mg/L to 405 mg/L), although several other monitoring wells had individual events that exceeded these concentrations within this well (e.g., well BH95G-23 at 276 mg/L in August 2015). Well BH95G-129 had the lowest concentrations of iron in the ABM open pit area wells ranging from 0.63 mg/L to 1.5 mg/L. Overall, there was no distinction between overburden and bedrock wells.

Dissolved selenium concentrations were generally well below the FIGWQG guideline (0.001 mg/L) for all of the monitoring wells within the ABM open pit area. Only two wells exceeded the guideline: MW15-11S and MW16-15S. Well MW15-11S had a single exceedance just above the guideline in November 2015 (0.00135 mg/L), but was otherwise over an order of magnitude lower in all other samples ranging from 0.000045 mg/L to below the detection limit (<0.00004 mg/L). MW16-15S was the only well to consistently exceed the guideline in all of the samples on record (0.00248 mg/L to 0.00315 mg/L). The dissolved selenium concentrations in monitoring well BH95G-22 were just below the guideline and did not fluctuate significantly over the period of record, ranging between 0.00046 mg/L and 0.00088 mg/L. The selenium concentrations observed in the remainder of the wells were either well below the guideline or were below the detection limit.

Three monitoring wells had at least one exceedance of the FIGWQG guideline for dissolved cadmium within the ABM open pit area. Samples collected from wells BH95G-23 and BH95G-24, both with only one data point on record, exceeded by an order of magnitude in August 2015. MW16-15S was the only well to be consistently above guideline, with dissolved cadmium concentrations that ranged between 0.0017 mg/L and 0.0021 mg/L. The monitoring well with the next highest concentrations of dissolved cadmium was BH95G-22, which was an order of magnitude lower than MW16-15S and well below the guideline. Well BH95G-22 dissolved cadmium concentrations ranged from 0.00007 mg/L to 0.00019 mg/L.

Within the ABM open pit area, four monitoring wells had at least one exceedance of the FIGWQG guideline for dissolved zinc (0.03 mg/L). The dissolved zinc concentrations in wells BH95G-23 and BH95G-24, both with only one data point on record, exceeded by an order of magnitude in August 2015. MW16-15S was the only well to be consistently above zinc guideline, with dissolved zinc concentrations that ranged from 0.096 mg/L to 0.16 mg/L. Dissolved zinc concentrations in well MW16-15D were below the guideline, ranging from below the detection limit (<0.0001 mg/L) to 0.0018 mg/L, with the exception of a spike in October 2016 up to 0.030 mg/L. Groundwater samples collected from wells BH95G-131, BH95G-146, and BH95G-22 appeared to have dissolved zinc concentrations that followed a muted water elevation change, with similar concentration patterns over the period of record. All of the zinc concentrations in waters abstracted from these wells were below the guideline. The average zinc concentration from the 4th September 1995 data was 0.484 mg/L, within the minimum and maximum ranged collected in the 2015/16 dataset (0.00005 to 2.03 mg/L) and very close to the average concentration of 0.41 mg/L.

Similar to dissolved aluminum, there were no exceedances of the FIGWQG guidelines for dissolved lead concentrations within the ABM open pit area. BH95G-131 generally had the highest dissolved lead concentration for all of the wells sampled within the pit area, and had an order of magnitude spread in lead levels over the period of record (0.000084 mg/L to 0.0019 mg/L). Dissolved lead concentrations in BH95G-22 well waters also spanned an order of magnitude over the period of record (<0.00005 mg/L to 0.00027 mg/L). Samples from wells MW16-11S and MW16-11D returned similar lead concentrations, ranging from 0.0022 mg/L to 0.0044 mg/L and 0.0047 mg/L to 0.013 mg/L, respectively.

The only well to exceed the FIGWQG guidelines for dissolved uranium (0.015 mg/L), over the entire KZK Project area, was BH95G-131. Four of the nine samples collected from this well exceeded the guideline, with a dissolved uranium concentration range of 0.011 mg/L to 0.020 mg/L over the period of record.

There was no evidence of a distinction between the bedrock and overburden wells in terms of groundwater quality with the two years of baseline data collected. The ABM open pit area had higher sulphate concentrations than the other areas around the KZK site, likely due to the mineralization.

**Table 3-7: Summary Statistics for Metals ABM Open Pit Area**

<b>Metal (dissolved)</b>	<b>Al</b>	<b>As</b>	<b>Cd</b>	<b>Cu</b>	<b>Fe (total)</b>	<b>Pb</b>	<b>Se</b>	<b>Zn</b>
<b>Station Name</b>	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
FIGWQG-Industrial-Tier1	*	0.005	*	*		*	0.001	0.03
BH95G-129								
Average	0.00234	0.003313	0.0000123	0.000125	0.9	0.0000119	0.00002	0.00281
Minimum	0.00055	0.000904	0.0000025	0.000025	0.632	0.0000025	0.00002	0.00005
Maximum	0.00527	0.00678	0.000051	0.000273	1.54	0.000044	0.00002	0.00663
Count Over Guideline	0	2	0	0	0	0	0	0
% Over Guideline	0	25	0	0	0	0	0	0
BH95G-131								
Average	0.00232	0.00266	0.0000174	0.000171	9.94	0.000925	0.000042	0.00386
Minimum	0.00025	0.00132	0.0000025	0.000025	3.97	0.000084	0.00002	0.00155
Maximum	0.0136	0.0071	0.000039	0.000423	20.8	0.00194	0.000165	0.00811
Count Over Guideline	0	1	0	0	0	0	0	0
% Over Guideline	0	11.1	0	0	0	0	0	0
BH95G-146								
Average	0.00138	0.00109	0.0000067	0.000104	1.925	0.0000073	0.000046	0.00263
Minimum	0.00025	0.000296	0.0000025	0.000025	0.685	0.0000025	0.00002	0.0005
Maximum	0.00315	0.00452	0.000025	0.000275	4.47	0.000025	0.0002	0.0103
Count Over Guideline	0	0	0	0	0	0	0	0
% Over Guideline	0	0	0	0	0	0	0	0
BH95G-21								
Average	0.00546	0.001109	0.0000076	0.00015	62.8	0.0000264	0.000038	0.0034
Minimum	0.00052	0.000691	0.000005	0.000052	14	0.0000025	0.00002	0.00005
Maximum	0.0236	0.00156	0.000015	0.000242	228	0.0000854	0.000077	0.0194
Count Over Guideline	0	0	0	0	0	0	0	0
% Over Guideline	0	0	0	0	0	0	0	0
BH95G-22								
Average	0.00914	0.000126	0.000127	0.001414	105.3	0.0000838	0.000712	0.00592
Minimum	0.0007	0.000024	0.000074	0.000549	11.3	0.0000025	0.000461	0.0033
Maximum	0.038	0.000302	0.000194	0.00644	405	0.000274	0.000879	0.00787
Count Over Guideline	0	0	0	1	0	0	0	0
% Over Guideline	0	0	0	10	0	0	0	0
BH95G-23								
Average	0.00583	0.0747	0.00169	0.000119	276	0.000361	0.00002	2.03
Minimum	0.00583	0.0747	0.00169	0.000119	276	0.000361	0.00002	2.03
Maximum	0.00583	0.0747	0.00169	0.000119	276	0.000361	0.00002	2.03
Count Over Guideline	0	1	1	0	0	0	0	1
% Over Guideline	0	100	100	0	0	0	0	100
BH95G-24								
Average	0.00139	0.0103	0.00375	0.000408	34.1	0.00406	0.00002	0.845
Minimum	0.00139	0.0103	0.00375	0.000408	34.1	0.00406	0.00002	0.845
Maximum	0.00139	0.0103	0.00375	0.000408	34.1	0.00406	0.00002	0.845
Count Over Guideline	0	1	1	0	0	0	0	1
% Over Guideline	0	100	100	0	0	0	0	100
BH95G-25D								
Average	0.00124	0.000964	0.0000044	0.000489	15.34	0.0000181	0.00002	0.01023
Minimum	0.00025	0.00047	0.0000025	0.000025	3.43	0.0000025	0.00002	0.00375
Maximum	0.0033	0.00166	0.00001	0.0037	31.2	0.0000658	0.00002	0.0192
Count Over Guideline	0	0	0	0	0	0	0	0
% Over Guideline	0	0	0	0	0	0	0	0
BH95G-25S								
Average	0.00088	0.00379	0.0000056	0.000075	33.3	0.0000069	0.00002	0.00057

Metal (dissolved)	Al	As	Cd	Cu	Fe (total)	Pb	Se	Zn
Minimum	0.00025	0.00127	0.0000025	0.000025	10.5	0.0000025	0.00002	0.00005
Maximum	0.00361	0.00824	0.00001	0.000116	80.5	0.000017	0.00002	0.00134
Count Over Guideline	0	4	0	0	0	0	0	0
% Over Guideline	0	40	0	0	0	0	0	0
BH95G-29								
Average	0.00306	0.00576	0.0000099	0.000096	60.9	0.0001321	0.000076	0.00192
Minimum	0.00109	0.00419	0.0000025	0.000025	15.8	0.000014	0.00002	0.0011
Maximum	0.00966	0.00782	0.000031	0.000141	161	0.000481	0.000154	0.00457
Count Over Guideline	0	3	0	0	0	0	0	0
% Over Guideline	0	60	0	0	0	0	0	0
MW15-11D								
Average	0.00177	0.000291	0.0000025	0.000025	1.634	0.000022	0.00002	0.00066
Minimum	0.00085	0.000154	0.0000025	0.000025	0.691	0.0000025	0.00002	0.00027
Maximum	0.00296	0.000438	0.0000025	0.000025	2.16	0.000061	0.00002	0.00105
Count Over Guideline	0	0	0	0	0	0	0	0
% Over Guideline	0	0	0	0	0	0	0	0
MW15-11S								
Average	0.00911	0.001271	0.0000393	0.000316	3.49	0.0000358	0.000246	0.0031
Minimum	0.00077	0.000273	0.0000025	0.000025	1.46	0.0000025	0.00002	0.00005
Maximum	0.0462	0.00284	0.000171	0.00109	7.45	0.000179	0.00135	0.0135
Count Over Guideline	0	0	0	0	0	0	1	0
% Over Guideline	0	0	0	0	0	0	16.7	0
MW16-15D								
Average	0.00853	0.016	0.0000403	0.000083	16.93	0.0000133	0.00005	0.007
Minimum	0.00465	0.0123	0.0000025	0.000054	2.31	0.0000025	0.00002	0.00005
Maximum	0.0127	0.0191	0.000096	0.000151	39.3	0.000032	0.00009	0.0303
Count Over Guideline	0	5	0	0	0	0	0	1
% Over Guideline	0	100	0	0	0	0	0	20
MW16-15S								
Average	0.00367	0.000286	0.00187	0.00455	42.7	0.000174	0.00277	0.1237
Minimum	0.00219	0.000155	0.00166	0.00371	8.79	0.000067	0.00248	0.0955
Maximum	0.00443	0.000484	0.0021	0.00546	107	0.000249	0.00315	0.164
Count Over Guideline	0	0	5	5	0	0	5	5
% Over Guideline	0	0	100	100	0	0	100	100
* See Table 2.6 for guideline equation								

### 3.3.2 Class A Storage Facility Area

#### 3.3.2.1 Setting

The Class A Storage Facility area, defined for the purposes of characterizing the groundwater quality across the KZK site, contains the proposed Class A Storage Facility, water management ponds, and camp, as shown on Figure 2-1. The Class A Storage Facility is on the western slope of the valley with Geona Creek flowing through the bottom of the valley. Thirteen monitoring wells characterize this area, a combination of wells screened in overburden (four wells) and bedrock (nine wells). Of the 13 monitoring wells, two were damaged due to ice and frost heaving such that sampling was not possible (MW15-09D and MW15-08D) and six wells were frozen for all or part of the year (MW15-09S, MW15-08S, MW15-07S, MW15-07D, MW16-14D, and MW16-13).

### 3.3.2.2 *Physical Parameters and Nutrients*

The bedrock and overburden wells in the Class A Storage Facility area were generally circumneutral (pH range 7.22 to 7.88), as shown in Table 3-8 and the Insitu summary table provided in Appendix D-2, with the exception of three wells which were below the FIGWQG pH range of 6.5 to 9.0. The wells below the guideline range were MW15-09D (pH 5.68, only one sample collected as well was broken), and paired wells MW15-10S and MW15-10D, where the pH ranged from 5.80 to 6.17 and 5.82 to 6.24, respectively. These lower pH wells are located proximal to the KZ-9 east seep, which is characterized by low pH water (pH 5.8 to 6.0) (AEG, 2016); suggesting groundwater found in wells MW15-10S and MW15-10D also feeds this seep. Well water dissolved oxygen levels ranged from 6% to 95% saturation, suggesting the groundwaters ranged from sub-oxic/anoxic to oxic. The dissolved oxygen content of waters from well MW15-10S were on the lower end of this dissolved oxygen range (19 to 36% saturation) and overlapped that for the KZ-9 East Seep (21% to 54% saturation) (AEG, 2016), compatible with the hypothesis that this seep is supplied by groundwater sampled by well MW15-10S. The limited data suggest that temperature varied seasonally between -0.1°C and 5.9°C, and six of the thirteen wells are frozen for most or all of the year.

Within the Class A Storage Facility area, fluoride and ammonia exceeded their respective FIGWQGs (Table 3-9). The plots of these parameters for the Class A Storage Facility area wells can be found in Appendix C. Overall, fluoride concentrations were very steady over the period of record in all of the monitoring wells. Fluoride concentrations exceeded the FIGWQG (0.12 mg/L) in all of the wells except BH95G-2 (range of 0.04 to 0.05 mg/L) and MW15-08S (range of 0.084 to 0.088 mg/L). The highest concentrations of fluoride were in monitoring well MW15-10D, ranging from 1.2 mg/L to 1.4 mg/L, an order of magnitude higher than the guideline. The next group of wells (MW5-07D, MW15-07S, MW15-09S, MW15-10S, and MW16-14D) had similar concentrations and trends and ranged from 0.16 mg/L to 0.36 mg/L. The trends for all of the Class A Storage Facility area monitoring wells in terms of fluoride concentrations were fairly constant over the period of record, with little to no seasonality apparent. There does appear to be a trend that fluoride concentrations were generally higher in bedrock wells over shallow wells with the exception of well BH95G-2; however, several wells have too few data points to confirm this.

Only 3 monitoring wells had ammonia-N concentrations that exceeded the guideline (threshold is pH and temperature dependent; it is 0.282 mg/L at pH 8.5 and 10°C): MW15-08S, MW15-10S, and MW15-10D. The concentrations observed in samples collected from well MW15-10D ranged between 0.22 mg/L and 0.30 mg/L with little fluctuation. MW15-10S samples had slightly higher ammonia-N concentrations and ranged between 0.33 mg/L and 0.67 mg/L. Samples collected from MW15-08S were generally well below the guideline; however, it had a single exceedance of the guideline in July 2016 (0.41 mg/L). The remainder of the wells in the Class A Storage Facility area returned ammonia-N concentrations that were generally between 0.01 mg/L and 0.1 mg/L.



**Table 3-8: Summary Statistics for In-situ Parameters Class A Storage Facility Area**

	pH (field)	Specific Conductance (lab)	Temperature (field)	Dissolved Oxygen (field)	Dissolved Oxygen (field)	ORP (field)
Station Name	pH units	µS/cm	°C	mg/L	%	mV
BH95G-15D	7.26-7.54 (7.4)	353-359 (356)	0.6-1.2 (0.9)	1.46-6.2 (3.83)	12.1-53 (32.5)	115.5-362 (238.8)
BH95G-2	7.25-7.73 (7.55)	263-586 (497)	-0.1-2.7 (1.41)	3.4-6.88 (4.71)	28-58.8 (40.2)	35.1-400 (196.4)
MW15-07D	7.34-7.56 (7.49)	399-415 (404)	0.5-3.9 (2.4)	0.9-6 (3.44)	7-50 (30.9)	-59.4-51.6 (-28.7)
MW15-07S	7.23-7.68 (7.53)	376-393 (386)	0-5.9 (2.45)	0.48-10.7 (3.69)	10-95 (41.6)	-66.8--17 (-39.4)
MW15-08D	7.22-7.28 (7.25)	539-540 (540)	3.3-3.3 (3.3)	5.27-6.1 (5.68)	- ( )	- ( )
MW15-08S	7.35-7.68 (7.51)	366-385 (378)	1.1-4.7 (2.1)	8.2-10.58 (8.98)	70-79 (74)	57.3-147.2 (107.6)
MW15-09D	5.68-5.68 (5.68)	813-813 (813)	0.6-0.6 (0.6)	4.23-4.23 (4.23)	- ( )	- ( )
MW15-09S	7.28-7.74 (7.48)	402-420 (413)	-0.3-3.5 (2)	0.4-2.2 (1.44)	6-19.3 (13.9)	-89.6--29.5 (-57)
MW15-10D	5.82-6.24 (6.04)	2780-3090 (2952)	1-2.3 (1.7)	2.12-9.9 (4.61)	26.6-86 (46.3)	-7-126 (30.3)
MW15-10S	5.80-6.17 (6)	503-853 (697)	-0.1-3.7 (2.8)	2.1-4.1 (3.11)	19-36 (26.1)	59.3-114.4 (80.9)
MW16-13	Well was Frozen					
MW16-14D	7.43-7.67 (7.55)	452-472 (463)	1.7-2.4 (2.1)	0.9-1.9 (1.2)	8-16 (11)	8-28.2 (14.9)
MW16-17	7.65-7.88 (7.75)	361-365 (363)	1.4-2.5 (1.9)	0.76-1.4 (0.99)	6.5-12 (8.6)	-63.2-78.9 (-14.4)

## - ## is the minimum and maximum range for the well for 2015-2016 data

(##) is the average concentration, concentrations less than the DL were taken as ½ DL values

**Table 3-9: Summary Statistics for Guideline Anions and Nutrients Class A Storage Facility Area**

	Chloride	Fluoride	Sulphate, dissolved	Ammonia (N)	Nitrite (N)	Nitrate (N)	Phosphorus, Total-colourimetric	Phosphorus, Total Dissolved
Station Name	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
FIGWQG-Industrial-Tier1	120	0.12	100	0.282	0.06	3		
BH95G-15D								
Average	0.48	0.15	13.8	0.038	0.0036	0.585	0.79	0.5803
Minimum	0.25	0.15	13.5	0.023	0.002	0.567	0.42	0.0505
Maximum	0.71	0.15	14.1	0.053	0.0052	0.603	1.16	1.11
Count Over Guideline	0	2	0	0	0	0	0	0
% Over Guideline	0	100	0	0	0	0	0	0
BH95G-2								
Average	0.8	0.052	38.28	0.0348	0.0018	0.512	1.1545	0.1955
Minimum	0.25	0.04	7.43	0.0091	0.001	0.372	0.0069	0.0048
Maximum	1.2	0.063	52.1	0.085	0.005	1.36	8.66	1.02
Count Over Guideline	0	0	0	0	0	0	0	0
% Over Guideline	0	0	0	0	0	0	0	0
MW15-07D								
Average	0.63	0.34	30	0.053	0.0013	0.001	0.0175	0.006
Minimum	0.25	0.33	27.3	0.043	0.001	0.001	0.0022	0.0021
Maximum	1.1	0.36	31.9	0.072	0.0029	0.001	0.0886	0.019



	Chloride	Fluoride	Sulphate, dissolved	Ammonia (N)	Nitrite (N)	Nitrate (N)	Phosphorus, Total- colourimetric	Phosphorus, Total Dissolved
Count Over Guideline	0	6	0	0	0	0	0	0
% Over Guideline	0	100	0	0	0	0	0	0
MW15-07S								
Average	0.73	0.29	32.4	0.054	0.0017	0.0017	0.6196	0.0102
Minimum	0.25	0.28	31	0.026	0.001	0.001	0.0028	0.002
Maximum	1	0.31	33.2	0.13	0.0064	0.0048	2.5	0.0326
Count Over Guideline	0	9	0	0	0	0	0	0
% Over Guideline	0	100	0	0	0	0	0	0
MW15-08D								
Average	1.13	0.57	44.5	0.12	0.001	0.0029	0.0421	0.0423
Minimum	0.96	0.54	43.9	0.12	0.001	0.001	0.0048	0.005
Maximum	1.3	0.61	45	0.13	0.001	0.0047	0.0795	0.0796
Count Over Guideline	0	2	0	0	0	0	0	0
% Over Guideline	0	100	0	0	0	0	0	0
MW15-08S								
Average	0.94	0.088	25.8	0.117	0.0019	0.257	0.1635	0.1129
Minimum	0.57	0.084	23.9	0.011	0.001	0.215	0.0026	0.001
Maximum	1.5	0.093	28.2	0.41	0.0048	0.276	0.505	0.518
Count Over Guideline	0	0	0	1	0	0	0	0
% Over Guideline	0	0	0	16.7	0	0	0	0
MW15-09D								
Average	1.1	0.73	15.3	0.1	0.001	0.0021	1.16	0.0054
Minimum	1.1	0.73	15.3	0.1	0.001	0.0021	1.16	0.0054
Maximum	1.1	0.73	15.3	0.1	0.001	0.0021	1.16	0.0054
Count Over Guideline	0	1	0	0	0	0	0	0
% Over Guideline	0	100	0	0	0	0	0	0
MW15-09S								
Average	0.82	0.25	18.5	0.042	0.005	0.0579	0.0424	0.0316
Minimum	0.59	0.22	17.2	0.019	0.002	0.036	0.005	0.006
Maximum	1.2	0.29	20.9	0.094	0.0072	0.0873	0.181	0.142
Count Over Guideline	0	7	0	0	0	0	0	0
% Over Guideline	0	100	0	0	0	0	0	0
MW15-10D								
Average	3.5	1.3	6.41	0.25	0.002	0.0041	0.1422	0.0243
Minimum	2.8	1.2	1.01	0.22	0.001	0.001	0.0122	0.0058
Maximum	4	1.4	12	0.30	0.01	0.01	0.483	0.063
Count Over Guideline	0	9	0	1	0	0	0	0
% Over Guideline	0	100	0	11.1	0	0	0	0
MW15-10S								
Average	1.26	0.19	32.8	0.404	0.0073	0.108	2.2818	0.024
Minimum	0.89	0.16	28.1	0.033	0.001	0.0435	0.0148	0.0054
Maximum	2.5	0.22	47.8	0.67	0.0142	0.184	13.4	0.0839
Count Over Guideline	0	6	0	3	0	0	0	0
% Over Guideline	0	100	0	50	0	0	0	0
MW16-13								
n/a	Well was Frozen							
MW16-14D								
Average	0.87	0.23	85.2	0.049	0.001	0.001	0.046	0.0158
Minimum	0.78	0.23	81.7	0.031	0.001	0.001	0.023	0.0112
Maximum	0.96	0.23	87.7	0.059	0.001	0.001	0.0875	0.0227
Count Over Guideline	0	3	0	0	0	0	0	0
% Over Guideline	0	100	0	0	0	0	0	0
MW16-17								

	Chloride	Fluoride	Sulphate, dissolved	Ammonia (N)	Nitrite (N)	Nitrate (N)	Phosphorus, Total-colourimetric	Phosphorus, Total Dissolved
Average	0.64	0.54	32.7	0.05	0.001	0.002	0.474	0.2407
Minimum	0.25	0.49	31.3	0.036	0.001	0.001	0.273	0.0294
Maximum	0.95	0.57	34.3	0.06	0.001	0.0037	0.71	0.632
Count Over Guideline	0	4	0	0	0	0	0	0
% Over Guideline	0	100	0	0	0	0	0	0

### 3.3.2.3 Metals

Within the Class A Storage Facility area, the main parameters that exceeded the FIGWQGs were aluminum, arsenic, cadmium, copper, iron, lead, selenium, and zinc (Table 3-10 and Appendix D-2).

Concentrations of dissolved arsenic were generally below the FIGWQG guideline (0.005 mg/L) with the exception of three monitoring wells. MW15-07S had a single exceedance (0.0051 mg/L) that was marginally above the guideline in November 2015, but was otherwise under the guideline with a dissolved arsenic concentration range of 0.0011 mg/L to 0.0036 mg/L. MW15-09D, which only had one sample on record before the well was no longer functional, exceeded in November 2015 with a dissolved arsenic concentration of 0.0085 mg/L. MW15-10S exceeded the guideline in 50% of the samples collected, fluctuating around the guideline with concentrations ranging from 0.0008 mg/L to 0.0117 mg/L. The remainder of the monitoring wells were below the dissolved arsenic FIGWQG. Well MW16-14D was installed in 2016 and had only three data points, ranging from 0.003 mg/L to 0.0041 mg/L. Dissolved arsenic concentrations varied by an order of magnitude in samples collected from MW15-10D, with a range of 0.0017 mg/L to 0.0001 mg/L. Wells MW15-09S, MW15-08S, and MW16-17 had similar concentration ranges that varied between 0.0002 mg/L to 0.0018 mg/L. The remaining two wells in the Class A Storage Facility area had dissolved arsenic concentrations that were typically more than an order of magnitude less than the guideline.

Within the Class A Storage Facility area, four monitoring wells had samples that exceeded the FIGWQG for dissolved aluminum concentrations (0.1 mg/L if pH  $\geq$  6.5, 0.005 mg/L if pH < 6.5). Overall, the Class A Storage Facility area had dissolved aluminum concentrations that varied by nearly four orders of magnitude between all of the monitoring wells. Samples from wells MW15-10D and MW15-10S had pH values that were always below 6.5, as such they were compared to the lower dissolved aluminum guideline of 0.005 mg/L. MW15-10D exceeded this lower guideline in all of the samples collected. The dissolved aluminum concentrations in this well varied by more than an order of magnitude over the period of record, ranging from 0.0095 mg/L to 0.44 mg/L. Well MW15-10S had only two sampling events where the dissolved aluminum concentrations were over the FIGWQG, once in September 2015 (0.008 mg/L), and the other in August 2016 (0.006 mg/L). Solitary samples from monitoring wells MW15-09D (0.17 mg/L in September 2015) and MW15-09S (1.5 mg/L in June 2016) also exceeded the dissolved aluminum FIGWQG. The remainder of the wells in the Class A Storage Facility area had pH values that ranged from 7.22 to 7.23, and as such were compared to the higher dissolved aluminum FIGWQG. Generally, the remaining wells had concentrations that were at or below 0.01 mg/L, over an order of magnitude less than the guideline (0.1 mg/L).

The only exceedances of the FIGWQG observed for dissolved copper within the Class A Storage Facility area were single exceedances in three separate monitoring wells. Well BH95G-2 exceeded the guideline with a concentration of 0.0031 mg/L in May 2015, but otherwise ranged from 0.0001 mg/L to 0.0024 mg/L. Monitoring well MW15-10S exceeded the dissolved copper guideline in September 2016 with a concentration of 0.036 mg/L but ranged between 0.0002 mg/L and 0.0029 mg/L in the rest of the samples. The third exceedance of the dissolved copper FIGWQG was in well MW15-09S in June 2016 when the concentration was 0.021 mg/L, but the well generally had much lower concentrations ranging from <0.00005 mg/L to 0.00013 mg/L. The remaining monitoring wells returned dissolved copper concentrations that were well below the dissolved copper FIGWQG.

Overall, the majority of the monitoring wells in the Class A Storage Facility area had relatively stable total iron concentrations; however, there were a few exceptions. The total iron concentration in wells BH95G-2 and MW15-08S each fluctuated by more than two orders of magnitude over the period of record, ranging from 0.0036 mg/L to 59.9 mg/L and 0.027 mg/L to 126 mg/L, respectively. The highest iron concentrations were observed in well MW15-10S, ranging from 1.65 mg/L to 170 mg/L. MW15-10D fluctuated by a very minor amount, ranging between 27.1 mg/L to 39.2 mg/L.

Dissolved selenium concentrations showed very little fluctuation over the period of record within the Class A Storage Facility area groundwater monitoring wells. The exceptions to this was MW15-08D, which only had two data points available, but they ranged from <0.00004 mg/L to 0.0003 mg/L. The other well that fluctuated significantly was MW15-07S, which ranged from <0.00004 mg/L to 0.00085 mg/L. Neither of these two wells exceeded the guideline. Four monitoring wells within the Class A Storage Facility areas had dissolved selenium concentrations that were consistently above the FIGWQG (0.001 mg/L). BH95G-2 had the highest concentrations, ranging from 0.0014 mg/L to 0.0073 mg/L over the period of record. The two samples collected from well BH95G-15D had the next highest dissolved selenium concentrations (0.0031 and 0.0038 mg/L). Well MW15-10S had dissolved selenium concentrations that ranged from 0.0017 mg/L to 0.0024 mg/L. Well MW15-08S had a very similar but lower concentration range of 0.0015 mg/L to 0.0022 mg/L. The remainder of the wells in the Class A Storage Facility area did not exceed the guideline and ranged from <0.00004 mg/L to 0.0002 mg/L.

Dissolved cadmium concentrations in the Class A Storage Facility area monitoring wells varied by nearly three orders of magnitude. Three wells exceeded the FIGWQG. Well BH95G-2 had very little change in concentration over the period of record but exceeded the guideline in every sample, ranging from 0.0012 mg/L to 0.0016 mg/L. Well MW15-09S had a single exceedance in June 2016 when the concentration was 0.00054 mg/L but otherwise ranged from below the detection limit (<0.000005 mg/L) to 0.00005 mg/L. Well MW15-10S exceeded the dissolved cadmium guideline in four of six samples, with a range of 0.00015 mg/L to 0.0014 mg/L. Samples collected from monitoring wells MW15-10D and MW15-08S were both below the guideline and had similar concentrations, ranging from 0.00002 mg/L to 0.00017 mg/L and 0.00001 mg/L to 0.00012 mg/L, respectively. Samples collected from well MW15-07S also fluctuated over the period record, with dissolved cadmium concentrations ranging from <0.000005 mg/L to 0.000019 mg/L. The remainder of the wells were either below or marginally above the detection limit.

Within the Class A Storage Facility area there was only a single sample that exceeded the FIGWQG for dissolved zinc (0.03 mg/L). The October 2016 sample in MW16-14D had a concentration of 0.050 mg/L, but the other two samples collected at this well ranged between 0.00037 mg/L and 0.00047 mg/L, over an order of magnitude less. Dissolved zinc concentrations measured in samples collected from well BH95G-2 exhibited little fluctuation, ranging from 0.015 mg/L to 0.028 mg/L. Well MW15-09S had a single spike in dissolved zinc concentrations relative to the rest of the sampling sites in June 2016 when the concentration was 0.028 mg/L, but otherwise ranged from below the detection limit (<0.0001 mg/L) to 0.0017 mg/L. Samples collected from well MW15-10D fluctuated by an order of magnitude over the period of record but never exceeded the guideline. Concentrations of dissolved zinc in this well ranged from 0.0019 mg/L to 0.0217 mg/L. The remainder of the monitoring wells in the Class A Storage Facility area generally had dissolved zinc concentrations below 0.001 mg/L.

The only well to exceed the FIGWQG for dissolved lead in the Class A Storage Facility area was MW15-09S, which had a single spike in concentration in June 2016 when the concentration was 0.018 mg/L. Otherwise this well was well below the guideline and typically ranged from below the detection limit (<0.000005 mg/L) to 0.00001 mg/L. Well MW15-10D had dissolved lead concentrations that fluctuated by more than two orders of magnitude, ranging from 0.000008 mg/L to 0.0014 mg/L. Samples collected from well MW15-10S also fluctuated by a significant amount, ranging from <0.000005 mg/L to 0.00019 mg/L. Another well that showed marked variation in its dissolved lead content was MW15-08S, which ranged in dissolved lead concentrations from 0.000007 mg/L to 0.00024 mg/L. The remainder of the wells had dissolved lead concentrations that were typically well below 0.0001 mg/L.

Within the Class A Storage Facility area there was no evidence of a distinction between the bedrock and overburden wells in terms of trace element water quality with the two years of baseline data collected.

**Table 3-10: Summary Statistics for Metals in Class A Storage Facility Area**

<b>Metal (dissolved)</b>	<b>Al</b>	<b>As</b>	<b>Cd</b>	<b>Cu</b>	<b>Fe (total)</b>	<b>Pb</b>	<b>Se</b>	<b>Zn</b>
<b>Station Name</b>	<b>mg/L</b>	<b>mg/L</b>	<b>mg/L</b>	<b>mg/L</b>	<b>mg/L</b>	<b>mg/L</b>	<b>mg/L</b>	<b>mg/L</b>
FIGWQG-Industrial-Tier1	*	0.005	*	*		*	0.001	0.03
BH95G-15D								
Average	0.0008	0.000146	0.000031	0.000077	29.94	0.000011	0.00344	0.00097
Minimum	0.00071	0.000106	0.000029	0.000025	6.67	0.000008	0.00311	0.00094
Maximum	0.0009	0.000187	0.000034	0.000128	53.2	0.000014	0.00377	0.001
Count Over Guideline	0	0	0	0	0	0	2	0
% Over Guideline	0	0	0	0	0	0	100	0
BH95G-2								
Average	0.00442	0.000105	0.00146	0.001124	15.315	0.0000368	0.0046	0.0211
Minimum	0.00025	0.000066	0.00123	0.000129	0.0036	0.0000025	0.00136	0.0147
Maximum	0.0244	0.000163	0.00157	0.00309	59.9	0.000105	0.00729	0.0278
Count Over Guideline	0	0	11	1	0	0	11	0
% Over Guideline	0	0	100	9.1	0	0	100	0
MW15-07D								
Average	0.00401	0.000062	0.0000025	0.000073	1.294	0.0000301	0.00002	0.00051
Minimum	0.00067	0.00001	0.0000025	0.000025	0.461	0.0000025	0.00002	0.00005
Maximum	0.0124	0.000245	0.0000025	0.000149	3.02	0.000083	0.00002	0.00119
Count Over Guideline	0	0	0	0	0	0	0	0
% Over Guideline	0	0	0	0	0	0	0	0
MW15-07S								
Average	0.00405	0.0023	0.0000066	0.000117	21.928	0.0000123	0.000123	0.00102
Minimum	0.00025	0.00113	0.0000025	0.000025	0.476	0.0000025	0.00002	0.00005
Maximum	0.0239	0.00507	0.000019	0.000248	71.5	0.000057	0.000845	0.00438
Count Over Guideline	0	1	0	0	0	0	0	0
% Over Guideline	0	11.1	0	0	0	0	0	0
MW15-08D								
Average	0.00358	0.00379	0.000025	0.000056	9.03	0.000016	0.000146	0.00235
Minimum	0.00356	0.00262	0.000018	0.000025	7.05	0.000012	0.00002	0.00161
Maximum	0.00361	0.00496	0.000032	0.000087	11	0.000019	0.000272	0.00309
Count Over Guideline	0	0	0	0	0	0	0	0
% Over Guideline	0	0	0	0	0	0	0	0
MW15-08S								
Average	0.00247	0.000354	0.000083	0.000637	45.331	0.000094	0.00178	0.00201
Minimum	0.00059	0.000252	0.000013	0.000106	0.0272	0.000007	0.00148	0.00029
Maximum	0.00408	0.000454	0.000124	0.00091	136	0.00024	0.00217	0.00412
Count Over Guideline	0	0	0	0	0	0	6	0
% Over Guideline	0	0	0	0	0	0	100	0
MW15-09D								
Average	0.17	0.00848	0.000008	0.000416	27.9	0.000121	0.000062	0.00568
Minimum	0.17	0.00848	0.000008	0.000416	27.9	0.000121	0.000062	0.00568
Maximum	0.17	0.00848	0.000008	0.000416	27.9	0.000121	0.000062	0.00568
Count Over Guideline	1	1	0	0	0	0	0	0
% Over Guideline	100	100	0	0	0	0	0	0
MW15-09S								
Average	0.2166	0.000725	0.0001046	0.003025	4.83	0.002533	0.000817	0.0049
Minimum	0.00025	0.000438	0.0000025	0.000025	1.7	0.0000025	0.000625	0.00005
Maximum	1.51	0.00177	0.000544	0.0207	8.8	0.0177	0.000971	0.0284

Metal (dissolved)	Al	As	Cd	Cu	Fe (total)	Pb	Se	Zn
Count Over Guideline	1	0	1	1	0	1	0	0
% Over Guideline	14.3	0	14.3	14.3	0	14.3	0	0
MW15-10D								
Average	0.14521	0.000566	0.000074	0.000503	31.4	0.000378	0.000045	0.00636
Minimum	0.00948	0.00011	0.000017	0.000025	27.1	0.000008	0.00002	0.00197
Maximum	0.438	0.00167	0.000172	0.00216	39.2	0.00136	0.0001	0.0217
Count Over Guideline	9	0	0	0	0	0	0	0
% Over Guideline	100	0	0	0	0	0	0	0
MW15-10S								
Average	0.00409	0.006502	0.000795	0.006839	91.36	0.0000872	0.00208	0.0126
Minimum	0.00134	0.000799	0.000154	0.000182	1.65	0.0000025	0.00172	0.00493
Maximum	0.00818	0.0117	0.00139	0.0358	170	0.000187	0.00242	0.0191
Count Over Guideline	2	3	4	1	0	0	6	0
% Over Guideline	33.3	50	66.7	16.7	0	0	100	0
MW16-13								
n/a	Well was Frozen							
MW16-14D								
Average	0.0022	0.00369	0.0000065	0.000037	1.896	0.0000053	0.00002	0.01681
Minimum	0.00099	0.00312	0.0000025	0.000025	0.887	0.0000025	0.00002	0.00037
Maximum	0.00312	0.0041	0.000012	0.00006	3.33	0.000011	0.00002	0.0496
Count Over Guideline	0	0	0	0	0	0	0	1
% Over Guideline	0	0	0	0	0	0	0	33.3
MW16-17								
Average	0.00897	0.000728	0.0000025	0.000125	45.53	0.0000033	0.000139	0.00073
Minimum	0.00626	0.000383	0.0000025	0.000099	3.14	0.0000025	0.000105	0.00038
Maximum	0.0114	0.000901	0.0000025	0.000169	111	0.000005	0.000201	0.00094
Count Over Guideline	0	0	0	0	0	0	0	0
% Over Guideline	0	0	0	0	0	0	0	0
* See Table 2.6 for guideline equation								

### 3.3.3 Class B Storage Facility Area

#### 3.3.3.1 Setting

The Class B Storage Facility area contains the Class B Storage Facility, Process Plant, and the Run of Mine (ROM) and Low Grade Ore (LGO) stockpiles, as shown on Figure 2-1. The Class B Storage Facility is on the western slope of the valley with Geona Creek flowing through the bottom of the valley. Seven monitoring wells characterise this area; a combination of wells screened in overburden (two wells) and bedrock (five wells). Of the seven monitoring wells, BH95G-33s was dry, and three of the wells (MW15-02, MW16-12S, and MW16-12D) were frozen part of the year.

#### 3.3.3.2 Physical Parameters and Nutrients

The bedrock and overburden wells in the Class B Storage Facility area were generally circumneutral to mildly alkaline (pH range 6.53 to 8.50), as shown in Table 3-11 and Appendix D-3. All of the well water samples were within the FIGWQG pH window (6.5 to 9.0) with the exception of two of the three samples collected from well MW16-12D, which had a pH of 6.27 and 6.53. Well water dissolved oxygen levels ranged from 4% to 100% saturation, suggesting the groundwaters ranged from

sub-oxic/anoxic to oxic. The limited data suggests that temperature varied seasonally between  $-0.2^{\circ}\text{C}$  and  $4.7^{\circ}\text{C}$ , and three of the seven wells were frozen for most or all of the year.

Within the Class B Storage Facility area fluoride, dissolved sulphate, and ammonia, exceeded the FIGWQGs (Table 3-12). The plots of these parameters for the Class B Storage Facility area wells can be found in Appendix C. Only two wells exceeded the FIGWQG (0.12 mg/L) for fluoride: MW16-12S (ranged from 0.72 mg/L to 0.88 mg/L) and MW16-12D (1.1 mg/L). The trends for all of the monitoring wells in terms of fluoride concentrations were fairly constant over the period of record, with little to no seasonality apparent.

In the Class B Storage Facility area only one well (MW15- 01) had a dissolved sulphate concentration that exceeded the guideline (100 mg/L). The dissolved sulphate concentrations in this well spiked above the guideline twice, in March 2016 (138 mg/L) and November 2016 (118 mg/L), and ranged from 36 to 138 mg/L over the period of record. The trends for the remaining wells were fairly constant and well below the guideline. Samples collected from wells MW16-12S and MW16-12D had very low concentrations of sulphate relative to the rest of the wells in the Class B Storage Facility area; MW16-12D was always below the detection limit (i.e.,  $<0.5$  mg/L), and MW16-12S ranged from  $<0.5$  mg/L to 11.9 mg/L.

Two monitoring wells in the Class B Storage Facility area exceeded the ammonia-N guideline (threshold is pH and temperature dependent; it is 0.282 mg/L at pH 8.5 and  $10^{\circ}\text{C}$ ): BH65G-32, and MW16-12D. Well BH95G-32 fluctuated widely in the period of record ranging by over an order of magnitude (0.015 mg/L to 0.29 mg/L), with one exceedance of the guideline in May 2015. Well MW16-12D exceeded the guideline for ammonia in one of three monitoring events on record, ranging from 0.27 mg/L to 0.4 mg/L. MW16-12S samples had concentrations that ranged from 0.085 mg/L to 0.260 mg/L, which included one exceedance of the guideline. Samples collected from well BH95G-33D did not exceed the guideline but had over an order of magnitude change in concentrations over the period of record (0.0086 mg/L to 0.12 mg/L). The remainder of the wells were at least an order of magnitude below the ammonia guideline.



**Table 3-11: Summary Statistics for In-situ Parameters Class B Storage Facility Area**

	pH (field)	Specific Conductance (lab)	Temperature (field)	Dissolved Oxygen (field)	Dissolved Oxygen (field)	ORP (field)
Station Name	pH units	µS/cm	°C	mg/L	%	mV
BH95G-32	6.59-7.77 (7.47)	375-409 (395)	0.3-3.8 (1.92)	0-4.27 (1.95)	10.5-38.4 (19.8)	-23-320.2 (52.8)
BH95G-33D	7.39-7.8 (7.56)	408-480 (452)	-0.2-4.7 (2.37)	3.56-7.21 (5.31)	3.9-61 (39.9)	17-325.1 (113)
BH95G-33S	Well was Dry					
MW15-01	7.48-8.50 (7.79)	316-551 (408)	-0.1-2.1 (0.9)	2.7-11.8 (8.51)	46.3-108 (83)	11-339.9 (114.5)
MW15-02	7.37-7.81 (7.63)	323-463 (431)	1.2-2.6 (1.8)	4.9-7.3 (5.87)	42-63 (51)	87.9-154.8 (116.7)
MW16-12D	6.27-6.53 (6.42)	1510-1610 (1543)	2.5-2.8 (2.6)	2.4-6.2 (3.7)	21-28 (23)	23-45.7 (38.1)
MW16-12S	6.53-6.66 (6.58)	1500-1610 (1567)	2.2-3.8 (2.9)	4.8-5.4 (5.2)	43-47 (45)	-115--26.3 (-65.2)

## - ## is the minimum and maximum range for the well for 2015-2016 data

(##) is the average concentration, concentrations less than the DL were taken as ½ DL values

**Table 3-12: Summary Statistics for Guideline Anions and Nutrients Class B Storage Facility Area**

	Chloride	Fluoride	Sulphate, dissolved	Ammonia (N)	Nitrite (N)	Nitrate (N)	Phosphorus, Total- colourimetric	Phosphorus, Total Dissolved
Station Name	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
FIGWQG-Industrial-Tier1	120	0.12	100	0.282	0.06	3		
BH95G-32								
Average	0.62	0.038	34.5	0.092	0.0015	0.0514	0.7647	0.0137
Minimum	0.25	0.032	32	0.015	0.001	0.027	0.001	0.001
Maximum	0.92	0.041	36.5	0.29	0.0058	0.0755	4.34	0.0627
Count Over Guideline	0	0	0	1	0	0	0	0
% Over Guideline	0	0	0	9.1	0	0	0	0
BH95G-33D								
Average	0.57	0.054	67.8	0.0372	0.0022	0.19	0.8078	0.0708
Minimum	0.25	0.045	62.3	0.0086	0.001	0.164	0.0068	0.001
Maximum	0.95	0.062	77	0.12	0.0041	0.213	3.48	0.243
Count Over Guideline	0	0	0	0	0	0	0	0
% Over Guideline	0	0	0	0	0	0	0	0
BH95G-33S								
n/a	Well was Dry							
MW15-01								
Average	0.73	0.095	71.2	0.0433	0.0029	0.357	0.8109	0.0266
Minimum	0.25	0.086	36.2	0.0068	0.001	0.189	0.0029	0.0021
Maximum	1.4	0.12	138	0.13	0.0056	0.464	7.34	0.0946
Count Over Guideline	0	0	2	0	0	0	0	0
% Over Guideline	0	0	20	0	0	0	0	0
MW15-02								
Average	0.71	0.089	55.6	0.0129	0.001	0.256	0.124	0.0018
Minimum	0.53	0.088	37.4	0.0079	0.001	0.212	0.001	0.001
Maximum	0.88	0.092	65.6	0.019	0.001	0.399	0.612	0.0048
Count Over Guideline	0	0	0	0	0	0	0	0
% Over Guideline	0	0	0	0	0	0	0	0
MW16-12D								
Average	2	1.1	0.25	0.32	0.0014	0.001	0.176	0.184
Minimum	1.9	1.1	0.25	0.27	0.001	0.001	0.138	0.125
Maximum	2.2	1.1	0.25	0.4	0.0023	0.001	0.223	0.252
Count Over Guideline	0	3	0	1	0	0	0	0
% Over Guideline	0	100	0	33.3	0	0	0	0
MW16-12S								
Average	2.3	0.82	5.29	0.175	0.0057	0.0049	0.405	0.2797
Minimum	2	0.72	0.25	0.085	0.0024	0.001	0.308	0.0682
Maximum	2.7	0.88	11.9	0.26	0.01	0.01	0.465	0.473
Count Over Guideline	0	3	0	1	0	0	0	0
% Over Guideline	0	100	0	33.3	0	0	0	0

### 3.3.3.3 Metals

Within the Class B Storage Facility Area, the main parameters that exceeded the FIGWQGs were aluminum, iron, selenium, and zinc (Table 3-13 and Appendix D-4). There were no exceedances of the guideline for dissolved arsenic, cadmium, copper, or lead.

Concentrations of dissolved arsenic were generally well below the FIGWQG (0.005 mg/L), with MW15-12S nearing the guideline with a concentration 0.0034 mg/L in August 2016, but the other two samples from that well ranged from 0.00019 mg/L to 0.00021 mg/L an order of magnitude lower. Well MW15-02 had very consistent dissolved arsenic concentrations in 2016 (0.00082 mg/L to 0.00089 mg/L), but the single sample from 2015 had a concentration of 0.00011 mg/L. The remainder of the monitoring wells had average concentrations that were at least an order of magnitude lower than the guideline.

Within the Class B Storage Facility Area there was one exceedance of the FIGWQG (0.1 mg/L if pH  $\geq$  6.5, 0.005 mg/L if pH < 6.5) for dissolved aluminium concentrations. MW16-12D exceeded the guideline in a single event in August 2016 (0.012 mg/L). This well is compared to the lower guideline, as pH in this well ranged from 6.27 to 6.53. MW16-12D only had two additional sampling events which ranged between 0.0017 mg/L and 0.0026 mg/L. The pH measured in the other Class B wells was >6.5. The aluminum FIGWQG at this pH is 0.1 mg/L; all of the dissolved aluminum concentrations were lower than the guideline by an order of magnitude or more (observed range of <0.0005 mg/L to 0.011 mg/L).

There were no exceedances of the FIGWQG for dissolved copper, within the Class B Storage Facility Area. Well MW15-01 had dissolved copper concentrations that ranged between 0.000072 mg/L and 0.00074 mg/L, changing by an order of magnitude over the period of record. Samples collected from well BH95G-32 had a similar range with dissolved copper concentrations between 0.00009 mg/L and 0.00060 mg/L. Well BH95G-33D also ranged by an order of magnitude over the period of record with dissolved copper concentrations between 0.000068 mg/L and 0.00090 mg/L. The remainder of the wells generally had dissolved copper concentrations below 0.0001 mg/L.

Total iron concentrations in samples collected from monitoring wells in the Class B Storage Facility Area generally fluctuated by more than an order of magnitude. The highest concentrations were found in wells BH95G-32 (0.89 to 203 mg/L), MW16-12S (138 mg/L to 159 mg/L), and BH95G-33D (3.1 mg/L to 150 mg/L). The lowest concentrations of iron were in MW15-02, ranging from below the detection limit (<0.001 mg/L) to 0.0061 mg/L, with the exception of a single peak in September 2015 when the concentration was 17.2 mg/L.

Overall, dissolved selenium concentrations had very little fluctuation in concentrations over the period of record within the Class B Storage Facility Area. Three monitoring wells had dissolved selenium concentrations that were consistently above the FIGWQG (0.001 mg/L): BH95G-33D, MW15-02, and MW15-01. BH95G-33D had the highest concentrations of dissolved selenium in the Class B Storage Facility Area, ranging from 0.0038 mg/L to 0.0079 mg/L. Samples collected from well MW15-02 had concentrations that ranged from 0.0017 mg/L to 0.0020 mg/L in 2016, but the single 2015 sampling event had a lower concentration of 0.00037 mg/L. Samples from well MW15-01 ranged from 0.00026 mg/L to 0.0008 mg/L in 2015 and 2016, but had a single exceedance in September 2015 of 0.0015 mg/L. Well BH95G-32 had fairly consistent concentrations that were below the dissolved selenium guideline, ranging from 0.00033 mg/L to 0.00084 mg/L. The remaining two wells, MW15-12D and MW15-12S were below the detection limit in every sample (<0.00004 mg/L).

There were no exceedances of the FIGWQG for dissolved cadmium within the Class B Storage Facility Area. Samples collected from well BH95G-32 had the highest concentrations over the period of record, ranging from 0.00002 mg/L to 0.00013 mg/L. Dissolved cadmium concentrations in well MW16-12S ranged from 0.000012 mg/L to 0.000038 mg/L and those in well MW15-01 ranged from below the detection limit (<0.000005 mg/L) to 0.000025 mg/L. The remainder of the wells all had dissolved cadmium concentrations that were generally below 0.00001 mg/L.

Within the Class B Storage Facility Area there were two monitoring wells that exceeded the FIGWQG for dissolved zinc (0.03 mg/L): MW16-12S and MW16-12D. All three sampling events for well MW16-12S exceeded the FIGWQG, ranging 0.033 mg/L to 0.099 mg/L. Well MW16-12D had a single exceedance in October 2016 (0.24 mg/L) but the other two events were well

below the dissolved zinc guideline (0.0022 mg/L and 0.0019 mg/L). The groundwater samples collected from the remaining monitoring wells were well below the guideline ranging from <0.0001 mg/L to 0.0050 mg/L.

There were no exceedances of the FIGWQG for dissolved lead within the Class B Storage Facility Area. BH95G-32 had the highest concentrations of dissolved lead, ranging from below the detection limit (<0.000005 mg/L) to 0.00014 mg/L. Samples collected from MW15-02 were generally below the detection limit with the exception of a single sample in August 2016, when the concentration was 0.000082 mg/L. The remainder of the monitoring well samples ranged from <0.000005 mg/L to 0.00004 mg/L.

Samples from well MW16-12D returned exceedances of the FIGWQGs for dissolved barium and dissolved silver. The dissolved barium guideline (2.9 mg/L) was exceeded in the first two of the three monitoring events on record with a range of 2.6 mg/L to 3.3 mg/L. The dissolved silver guideline (0.0001 mg/L) was also exceeded in the first of the three monitoring events from well MW16-12D with a range of 0.00007 mg/L to 0.00013 mg/L.

Overall, for metals there was no evidence of a distinction between the bedrock and overburden wells in terms of water quality with the two years of baseline data collected. There was significant fluctuation in some metals which indicates the impact of water levels and flow, but the data collected to date do not indicate distinct seasonal trends.

**Table 3-13: Summary Statistics for Metals in Class B Storage Facility Area**

Metal ( <i>dissolved</i> )	Al	As	Cd	Cu	Fe ( <i>total</i> )	Pb	Se	Zn
Station Name	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
FIGWQG-Industrial-Tier1	*	0.005	*	*		*	0.001	0.03
BH95G-32								
Average	0.00381	0.000254	0.000063	0.000232	37.505	0.0000473	0.000623	0.00138
Minimum	0.00129	0.000162	0.00002	0.00009	0.888	0.0000025	0.000326	0.00005
Maximum	0.0142	0.000376	0.00013	0.000599	203	0.000141	0.000835	0.00346
Count Over Guideline	0	0	0	0	0	0	0	0
% Over Guideline	0	0	0	0	0	0	0	0
BH95G-33D								
Average	0.00152	0.000299	0.0000042	0.00022	32.91	0.0000052	0.00555	0.0006
Minimum	0.00059	0.000137	0.0000025	0.000068	3.14	0.0000025	0.00383	0.00005
Maximum	0.00506	0.000758	0.00001	0.000899	150	0.000016	0.00791	0.00182
Count Over Guideline	0	0	0	0	0	0	11	0
% Over Guideline	0	0	0	0	0	0	100	0
BH95G-33S								
n/a	Well was Dry							
MW15-01								
Average	0.0054	0.000204	0.0000126	0.000461	24.483	0.0000072	0.000589	0.00139
Minimum	0.00204	0.000075	0.0000025	0.000072	0.0381	0.0000025	0.00026	0.00005
Maximum	0.00921	0.00088	0.000025	0.000744	200	0.000025	0.0015	0.00503
Count Over Guideline	0	0	0	0	0	0	1	0
% Over Guideline	0	0	0	0	0	0	10	0
MW15-02								
Average	0.00209	0.000718	0.0000034	0.000178	3.443	0.0000184	0.001566	0.00041
Minimum	0.00069	0.000114	0.0000025	0.000058	0.0005	0.0000025	0.000371	0.00005
Maximum	0.00599	0.000891	0.000007	0.000613	17.2	0.000082	0.00196	0.00071
Count Over Guideline	0	0	0	0	0	0	4	0
% Over Guideline	0	0	0	0	0	0	80	0
MW16-12D								
Average	0.00529	0.000027	0.000007	0.000058	8.65	0.000015	0.00002	0.08203
Minimum	0.00169	0.00001	0.000006	0.000025	7.67	0.0000025	0.00002	0.00192
Maximum	0.0116	0.00006	0.000007	0.000124	10.4	0.00004	0.00002	0.242
Count Over Guideline	1	0	0	0	0	0	0	1
% Over Guideline	33.3	0	0	0	0	0	0	33.3
MW16-12S								
Average	0.00078	0.001252	0.000022	0.000025	145	0.0000025	0.00002	0.0742
Minimum	0.00025	0.000187	0.000012	0.000025	138	0.0000025	0.00002	0.0325
Maximum	0.00118	0.00336	0.000038	0.000025	159	0.0000025	0.00002	0.0994
Count Over Guideline	0	0	0	0	0	0	0	3
% Over Guideline	0	0	0	0	0	0	0	100

\* See Table 2.6 for guideline equation

### 3.3.4 Class C Storage Facility Area

#### 3.3.4.1 Setting

The Class C Storage Facility area contains the Class C Storage Facility, the overburden stockpile and associated water collection ponds, as shown on Figure 2-1. The Class C Storage Facility is on the eastern slope of the valley with Geona Creek flowing through the bottom of the valley. A small tributary flows into Geona Creek through the proposed location of the Class C Storage Facility. Ten monitoring wells characterise this area; a combination of wells screened in overburden (four wells) and bedrock (six wells). Of the ten monitoring wells, MW15-05s was dry, and three of the wells (BH95G-30, BH95G-31, and MW15-06) were frozen part of the year.

#### 3.3.4.2 Physical Parameters and Nutrients

The bedrock and overburden wells in the pit areas were generally circumneutral to mildly alkaline (pH range 6.06 to 8.10), as shown in Table 3-14 and the Insitu summary table provided in Appendix D-4. One sample from well MW15-03S had a pH (6.03) that was below the FIGWQG window (pH 6.5 to 9). The single pH value from the 4 September 1995 was a slightly alkaline 8.0, which is just within the maximum-minimum range of the 2015/16 dataset. Well water dissolved oxygen levels ranged from 6% to 100% saturation, suggesting the groundwaters ranged from sub-oxic/anoxic to oxic. The limited data suggests that temperature varied seasonally between -0.2°C and 9.6°C, and three of the ten wells were frozen for most or all of the year.

Within the Class C Storage Facility Area, fluoride and ammonia exceeded the FIGWQG (Table 3-15). The plots of these parameters for the Class C Storage Facility Area wells can be found in Appendix C. Five of the ten wells exceeded the FIGWQG guideline (0.12 mg/L) for fluoride, three of which exceeded in every sampling event, while the remainder exceeded the guideline at least once. The highest fluoride concentrations were observed in samples collected from MW15-04D, which ranged from 0.20 mg/L to 0.24 mg/L, followed by MW15-03D, which ranged from 0.15 mg/L to 0.17 mg/L. These were followed by BH95G-30, which ranged from 0.13 mg/L to 0.14 mg/L, and MW15-05D, which had peaked at 0.18 mg/L in September 2015, but then oscillated around the guideline for the rest of the period of record, ranging from 0.11 mg/L to 0.14 mg/L. Samples collected from well MW15-06 varied very little, with a range of 0.11 mg/L to 0.12 mg/L. The remainder of the wells, MW15-03S, MW15-04S, and MW15-05S, were consistently under the guideline, with the exception of a single event in MW15-03S on September 2015 when the fluoride concentration matched the guideline (0.12 mg/L). Otherwise, samples collected from MW15-03S ranged from 0.057 mg/L to 0.11 mg/L. The fluoride concentration trends for all of the monitoring wells in the Class C Storage Facility Area were generally fairly constant over the period of record with little to no seasonality apparent. The wells that consistently exceeded the fluoride FIGWQG guideline were the bedrock wells, with the exception of BH95G-31, whereas the overburden wells were generally below the guideline,

Only one monitoring well exceeded the ammonia-N guideline (threshold is pH and temperature dependent; it is 0.282 mg/L at pH 8.5 and 10°C) within the Class C Storage Facility Area, MW15-03D. MW15-03D exceeded once in September 2015 (0.30 mg/L), otherwise the ammonia-N concentrations remained below the guideline and ranged from 0.072 mg/L to 0.16 mg/L. BH95G-31 ammonia-N concentrations ranged from 0.028 mg/L to 0.22 mg/L in 2016. The remaining wells in the Class C Storage Facility Area were primarily well below the ammonia-N guideline, ranging between 0.01 mg/L and 0.1 mg/L, with a few single sample exceptions such as MW15-03S, which had a concentration of 0.15 mg/L in August 2016. Monitoring wells MW15-05D and MW15-06 had the lowest concentrations at 0.0025 mg/L on November 2015 and 0.0051 mg/L on October 2016, respectively.



**Table 3-14: Summary Statistics for Insitu Parameters Class C Storage Facility Area**

	pH (field)	Specific Conductance (lab)	Temperature (field)	Dissolved Oxygen (field)	Dissolved Oxygen (field)	ORP (field)
Station Name	pH units	µS/cm	°C	mg/L	%	mV
BH95G-30	7.23-7.85 (7.61)	371-392 (385)	3.2-9.6 (5.9)	5.8-10.94 (8.35)	52-101.8 (73.7)	64.8-161 (103.1)
BH95G-31	7.71-8.1 (7.9)	286-300 (293)	-0.2-3.1 (1.7)	7.8-11.24 (9.29)	67.9-96.4 (79.6)	62.6-322.5 (150.3)
MW15-03D	6.66-7.67 (7.41)	386-395 (391)	0-3.3 (2.06)	0.52-3 (1.67)	6-26 (16.1)	-85-111.2 (-48.9)
MW15-03S	6.06-8.04 (7.5)	255-300 (274)	0.5-3.9 (2.26)	2.9-9.6 (7.15)	50.3-85 (73.9)	19.5-277 (77.3)
MW15-04D	7.41-7.92 (7.66)	287-344 (297)	0.9-3.8 (2.34)	1.12-280 (29.94)	9.6-30 (18)	-56.9-226.7 (-9.1)
MW15-04S	7.49-7.92 (7.77)	231-245 (238)	0.3-4.2 (2.36)	7.12-11 (9.01)	61.4-101 (81.1)	62-278.7 (103.2)
MW15-05D	7.35-7.79 (7.59)	377-437 (390)	0.1-4.6 (1.78)	4.29-9.32 (7.18)	36-92.8 (63.8)	47.4-335.4 (122.8)
MW15-05S	Well was Dry					
MW15-06	7.28-7.63 (7.43)	366-382 (373)	0.7-2.6 (1.7)	7.2-8.86 (8.39)	62-75 (71)	78.3-117.2 (90.7)
MW16-16D	7.47-7.61 (7.55)	438-443 (440)	1.5-2.2 (1.8)	1-1.2 (1.1)	8-10 (9.1)	-57.7-202.8 (36.1)

## - ## is the minimum and maximum range for the well for 2015-2016 data

(##) is the average concentration, concentrations less than the DL were taken as ½ DL values

**Table 3-15: Summary Statistics for Guideline Anions and Nutrients Class C Storage Facility Area**

	Chloride	Fluoride	Sulphate, dissolved	Ammonia (N)	Nitrite (N)	Nitrate (N)	Phosphorus, Total-colourimetric	Phosphorus, Total Dissolved
Station Name	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
FIGWQG-Industrial-Tier1	120	0.12	100	0.282	0.06	3		
BH95G-30								
Average	0.7	0.14	24.6	0.026	0.0041	0.317	0.0562	0.0143
Minimum	0.25	0.13	22.4	0.015	0.001	0.279	0.0043	0.003
Maximum	0.93	0.14	26.4	0.047	0.013	0.351	0.228	0.0438
Count Over Guideline	0	6	0	0	0	0	0	0
% Over Guideline	0	100	0	0	0	0	0	0
BH95G-31								
Average	0.6	0.095	22.7	0.095	0.0029	0.197	1.0418	0.0841
Minimum	0.25	0.09	20	0.028	0.001	0.161	0.0129	0.0028
Maximum	0.81	0.1	25.4	0.22	0.0075	0.211	4.67	0.239
Count Over Guideline	0	0	0	0	0	0	0	0
% Over Guideline	0	0	0	0	0	0	0	0
MW15-03D								
Average	0.83	0.16	22.7	0.127	0.001	0.0015	0.0058	0.0042
Minimum	0.25	0.15	21.1	0.072	0.001	0.001	0.0027	0.0021
Maximum	1.7	0.17	25.3	0.3	0.001	0.0027	0.0123	0.0091
Count Over Guideline	0	10	0	1	0	0	0	0
% Over Guideline	0	100	0	10	0	0	0	0

	Chloride	Fluoride	Sulphate, dissolved	Ammonia (N)	Nitrite (N)	Nitrate (N)	Phosphorus, Total- colourimetric	Phosphorus, Total Dissolved
MW15-03S								
Average	0.88	0.075	14.31	0.045	0.0034	0.0968	1.1199	0.187
Minimum	0.53	0.057	9.77	0.011	0.001	0.0454	0.0144	0.0027
Maximum	1.7	0.12	33.3	0.15	0.0093	0.134	3.71	0.853
Count Over Guideline	0	0	0	0	0	0	0	0
% Over Guideline	0	0	0	0	0	0	0	0
MW15-04D								
Average	0.95	0.21	21	0.044	0.0016	0.0096	1.8221	0.0215
Minimum	0.25	0.2	17.8	0.026	0.001	0.001	0.0059	0.0026
Maximum	2.6	0.24	34.8	0.11	0.0037	0.0256	9.09	0.0848
Count Over Guideline	0	10	0	0	0	0	0	0
% Over Guideline	0	100	0	0	0	0	0	0
MW15-04S								
Average	0.72	0.085	9.84	0.051	0.0033	0.206	0.9835	0.0427
Minimum	0.25	0.078	8.81	0.021	0.001	0.155	0.0188	0.0023
Maximum	1.1	0.1	10.5	0.09	0.013	0.236	2.66	0.138
Count Over Guideline	0	0	0	0	0	0	0	0
% Over Guideline	0	0	0	0	0	0	0	0
MW15-05D								
Average	0.76	0.13	31.7	0.0271	0.0036	0.219	0.1189	0.0133
Minimum	0.25	0.11	29	0.0025	0.001	0.122	0.0032	0.001
Maximum	1.8	0.18	42.2	0.056	0.0161	0.256	0.327	0.0353
Count Over Guideline	0	7	0	0	0	0	0	0
% Over Guideline	0	70	0	0	0	0	0	0
MW15-05S								
n/a	Well was Dry							
MW15-06								
Average	0.96	0.11	22.7	0.0435	0.0029	0.333	0.069	0.0305
Minimum	0.67	0.11	21.8	0.0051	0.001	0.307	0.0049	0.0025
Maximum	1.3	0.12	23.1	0.1	0.0072	0.356	0.173	0.105
Count Over Guideline	0	0	0	0	0	0	0	0
% Over Guideline	0	0	0	0	0	0	0	0
MW16-16D								
Average	0.52	0.115	37.4	0.031	0.0026	0.0014	0.0454	0.0347
Minimum	0.25	0.005	36.3	0.019	0.001	0.001	0.0241	0.0177
Maximum	0.67	0.18	38.6	0.051	0.0058	0.0023	0.0668	0.0625
Count Over Guideline	0	2	0	0	0	0	0	0
% Over Guideline	0	66.7	0	0	0	0	0	0

### 3.3.4.3 Metals

Metals concentrations within the Class C Storage Facility Area were generally quite low with only dissolved selenium exceeding the FIGWQG (Table 3-16 and Appendix D-4). There were no exceedances of the guideline for the other parameters of interest: dissolved aluminium, arsenic, cadmium, copper, lead, and zinc.

Concentrations of dissolved arsenic were generally quite low with results below the FIGWQG (0.005 mg/L). Dissolved arsenic concentrations in wells MW15-03D and MW15-04D had very similar concentrations and trends over time, both ranging from 0.0011 mg/L to 0.0022 mg/L. MW16-16D had only three data points but ranged from 0.00014 mg/L to 0.00054 mg/L. Monitoring wells MW15-04S, MW15-03S, MW15-05D, and BH95G-31 had similar dissolved arsenic concentrations over the

period of record, ranging from 0.00004 mg/L to 0.0003 mg/L. The remainder of the wells were generally under 0.0001 mg/L, nearly two orders of magnitude below the dissolved arsenic guideline. The arsenic concentration from the 4th September 1995 data point was 0.000006 mg/L, within the minimum and maximum range collected in the 2015/16 dataset (0.0000025 to 0.0002 mg/L).

Within the Class C Storage Facility Area there were no exceedances of the FIGWQG for dissolved aluminium concentrations (0.1 mg/L if pH > 6.5, 0.005 mg/L if pH < 6.5). The highest concentration recorded was in BH95G-31, which had a peak of 0.085 mg/L (November 2015), but otherwise ranged from 0.0018 mg/L to 0.004 mg/L. Dissolved aluminum concentrations in MW15-03S ranged from 0.0018 mg/L to 0.027 mg/L, followed by MW15-03D, ranging from 0.00057 mg/L to 0.014 mg/L. BH95G-30 had a dissolved aluminum concentration spike in September 2015 of 0.0129 mg/L, but ranged from 0.0005 mg/L to 0.0010 mg/L. The aluminum concentration from the 4th September 1995 data point was 0.015 mg/L, within the minimum and maximum range collected in the 2015/16 dataset (0.0005 to 0.0852 mg/L).

There were no exceedances of the FIGWQG for dissolved copper within the Class C Storage Facility Area as concentrations tended to be quite low. A few wells had concentrations above 0.001 mg/L: BH95G-31 had a concentration of 0.0013 mg/L in November 2015, MW15-04S had a concentration of 0.0011 mg/L in November 2015, MW15-03S had a concentration of 0.0020 mg/L in March 2016, MW15-05D had a concentration 0.0017 mg/L in May 2016, and MW15-03D had a concentration of 0.0016 mg/L in August 2016. Otherwise all dissolved copper concentrations were below 0.001 mg/L. The copper concentration from the 4th September 1995 data point was 0.0007 mg/L, within the minimum and maximum range collected in the 2015/16 dataset (0.000025 to 0.002 mg/L).

The highest total iron concentrations within the Class C Storage Facility Area were in monitoring wells MW15-04D (<0.001 mg/L to 264 mg/L), BH95G-31 (3.0 mg/L to 228 mg/L), and MW15-04S (4.7 mg/L to 130 mg/L). Monitoring well MW15-03S fluctuated by nearly an order of magnitude, ranging from 7.4 mg/L to 95 mg/L. The lower concentrations of iron in the Class C Storage Facility Area were observed in MW15-03D (0.43 mg/L to 3.3 mg/L) and BH95G-30 (0.13 mg/L to 1.3 mg/L). MW15-06 and MW15-04D both had single events below the detection limit (0.001 mg/L) in October 2016, and November 2016, respectively. For the majority of the wells in the Class C Storage Facility Area the overburden wells had higher concentrations of iron than the bedrock wells.

Overall dissolved selenium concentrations had very little fluctuation in concentrations over the period of record within the Class C Storage Facility Area. Four monitoring wells within the Class C Storage Facility Area consistently exceeded the dissolved selenium FIGWQG (0.001 mg/L) with very similar concentration ranges that were slightly above the guideline: BH95G-30, BH95G-31, MW15-05D, and MW15-06. Paired wells MW15-06 and BH95G-30 (overburden and bedrock, respectively,) had the highest concentrations of dissolved selenium in the Class C Storage Facility Area, which ranged from 0.0024 mg/L to 0.0029 mg/L and 0.0021 mg/L to 0.0028 mg/L, respectively. Samples collected from well MW15-05D had the next highest dissolved selenium concentration ranging from 0.0015 mg/L to 0.0018 mg/L. The final well to consistently exceed the dissolved selenium guideline in the Class C Storage Facility Area was BH95G-31, which ranged from 0.0014 mg/L to 0.0017 mg/L. The remainder of the wells were always below the guideline. MW15-04S dissolved selenium levels ranged from 0.00070 mg/L to 0.00085 mg/L, and was generally an order of magnitude higher than its companion nested bedrock well MW15-04D (0.00002 mg/L to 0.0001 mg/L). The same pattern occurred for nested wells MW15-03S and MW15-03D, where the shallow well returned dissolved selenium concentrations that ranged from 0.00019 mg/L to 0.00030 mg/L, whereas concentrations in the deeper MW15-03D well were an order of magnitude lower, ranging from 0.000020 mg/L to 0.00026 mg/L.

There were no exceedances of the FIGWQG for dissolved cadmium within the Class C Storage Facility Area. Monitoring wells BH95G-30, and MW15-06 are bedrock and overburden paired wells that had the highest dissolved cadmium concentrations,

ranging from 0.000095 mg/L to 0.00019 mg/L. The remainder of the Class C Monitoring wells had dissolved cadmium concentrations below 0.0001 mg/L.

Within the Class C Storage Facility Area there were no exceedances of the FIGWQG for dissolved zinc (0.03 mg/L). Samples collected from well BH95G-30 generally had the highest and most consistent concentrations of dissolved zinc, ranging from 0.0070 mg/L to 0.0093 mg/L. MW15-05D had a higher concentration than BH95G-30 for one event in May 2016, and fluctuated by over an order of magnitude over the period of record (0.00053 mg/L to 0.011 mg/L). MW15-03S and MW15-04S also fluctuated significantly over the period of record with a range of <0.0001 mg/L to 0.011 mg/L, and <0.0001 mg/L to 0.0025 mg/L, respectively. The remainder of the Class C monitoring wells were generally below a dissolved zinc concentration of 0.001 mg/L. The zinc concentration from the 4th September 1995 data point was 0.003 mg/L, within the minimum and maximum ranged collected in the 2015/16 dataset (<0.0001 to 0.011 mg/L).

There were no exceedances of the FIGWQG for dissolved lead within the Class C Storage Facility Area; all dissolved lead concentrations were less than 0.003 mg/L. Samples collected from well MW15-05D had the highest concentrations in the Class C Storage Facility Area, ranging from 0.000008 mg/L to 0.00022 mg/L. BH95G-31 had a peak in November 2015 with a dissolved lead concentration of 0.00026 mg/L, but otherwise ranged from 0.000012 mg/L to 0.000032 mg/L. MW15-04D and MW15-03S had similar concentrations, ranging from below the detection limit (<0.000005 mg/L) to 0.00013 mg/L. BH95G-30 ranged from 0.000006 mg/L to 0.000084 mg/L. The remainder of the monitoring wells in the Class C Storage Facility Area generally had dissolved lead concentrations below 0.00001 mg/L.

There was no evidence of a clear distinction between the bedrock and overburden wells in terms of water quality with the two years of baseline data collected, although total iron and dissolved selenium concentrations tended to be higher in overburden wells. Higher concentrations in metals were more closely related to location and redox regime, over the difference between overburden and bedrock.

**Table 3-16: Summary Statistics for Metals in Class C Storage Facility Area**

Metal ( <i>dissolved</i> )	Al	As	Cd	Cu	Fe ( <i>total</i> )	Pb	Se	Zn
Station Name	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
FIGWQG-Industrial-Tier1	*	0.005	*	*	0.3	*	0.001	0.03
BH95G-30								
Average	0.00319	0.000052	0.000132	0.00047	0.589	0.000031	0.00248	0.00788
Minimum	0.0005	0.000028	0.000095	0.000262	0.126	0.000006	0.00211	0.00697
Maximum	0.0129	0.000085	0.000186	0.000623	1.32	0.000084	0.00277	0.00926
Count Over Guideline	0	0	0	0	0	0	6	0
% Over Guideline	0	0	0	0	0	0	100	0
BH95G-31								
Average	0.01661	0.000147	0.000021	0.000655	69.15	0.000062	0.00154	0.0009
Minimum	0.00182	0.00006	0.000018	0.000433	3.01	0.000012	0.00136	0.00005
Maximum	0.0852	0.000248	0.000023	0.00132	228	0.000259	0.00166	0.0026
Count Over Guideline	0	0	0	0	0	0	6	0
% Over Guideline	0	0	0	0	0	0	100	0
MW15-03D								
Average	0.00352	0.00156	0.0000039	0.000227	1.261	0.0000083	0.000044	0.00068
Minimum	0.00057	0.00106	0.0000025	0.000025	0.433	0.0000025	0.00002	0.00011
Maximum	0.0144	0.00229	0.00001	0.00162	3.32	0.000044	0.000256	0.00238
Count Over Guideline	0	0	0	0	0	0	0	0
% Over Guideline	0	0	0	0	0	0	0	0
MW15-03S								

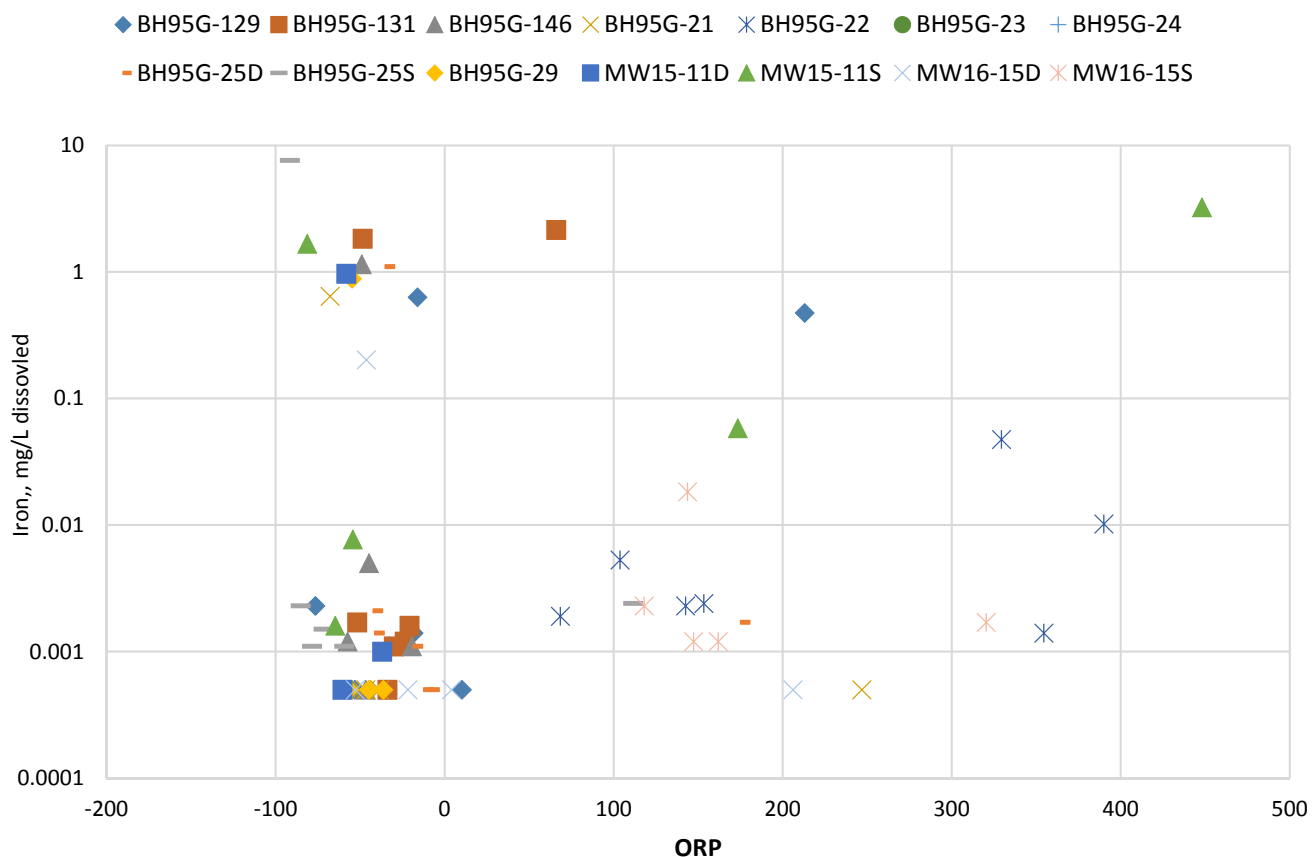
Metal (dissolved)	Al	As	Cd	Cu	Fe (total)	Pb	Se	Zn
Average	0.00682	0.000192	0.000017	0.000517	47.37	0.0000267	0.000236	0.00152
Minimum	0.00182	0.000137	0.000005	0.000142	7.41	0.0000025	0.000188	0.00005
Maximum	0.0266	0.00027	0.000033	0.00202	134	0.000127	0.000297	0.0106
Count Over Guideline	1	0	0	0	0	0	0	0
% Over Guideline	10	0	0	0	0	0	0	0
MW15-04D								
Average	0.00219	0.00153	0.0000172	0.000184	49.577	0.0000178	0.000062	0.00154
Minimum	0.00091	0.00116	0.0000025	0.000025	0.0005	0.0000025	0.00002	0.00016
Maximum	0.00369	0.00184	0.00004	0.000885	264	0.000096	0.000132	0.00956
Count Over Guideline	0	0	0	0	0	0	0	0
% Over Guideline	0	0	0	0	0	0	0	0
MW15-04S								
Average	0.00409	0.000225	0.0000062	0.000422	59.49	0.000004	0.000772	0.00079
Minimum	0.00199	0.000155	0.0000025	0.000025	4.72	0.0000025	0.000703	0.00005
Maximum	0.00702	0.000339	0.000015	0.00117	130	0.00001	0.000848	0.00255
Count Over Guideline	0	0	0	0	0	0	0	0
% Over Guideline	0	0	0	0	0	0	0	0
MW15-05D								
Average	0.00316	0.000125	0.000068	0.000422	6.741	0.000104	0.00167	0.0033
Minimum	0.00082	0.00004	0.000027	0.000079	0.451	0.000008	0.00149	0.00053
Maximum	0.0075	0.00022	0.000197	0.00166	16.5	0.000215	0.00182	0.0112
Count Over Guideline	0	0	0	0	0	0	10	0
% Over Guideline	0	0	0	0	0	0	100	0
MW15-05S								
n/a	Well was Dry							
MW15-06								
Average	0.00179	0.000059	0.000153	0.000429	17.4184	0.0000108	0.00262	0.00283
Minimum	0.00098	0.000037	0.000135	0.000341	0.0005	0.0000025	0.00238	0.00143
Maximum	0.00255	0.000102	0.000175	0.000593	69.1	0.000017	0.00285	0.00403
Count Over Guideline	0	0	0	0	0	0	6	0
% Over Guideline	0	0	0	0	0	0	100	0
MW16-16D								
Average	0.00407	0.00036	0.0000043	0.000056	8.87	0.0000068	0.00005	0.00224
Minimum	0.00366	0.000135	0.0000025	0.000025	1.82	0.0000025	0.00002	0.00034
Maximum	0.00467	0.000538	0.000008	0.00009	20.9	0.000012	0.000111	0.00581
Count Over Guideline	0	0	0	0	0	0	0	0
% Over Guideline	0	0	0	0	0	0	0	0

\* See Table 2.6 for guideline equation

### 3.3.5 Site Groundwater Quality Observations

#### 3.3.5.1 Physical Parameters and Nutrients

Throughout the KZK Project area, field pH values ranged from 5.68 to 8.50, with an average pH value of 7.38, for both bedrock and overburden wells, shown on Table 3-17. Field measured oxidation reduction potential ranged from -115 mV to +448 mV indicating that some wells are screened in material with reducing conditions and others in oxidizing conditions. Elevated iron concentrations in the ABM open pit area tended to occur at lower redox potential, as shown on Figure 3-10, suggesting the reducing conditions were responsible for the elevated iron levels observed.



**Figure 3-10: Dissolved Iron Concentration vs ORP within the ABM Open Pit area**

Sulphate concentrations were generally much higher in the ABM open pit area, with peaks of 280 mg/L and an average of 117 mg/L, relative to the rest of the Project area, which averaged 30 mg/L. Higher sulphate concentrations in the vicinity of the pit area is likely due to the oxidation of the sulphidic minerals in the deposit. Sulphate concentrations did seem to vary between overburden and bedrock wells across the site with deep wells tending to have slightly higher concentrations than shallow wells.

Ammonia was elevated in several wells spread across the entire KZK Project area and was not specific to a particular area, although the concentrations observed were generally higher in the ABM open pit area. Fluoride was elevated in many wells across the site, and was one of the few parameters to indicate a difference between bedrock and overburden concentrations, primarily in the Class A and Class C Storage Facility areas. Bedrock wells tended to have higher fluoride concentrations than the overburden wells likely reflecting the water-rock interaction and the leaching of fluoride from host rock minerals, such as mica. Fluoride concentrations across the site were the most consistent with little fluctuation relative to the other general parameters and metals.



### 3.3.5.2 Metals

Many of the metal concentrations fluctuated significantly over the period of record likely due to seasonal influence on groundwater quality. There was little indication that metals varied from bedrock wells compared to overburden wells. Cadmium, arsenic, selenium, and zinc are constituents of potential interest (COPI) within the KZK Project, as these elements were consistently elevated above the FIGWQG across the KZK site, as shown on Table 3-18. Additionally, geochemical testing and the water quality modelling conducted for the site also indicate that these elements are COPI for meeting long term water quality objectives.

Dissolved arsenic was slightly more elevated in the ABM open pit area, with an average concentration of 0.013 mg/L, compared to the rest of the KZK Project area, with an average of 0.001 mg/L. Cadmium concentrations were also generally higher in the ABM open pit area with average concentrations of 0.0008 mg/L compared to the rest of the Project area, with an average of 0.0001 mg/L. Lead and zinc concentrations were also higher in the ABM open pit area as well as in the wells that were located in the bottom of the valley beside Geona Creek, downgradient of the proposed ABM open pit. Similar to lead and zinc, iron was elevated in the ABM open pit area, as well as in the bottom of the Geona Creek valley. Dissolved selenium was elevated across the KZK Project in numerous wells; however, concentrations in select wells were much higher in the Class A and B areas.

The concentrations of cadmium, lead, and zinc within the ABM open pit area are likely elevated compared to the rest of the KZK Project site due to the mineralization of this area. Elevated iron in the ABM open pit area may be related to oxidation of iron sulphide minerals in and around the mineral deposit, but are most likely governed by reducing conditions in these circumneutral groundwaters.

**Table 3-17: Summary Statistics Anions and Nutrients All Areas**

	pH (field) pH units	Specific Conductance (lab) µS/cm	Temperature (field) °C	Dissolved Oxygen (field) mg/L	Dissolved Oxygen (field) %	ORP (field) mV	Fluoride mg/L	Sulphate, dissolved mg/L	Ammonia (N) mg/L
<b>FIGWQG-Industrial-Tier1</b>	6.5-9						0.12	100	0.282
<b>ABM Open Pit Area</b>	5.98-7.9 (7.31)	267-1160 (577.86)	0.5-10 (2.24)	0-11 (2.86)	10-96 (32.66)	-76.5-390 (31.72)	0.047-0.31 (0.12)	33.4-279 (117.14)	0.011-0.78 (0.14)
<b>Class A Storage Facility Area</b>	5.68-7.73 (7.2)	263-813 (482)	-0.1-5.9 (1.88)	0.48-10.7 (4.94)	7-95 (43.84)	-66.8-400 (94.94)	0.04-0.73 (0.32)	7.43-52.1 (28.58)	0.0091-0.41 (0.07)
<b>Class B Storage Facility Area</b>	6.27-8.5 (7.24)	316-1610 (799.33)	-0.2-4.7 (2.1)	0-11.8 (5.09)	3.9-108 (43.62)	-115-339.9 (61.65)	0.032-1.1 (0.366)	0.25-138 (39.11)	0.0068-0.4 (0.1134)
<b>Class C Storage Facility Area</b>	6.06-8.1 (7.63)	231-437 (324)	-0.2-9.6 (2.6)	0.52-280 (10.37)	6-101.8 (58.03)	-85-335.4 (71.24)	0.057-0.24 (0.13)	8.81-42.2 (20.98)	0.0025-0.3 (0.0593)
## - ## is the minimum and maximum range for the well for 2015-2016 data (##) is the average concentration, concentrations less than the DL were taken as ½ DL values									

**Table 3-18: Summary Statistics Metals All Areas**

	Aluminum (Al), dissolved mg/L	Arsenic (As), dissolved mg/L	Cadmium (Cd), dissolved mg/L	Copper (Cu), dissolved mg/L	Iron (Fe), total mg/L	Lead (Pb), dissolved mg/L	Selenium (Se), dissolved mg/L	Zinc (Zn), dissolved mg/L
<b>FIGWQG- Industrial-Tier1</b>	*	0.005	*	*		*	0.001	0.03
<b>ABM Open Pit Area</b>	0.00025-0.038 (0.00398)	0.000024-0.075 (0.013)	0.0000025-0.00375 (0.00080)	0.000025-0.00644 (0.00036)	0.632-405 (70.14)	0.0000025-0.00406 (0.00078)	0.00002-0.00088 (0.00013)	0.00005-2.03 (0.41)
<b>Class A Storage Facility Area</b>	0.00025-0.17 (0.027)	0.00001-0.0085 (0.0022)	0.0000025-0.00157 (0.00023)	0.000025-0.00309 (0.00036)	0.0036-136 (21.534)	0.0000025-0.00024 (0.000046)	0.00002-0.0073 (0.0014)	0.00005-0.028 (0.0048)
<b>Class B Storage Facility Area</b>	0.00025-0.0142 (0.00315)	0.00001-0.0034 (0.000459)	0.0000025-0.00013 (0.0000187)	0.000025-0.000899 (0.00020)	0.0005-203 (42)	0.0000025-0.000141 (0.000016)	0.00002-0.0079 (0.0014)	0.00005-0.24 (0.027)
<b>Class C Storage Facility Area</b>	0.0005-0.0852 (0.00565)	0.000028-0.0023 (0.0005473)	0.0000025-0.000197 (0.0000379)	0.000025-0.00202 (0.00041)	0.0005-264 (33.454)	0.0000025-0.000259 (0.000036)	0.00002-0.0028 (0.000972)	0.00005-0.011 (0.0023729)

\* See Table 2.6 for Guideline Equations

## - ## is the minimum and maximum range for the well for 2015-2016 data

(##) is the average concentration, concentrations less than the DL were taken as ½ DL values

## 4 SUMMARY AND CONCLUSIONS

The main conclusions from the groundwater monitoring program are as follows:

- Hydraulic properties at the KZK site were assessed for overburden and bedrock. The overburden generally consists of two material types:
  - Fine-grained lower permeability sediments containing silts and fine sands, and
  - Coarse-grained higher permeability sands and gravels.

For testing conducted during 2015/2016, the geometric mean hydraulic conductivity for tests conducted in fine-grained sediments is  $5.2 \times 10^{-6}$  m/s. The hydraulic conductivity of coarse-grained sediments is approximately  $1.3 \times 10^{-4}$  m/s

For bedrock, hydraulic conductivities generally range between  $1 \times 10^{-7}$  to  $1 \times 10^{-5}$  m/s. Bedrock in the depth range of 10 m to 70 m below ground surface does not appear to have increasing or decreasing hydraulic conductivities with depth. The geometric mean of 2015/2016 short-term tests is  $1.2 \times 10^{-6}$  m/s, which is similar to the result of a long-term bedrock pumping test conducted by EBA ( $1.7 \times 10^{-6}$  m/s).

- With varying levels of intensity, groundwater elevations across the site generally exhibited a similar seasonal pattern in both bedrock and overburden wells. The observed seasonal pattern was:
  - Declining water levels from November 2015 through April 2016;
  - Rising water levels from May through September 2016; and
  - Declining water levels after September 2016.

In most monitoring wells, water levels fluctuated between 2 to 5 metres. However, there was a 12 m water level variation in BH95G-2 and less than 1 m variation in MW15-07S.

- Project wide the field pH ranged from circumneutral to slightly alkaline, 5.68 to 8.50, with an average pH value of 7.38, for both bedrock and overburden wells.
- MW15-10S and MW15-10D, had lower pH values relative to the rest of the KZK Project monitoring wells, with a range of 5.82 to 6.24, and 5.8 to 6.17, respectively. These lower pH wells are located nearby the KZ-9 east seep, which is also characterized by low pH water (pH 5.8 to 6.0), suggesting groundwater found in wells MW15-10S and MW15-10D are fed from the same source as this seep.
- Sulphate concentrations were typically more elevated within the ABM open pit area, with a maximum sulphate concentration of 280 mg/L and an average of 117 mg/L. The remainder of the KZK Project site had average sulphate concentrations of 30 mg/L. Higher concentrations in the ABM open pit area is likely due to the oxidation of the sulphidic minerals in the deposit.
- Generally, concentrations of nutrients, anions, and metals did not vary between overburden and bedrock wells; with the exception of sulphate and fluoride. In both cases deeper wells had higher concentrations.

- Ammonia was elevated in wells throughout KZK Project area and was not specific to a particular area, although the concentrations observed were generally higher in the ABM open pit area.
- Cadmium, arsenic, selenium, and zinc are parameters of potential concern within the KZK Project, and had elevated concentrations above the FIGWQG in the samples collected from the monitoring wells across the site.
- Concentrations of cadmium, iron, and zinc were elevated in the ABM open pit area relative to the rest of the KZK Project, likely due to the mineralization of ABM open pit area. Elevated iron in the ABM open pit area may be related to oxidation of iron sulphide minerals in and around the ABM deposit, but are most likely governed by reducing conditions in these circumneutral groundwaters.

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APPENDIX A  
2016 PUMPING TEST RESULTS

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## KZK Pumping Tests Conducted by AEG

Well Information							Specific Capacity Analysis					Theis Recovery Analysis			Best-Estimate Values	
ID MW16-xxx	Geologic material	Borehole diameter	Riser pipe nominal diameter	Top of test interval (a)	Bottom of test interval (a)	Saturated test interval length (a) L m	Pumping duration  t <sub>p</sub> min	Average pumping rate Q L/sec	Interpreted pumping drawdown s <sub>p</sub> m	Shape factor (b)  F --	Computed transmissivity  T m <sup>2</sup> /day	Change in residual drawdown per log cycle Δs <sub>10</sub> m	Average pumping rate Q L/sec	Computed transmissivity  T m <sup>2</sup> /day	Best-estimate transmissivity (g) T m <sup>2</sup> /day	Best-estimate hydraulic conductivity (h) K m/sec
12S	Overburden	9.6	3.175	2.60	4.16	1.56	26.08	0.0309	3.35	5.8	0.736	0.435	0.0309	1.125	0.930	6.9E-06
12D	Bedrock	9.6	3.175	20.45	26.83	6.38	30.05	0.0833	1.57	5.8	4.232	(e)			4.232	7.7E-06
14D	Bedrock	9.6	3.175	30.75	37.83	7.08	27.83	0.0735	6.31	5.8	0.929	2.04	0.0735	0.570	0.750	1.2E-06
15S	Overburden	9.6	3.175	3.61	5.26	1.65	27.17	0.0263	< 0.1	5.8	> 21	(f)			> 21	> 1.5E-04
15D	Bedrock	9.6	3.175	28.80	36.06	7.26	29.55	0.0610	3.28	5.8	1.483	0.93	0.0610	1.039	1.261	2.0E-06
16D	Bedrock	9.6	3.175	31.30	38.38	7.08	(c)	(d)	(d)			(d)				
17	Bedrock	9.6	3.175	20.30	27.11	6.81	30.12	0.0536	5.7	5.8	0.750	0.795	0.0536	1.068	0.909	1.5E-06

- (a) Test interval length is generally from the top to the bottom of the sand pack. If the static water level is below the top of sand pack, the test interval is from the static water level to the bottom of the sand pack.
- (b) For typical well completions, the shape factor normally ranges from 5.4 to 6.2; a value of 5.8 is reasonable for practical application
- (c) Three brief pumping periods over a total duration of 34.7 minutes
- (d) Cannot be analyzed due to oscillations and discontinuous pumping
- (e) Recovery too rapid for reliable analysis
- (f) Insufficient drawdown for reliable analysis
- (g) Average of specific capacity and Theis recovery transmissivities if both values calculated
- (h) Average hydraulic conductivity of geologic materials within the test interval
- bgs Below ground surface

Specific Capacity Analysis

$$T = \frac{Q F}{2 \pi s_p}$$

Theis Recovery Analysis

$$T = \frac{2.303 Q}{4 \pi \Delta s_{10}}$$

Hydraulic Conductivity

$$K = \frac{T}{L}$$

### MW16-17 Pumping Test Hydrograph Raw Data

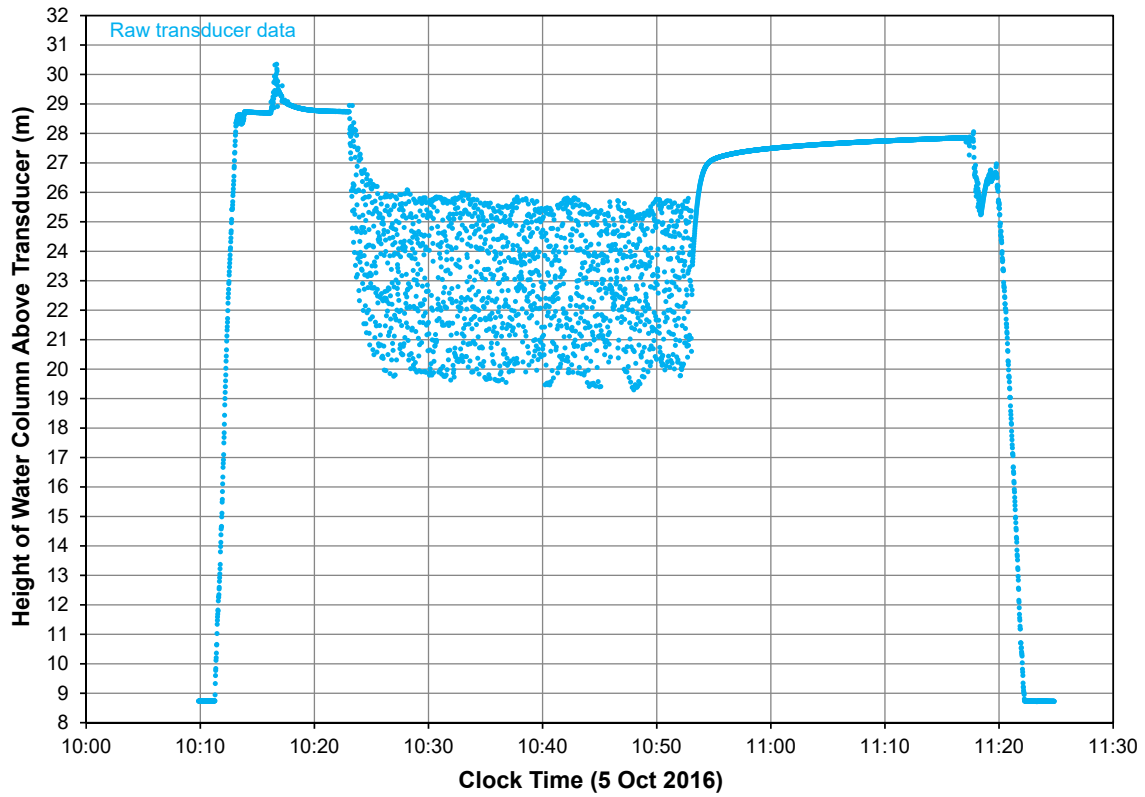


Figure A-1

### MW16-17 Pumping Test Hydrograph Moving Average

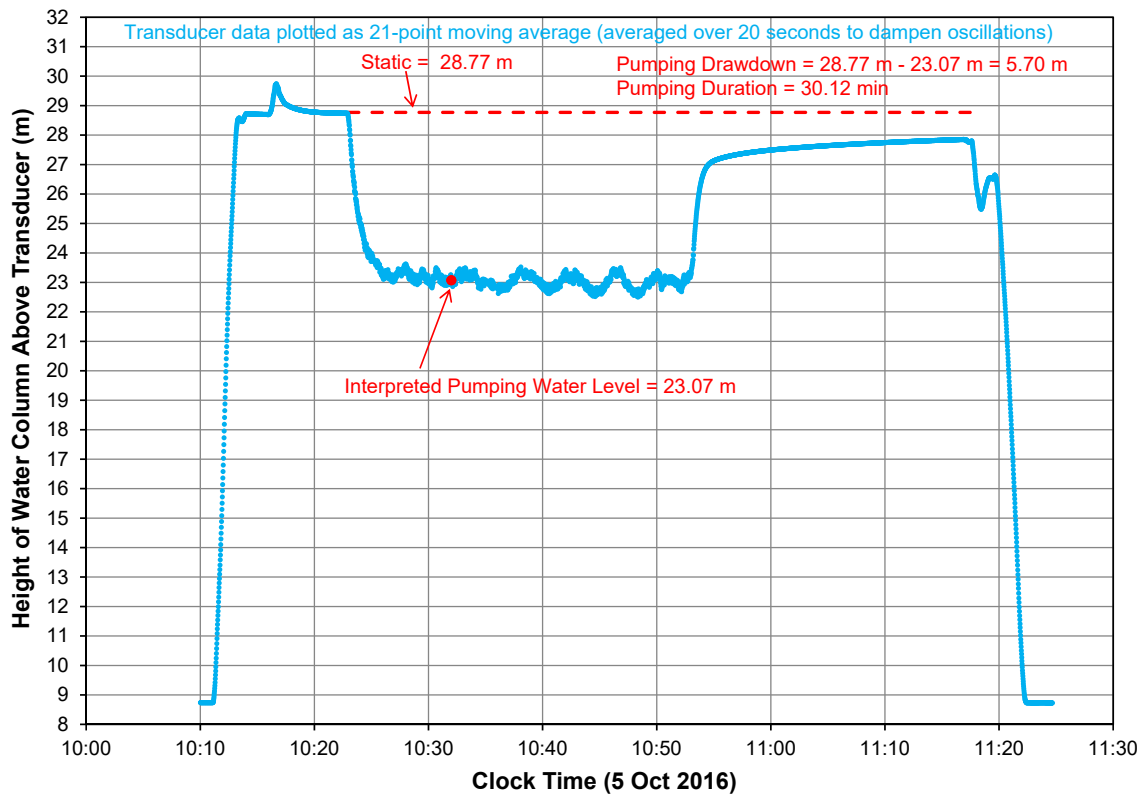


Figure A-2

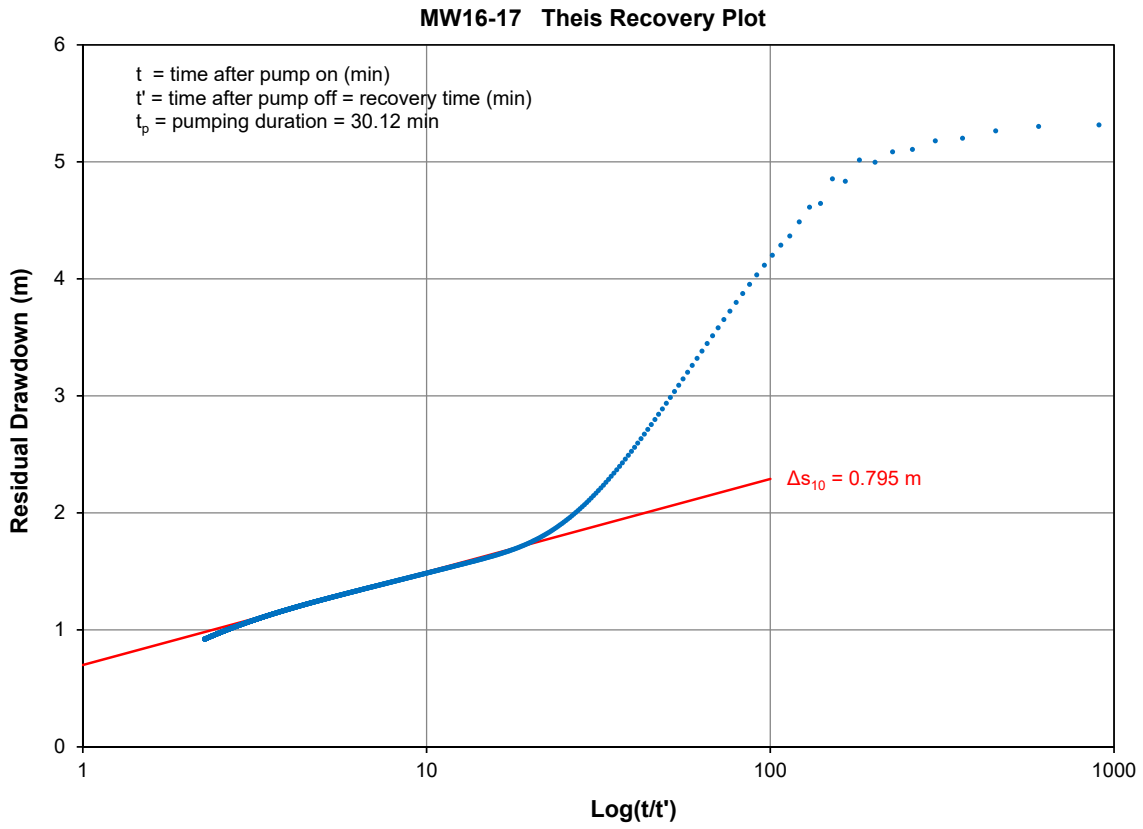


Figure A-3

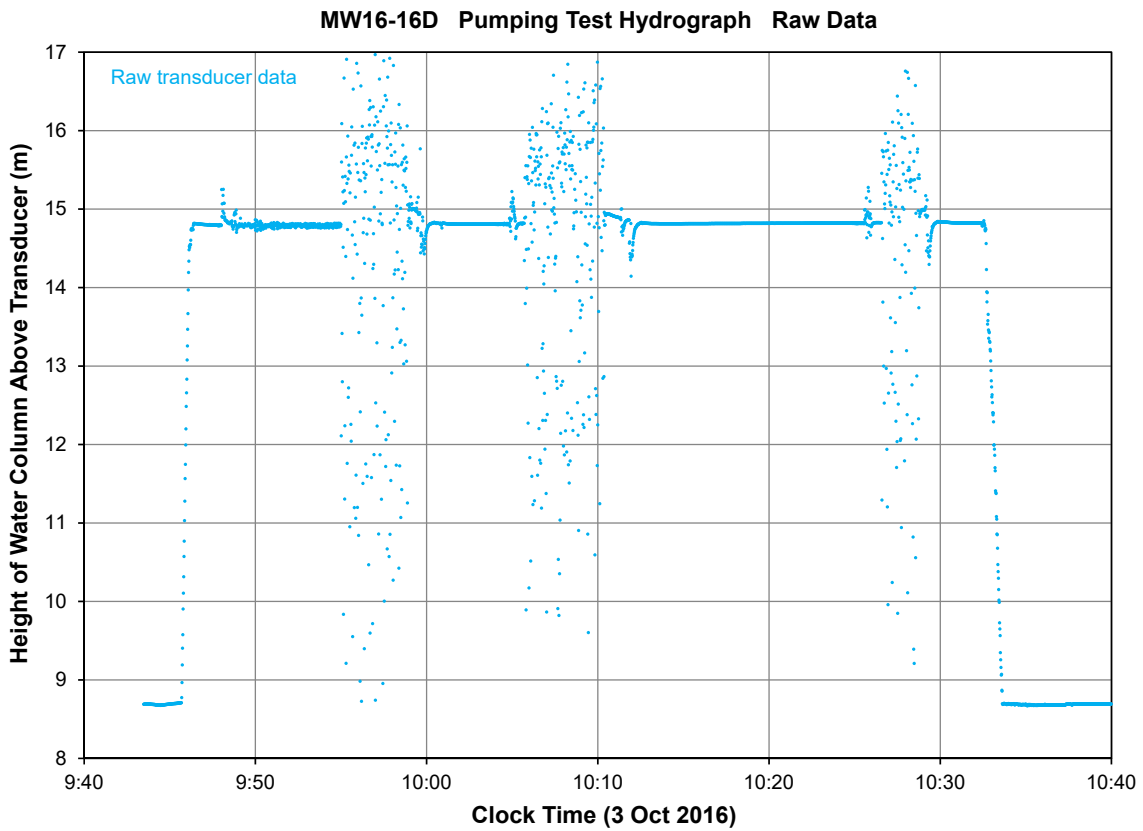


Figure A-4

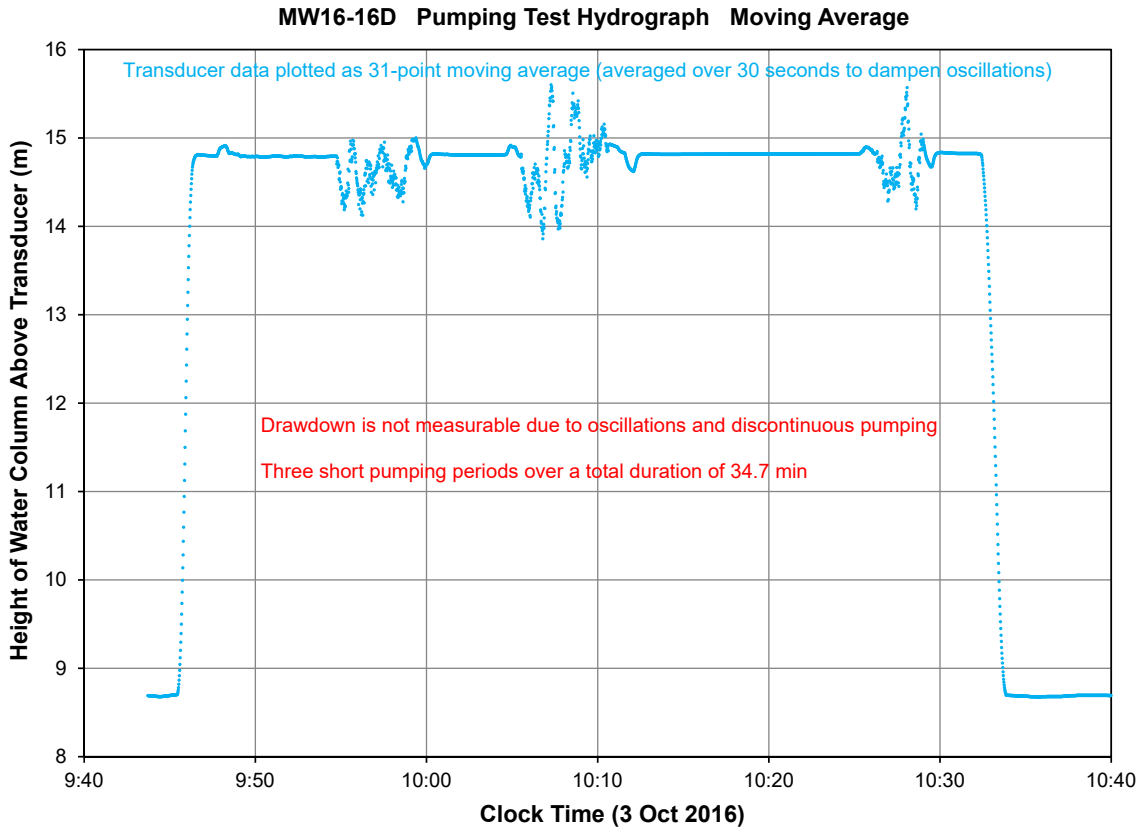


Figure A-5

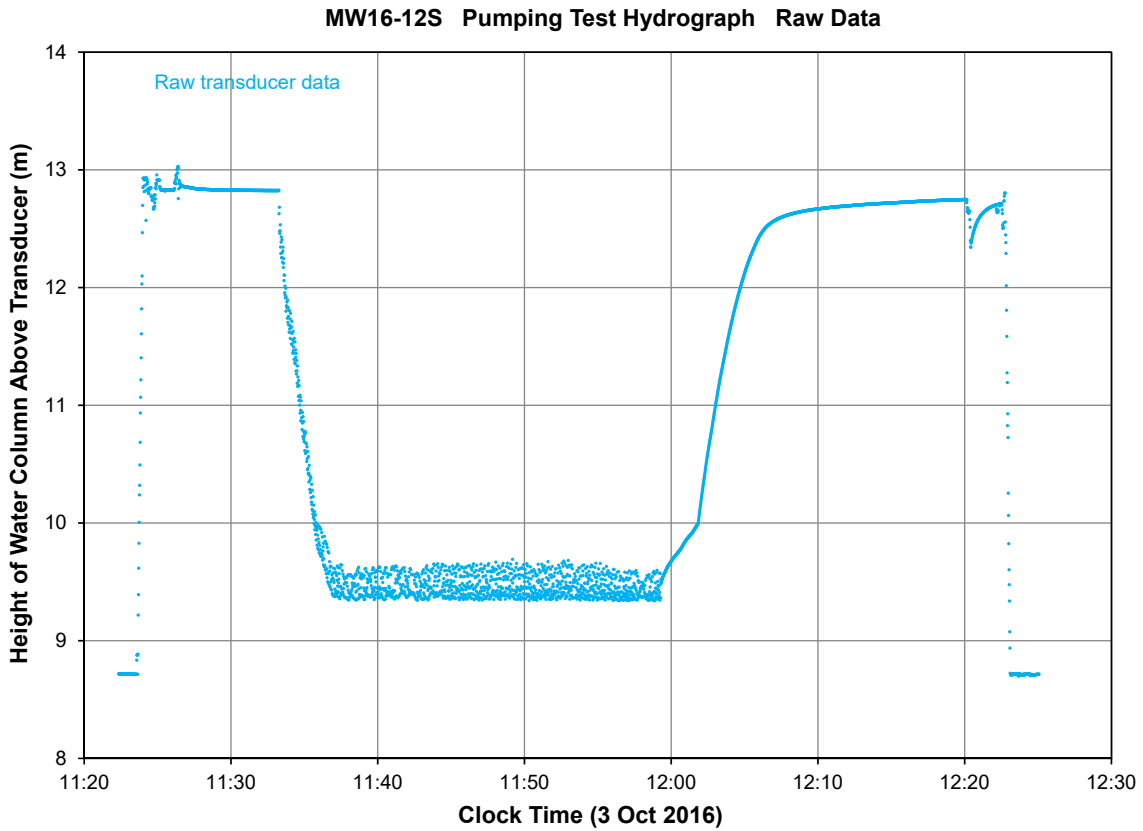


Figure A-6



### MW16-12S Pumping Test Hydrograph Moving Average

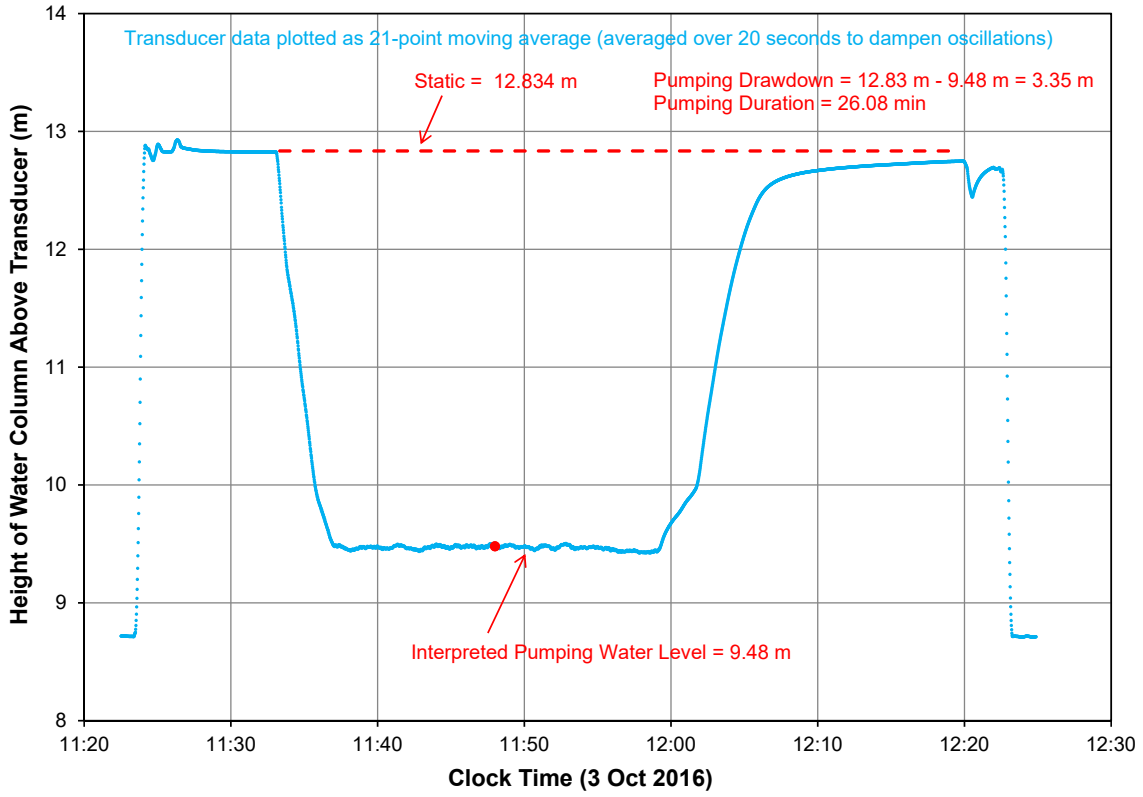


Figure A-7

### MW16-12S Theis Recovery Plot

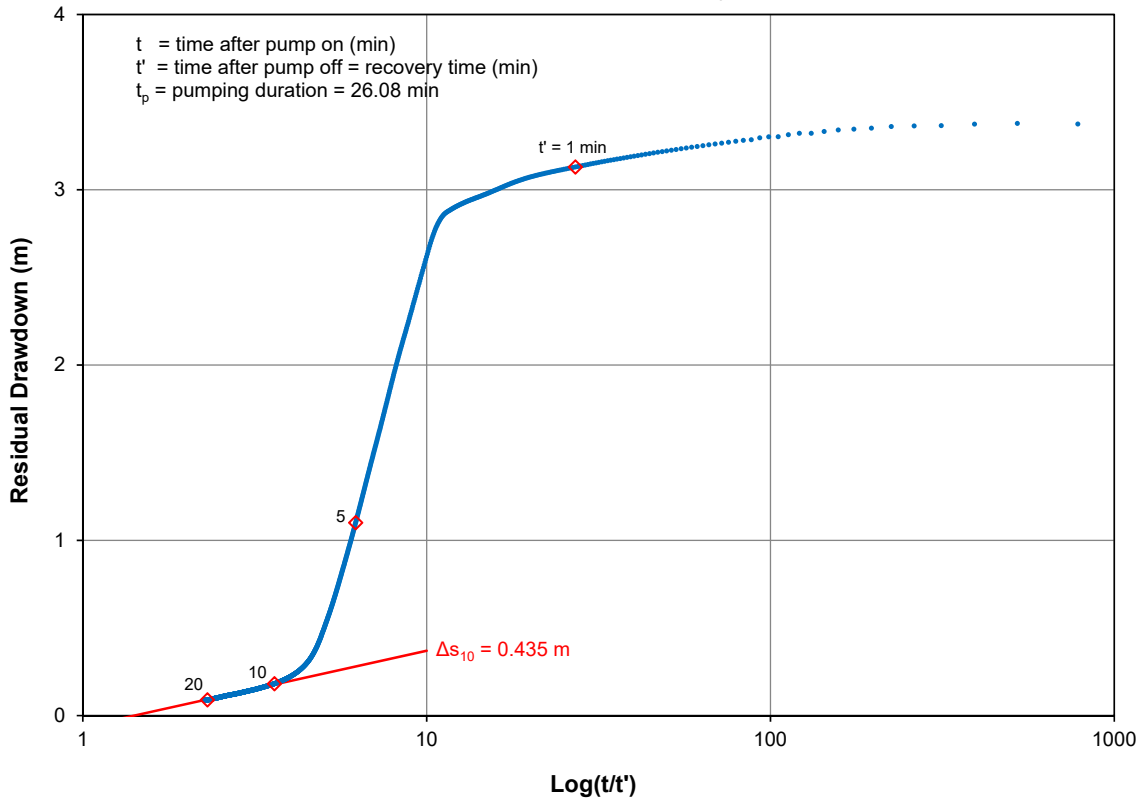


Figure A-8

MW16-15S Pumping Test Hydrograph Raw Data

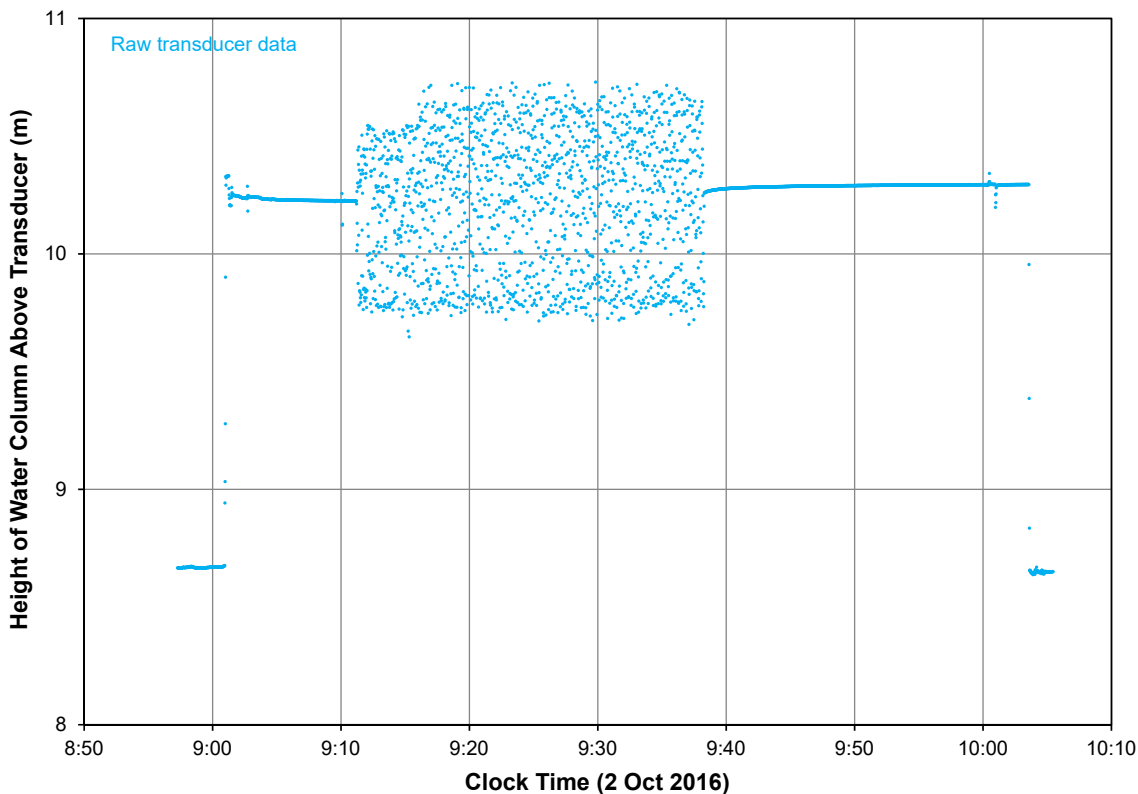


Figure A-9

MW16-15S Pumping Test Hydrograph Moving Average

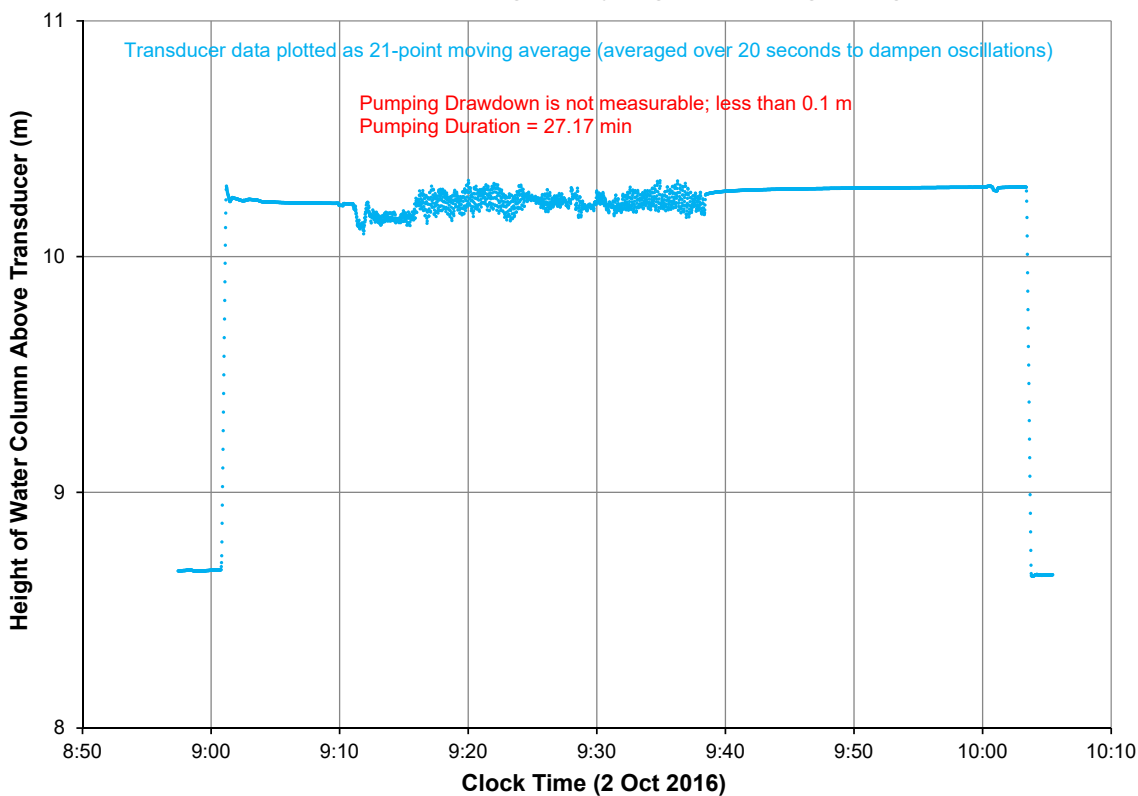


Figure A-10

### MW16-12D Pumping Test Hydrograph Raw Data

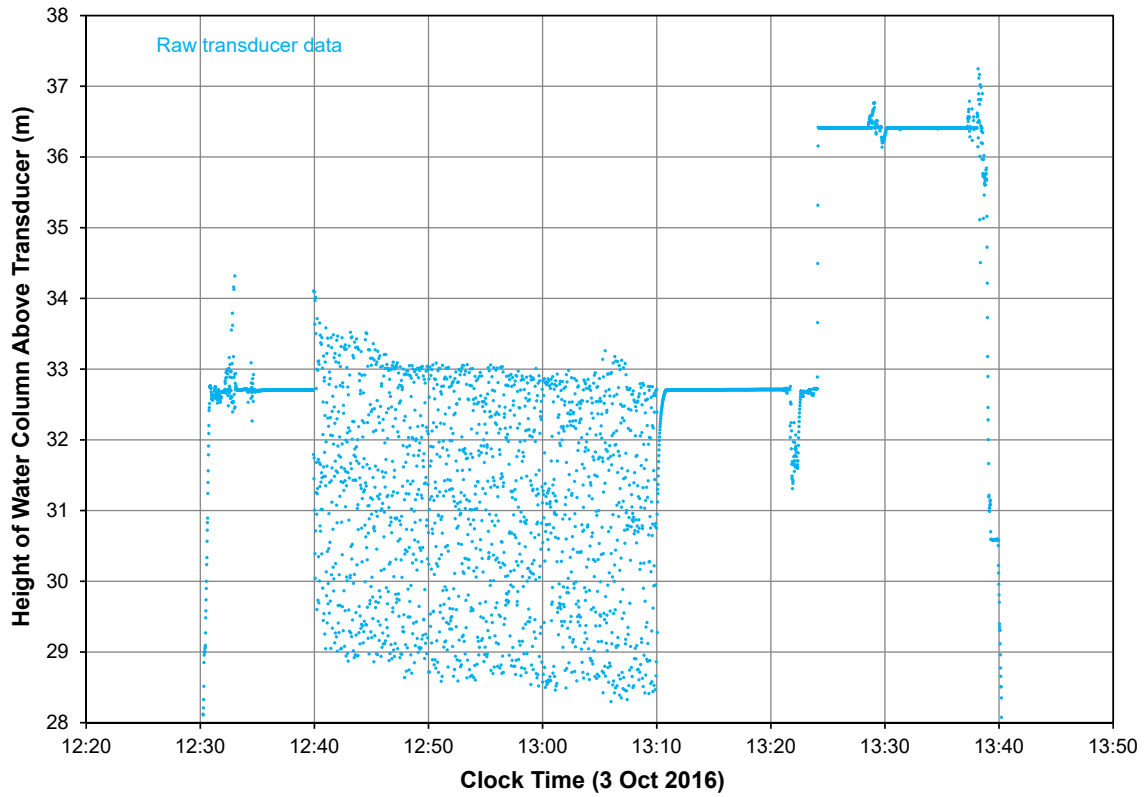


Figure A-11

### MW16-12D Pumping Test Hydrograph Moving Average

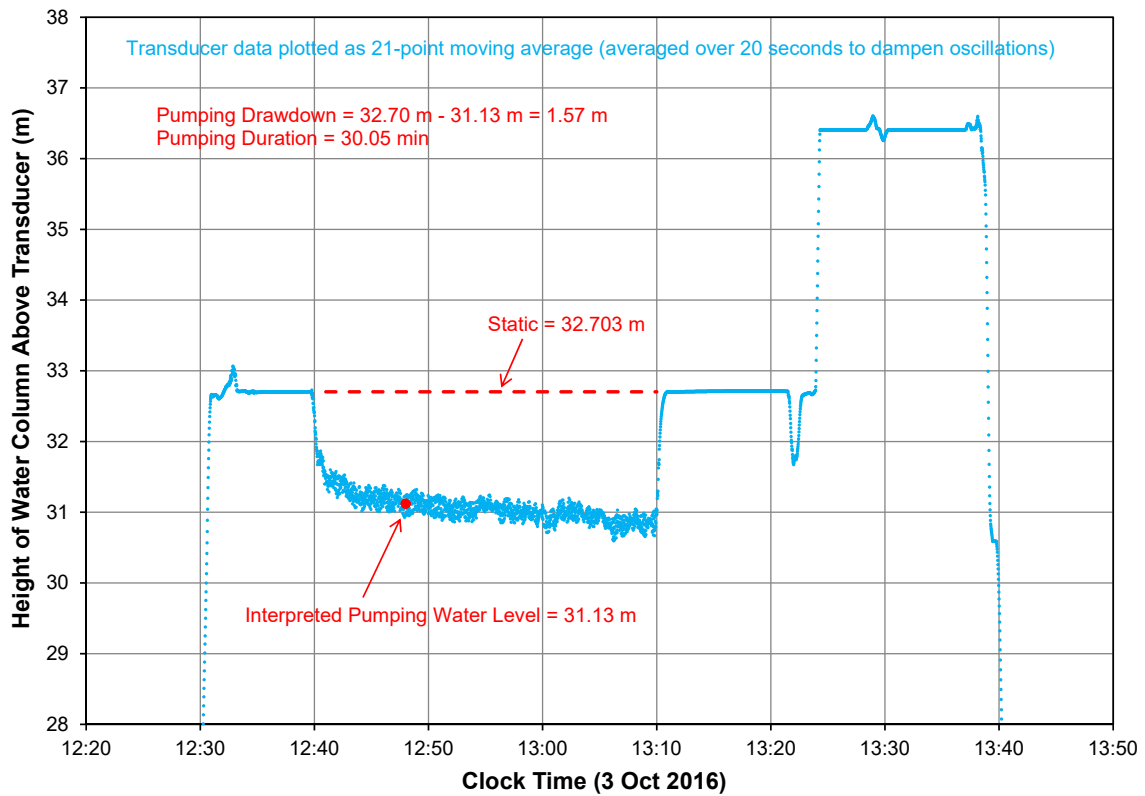


Figure A-12

### MW16-15D Pumping Test Hydrograph Raw Data

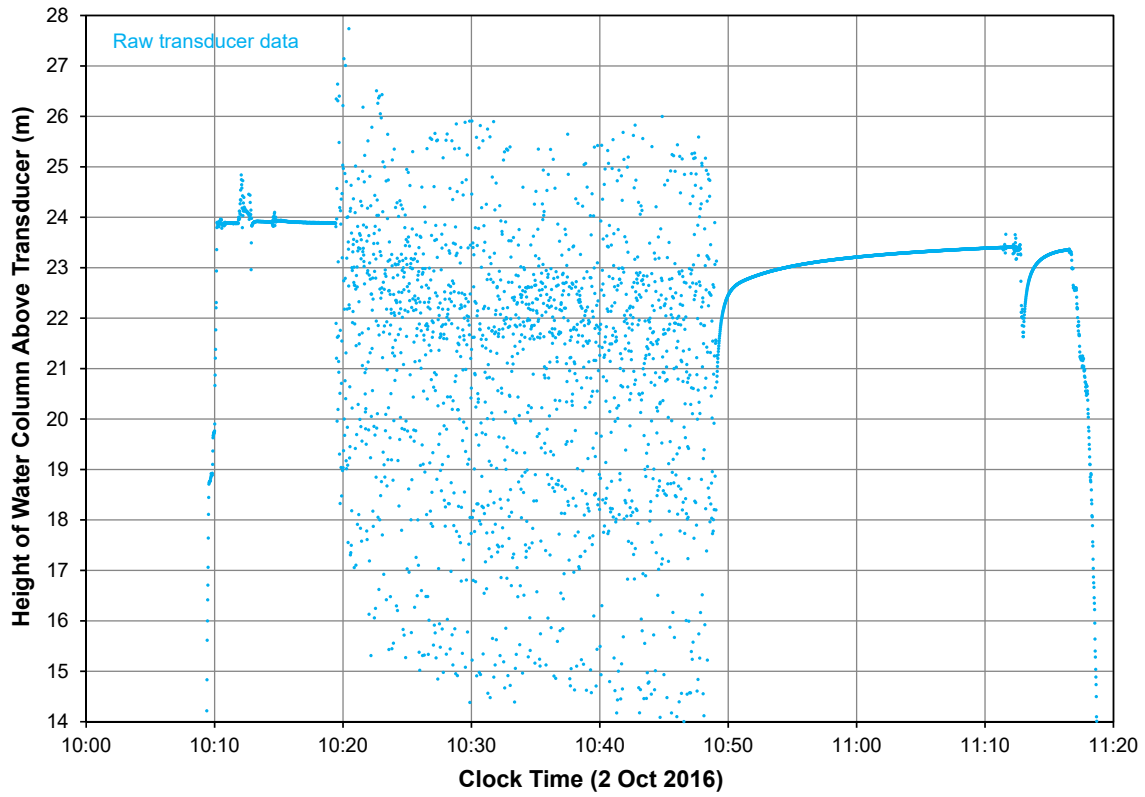


Figure A-13

### MW16-15D Pumping Test Hydrograph Moving Average

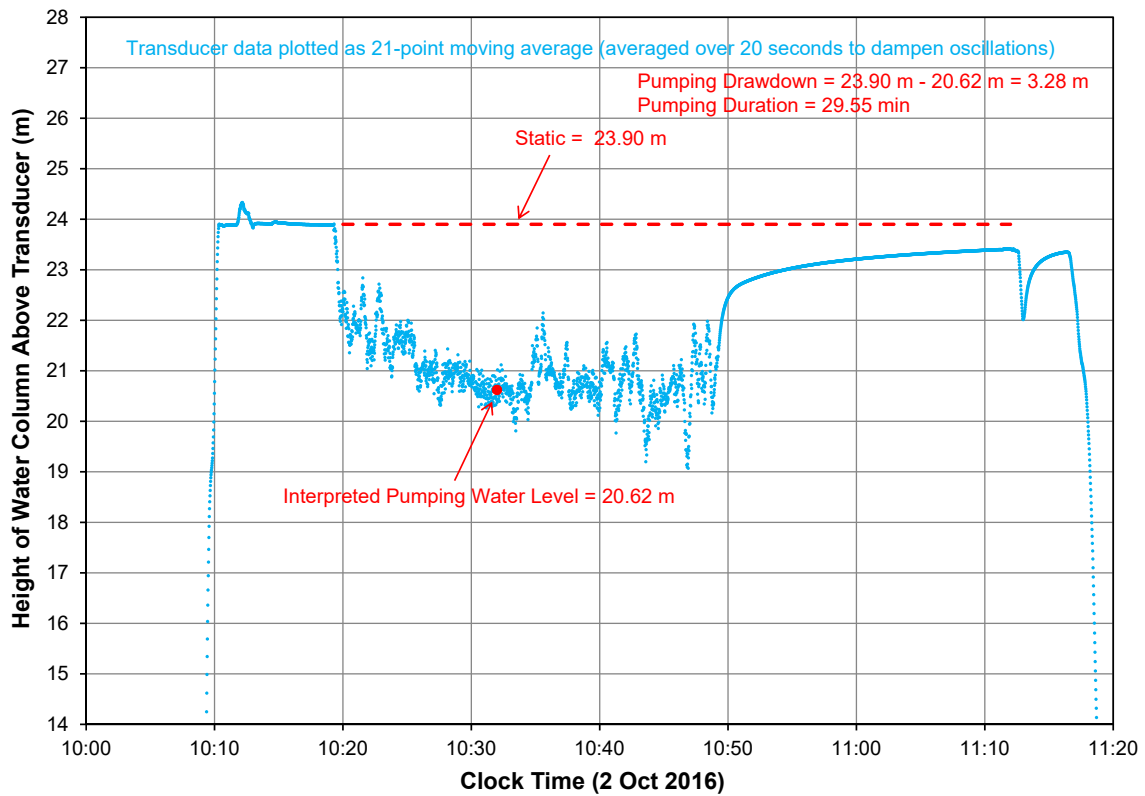


Figure A-14

### MW16-15D Theis Recovery Plot

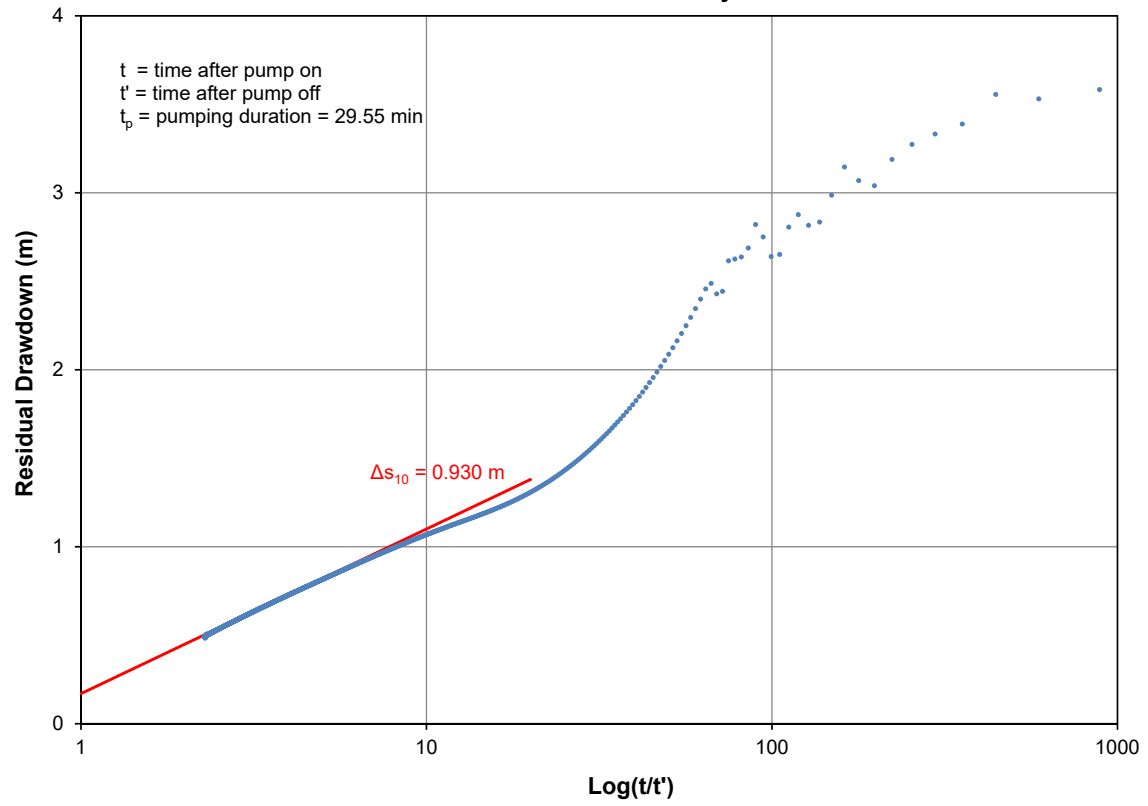


Figure A-15

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APPENDIX B  
GROUNDWATER ELEVATIONS



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# GROUNDWATER LEVEL PIT

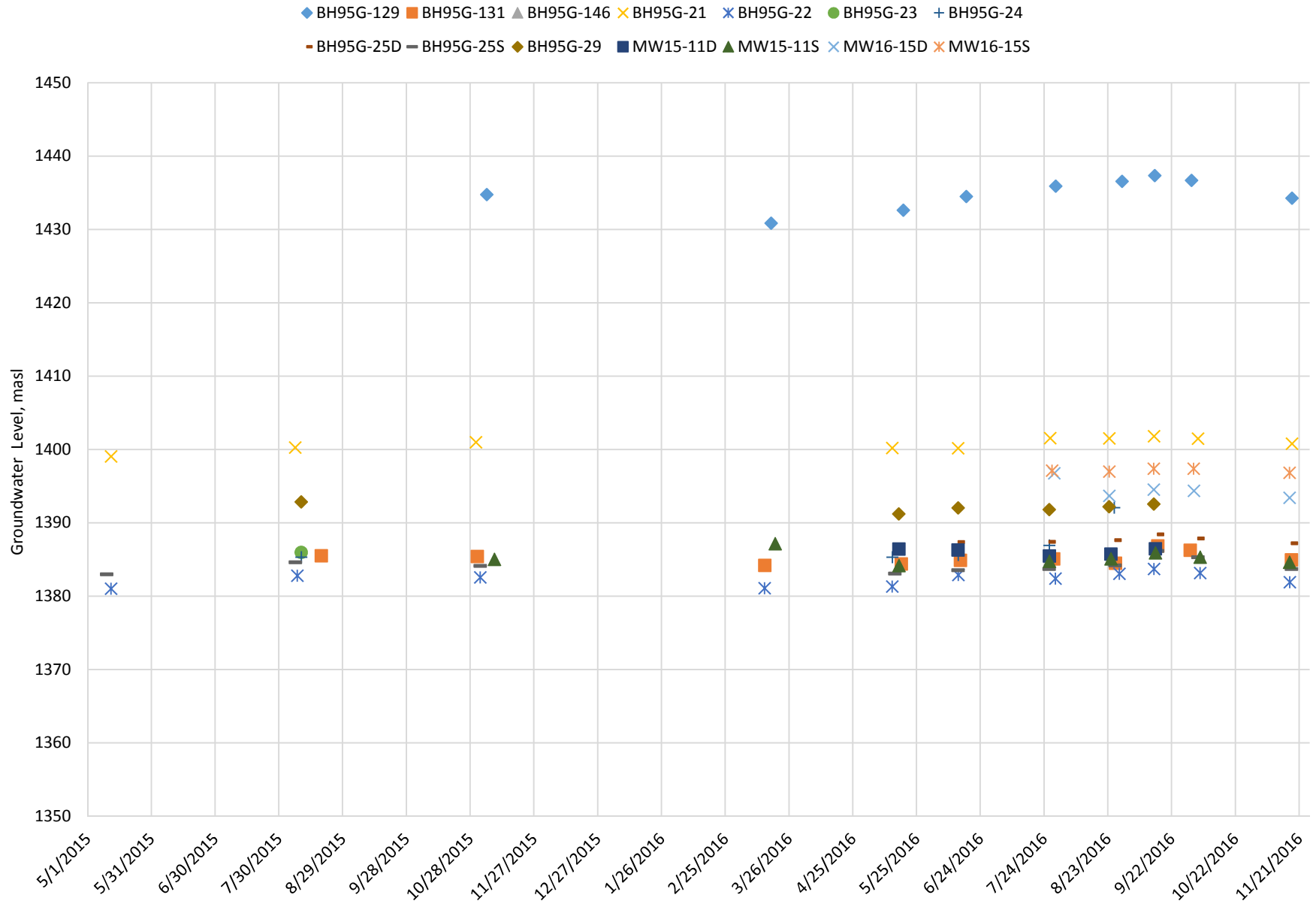


Figure B - 1

# GROUNDWATER LEVEL AREA A

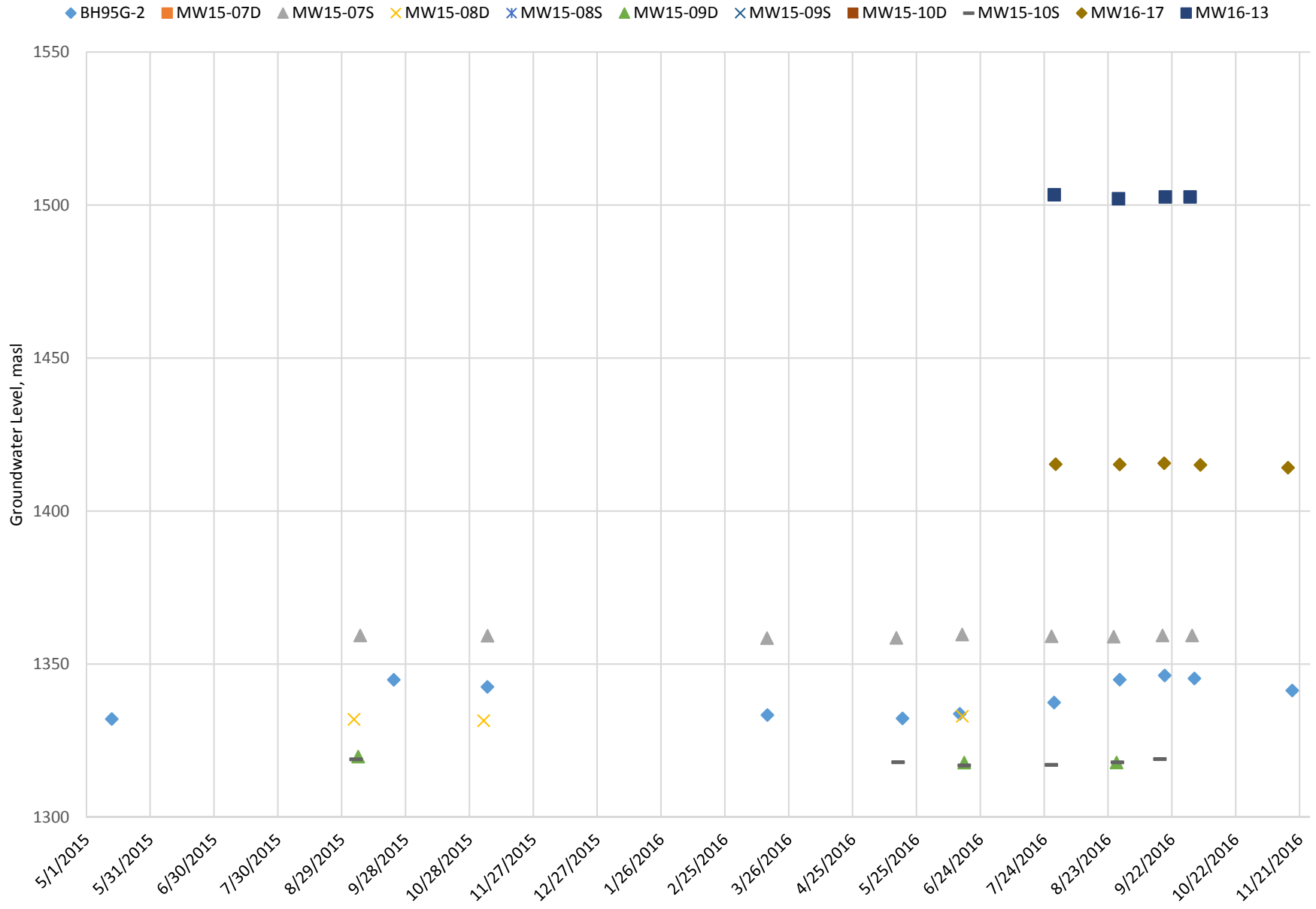


Figure B - 2

# GROUNDWATER LEVEL AREA B

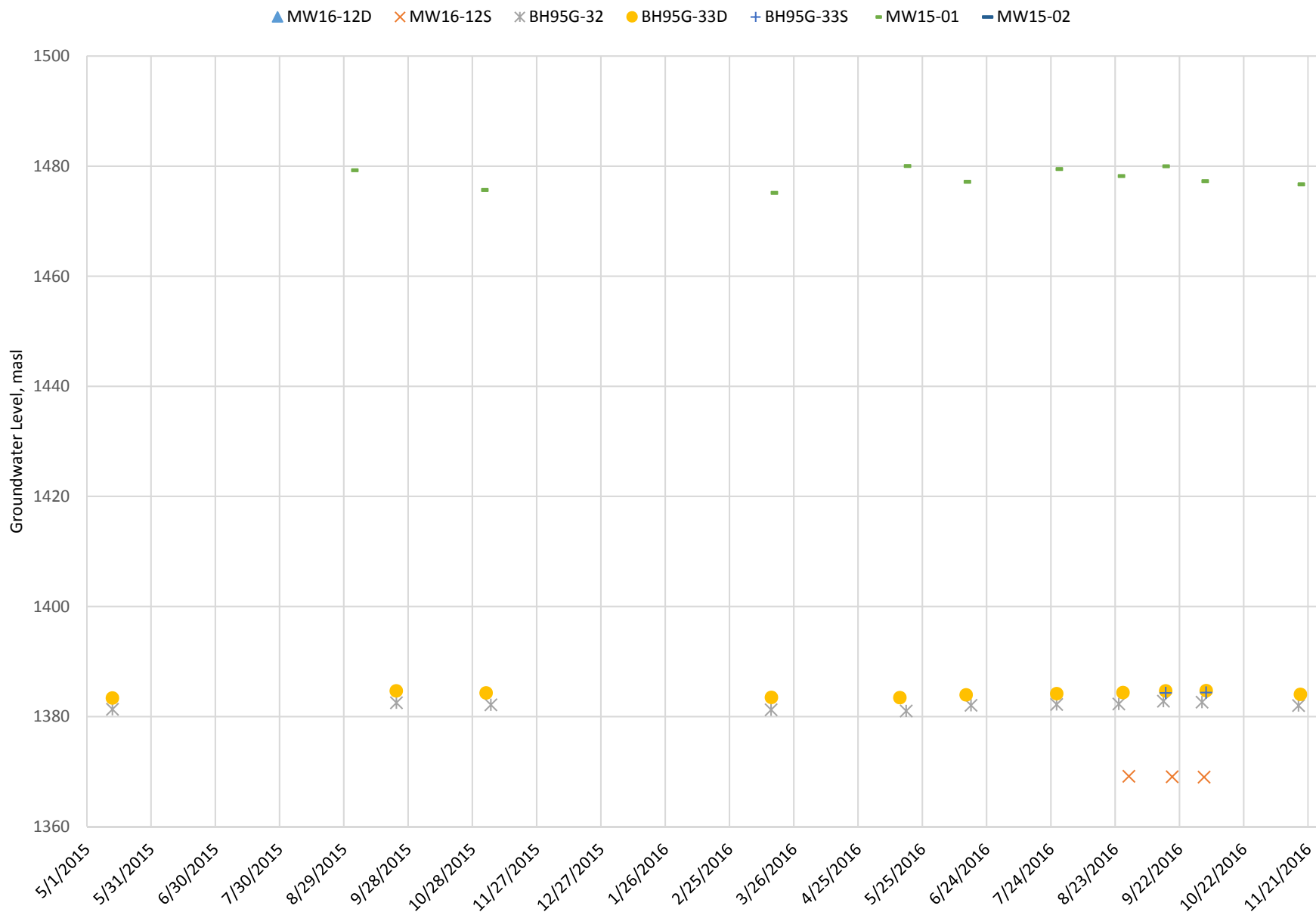


Figure B - 3

# GROUNDWATER LEVEL AREA C

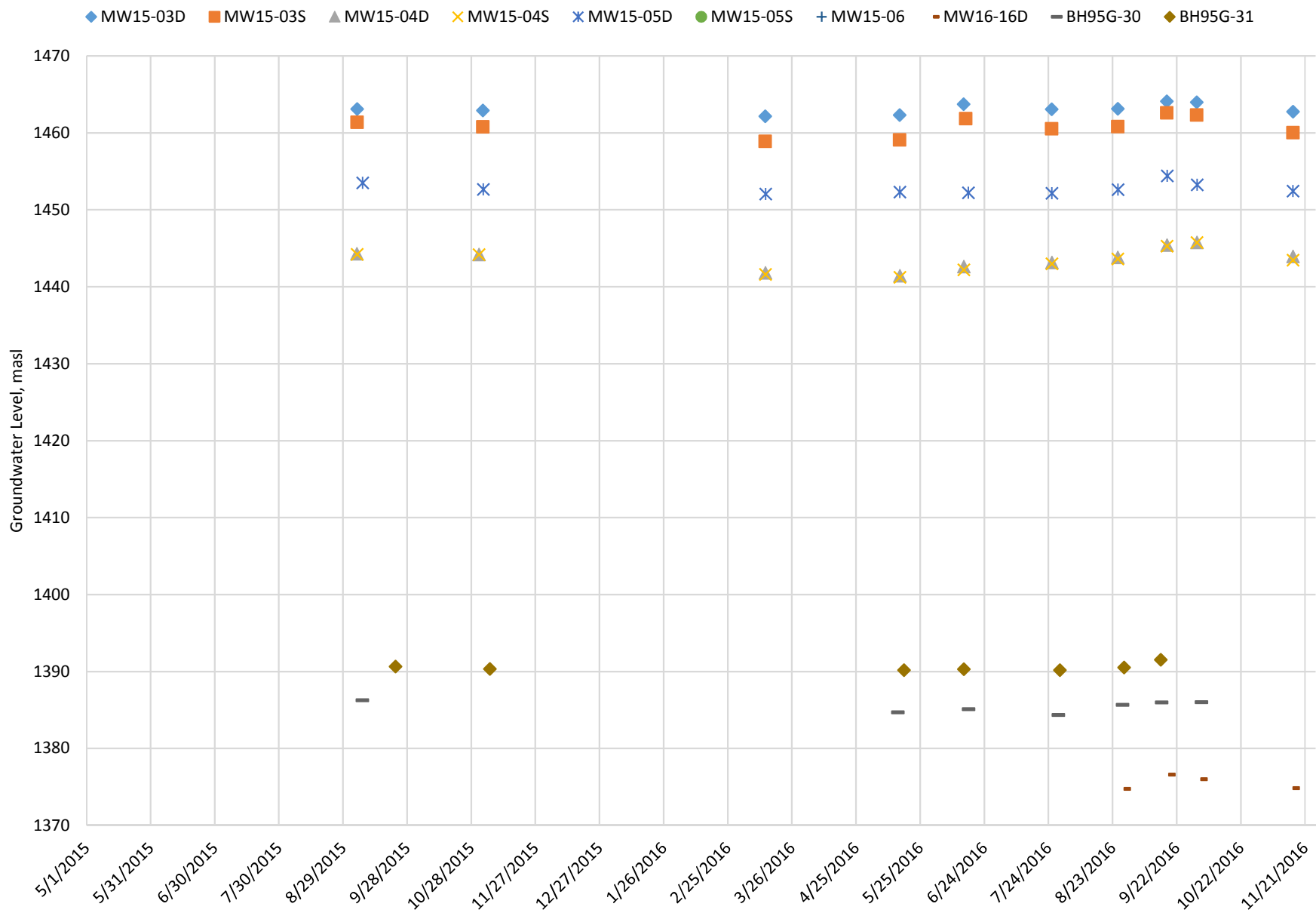


Figure B - 4

APPENDIX C  
GROUNDWATER QUALITY PLOTS

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C-1

PIT GROUNDWATER QUALITY PLOTS

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# AMMONIA-N CONCENTRATION PIT

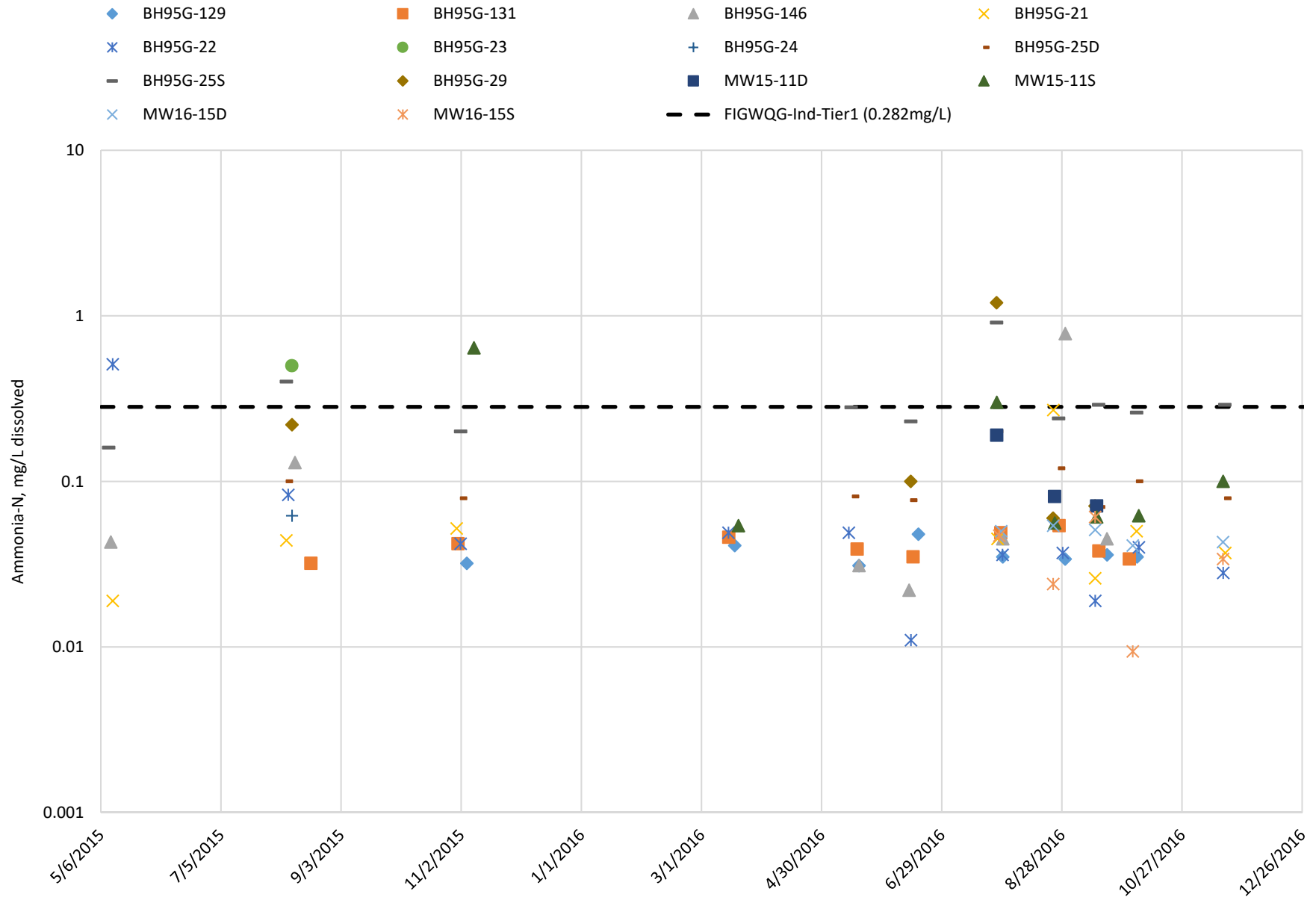


Figure C - 1

# SULPHATE CONCENTRATION PIT

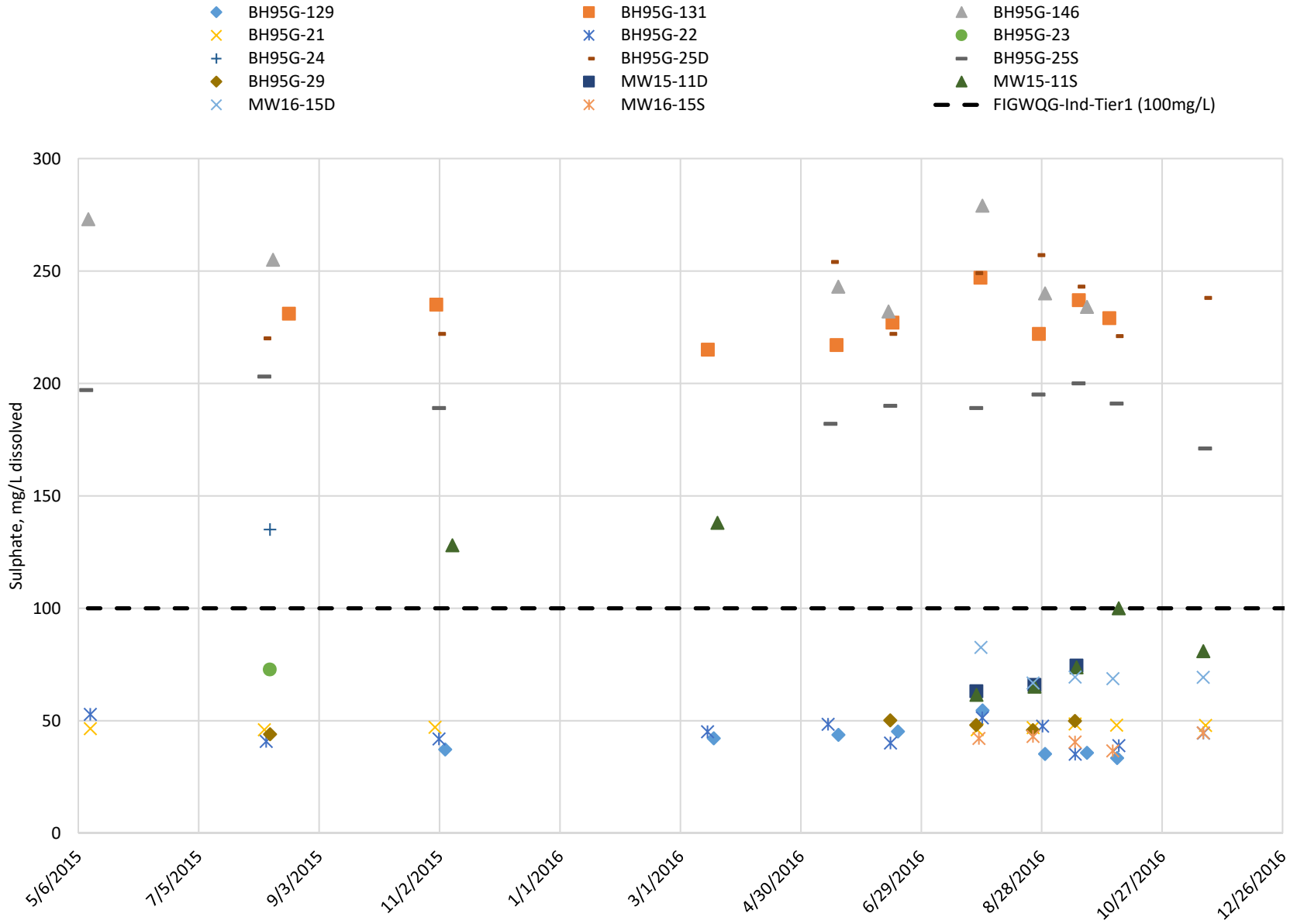


Figure C - 2

# FLOURIDE CONCENTRATION IN PIT

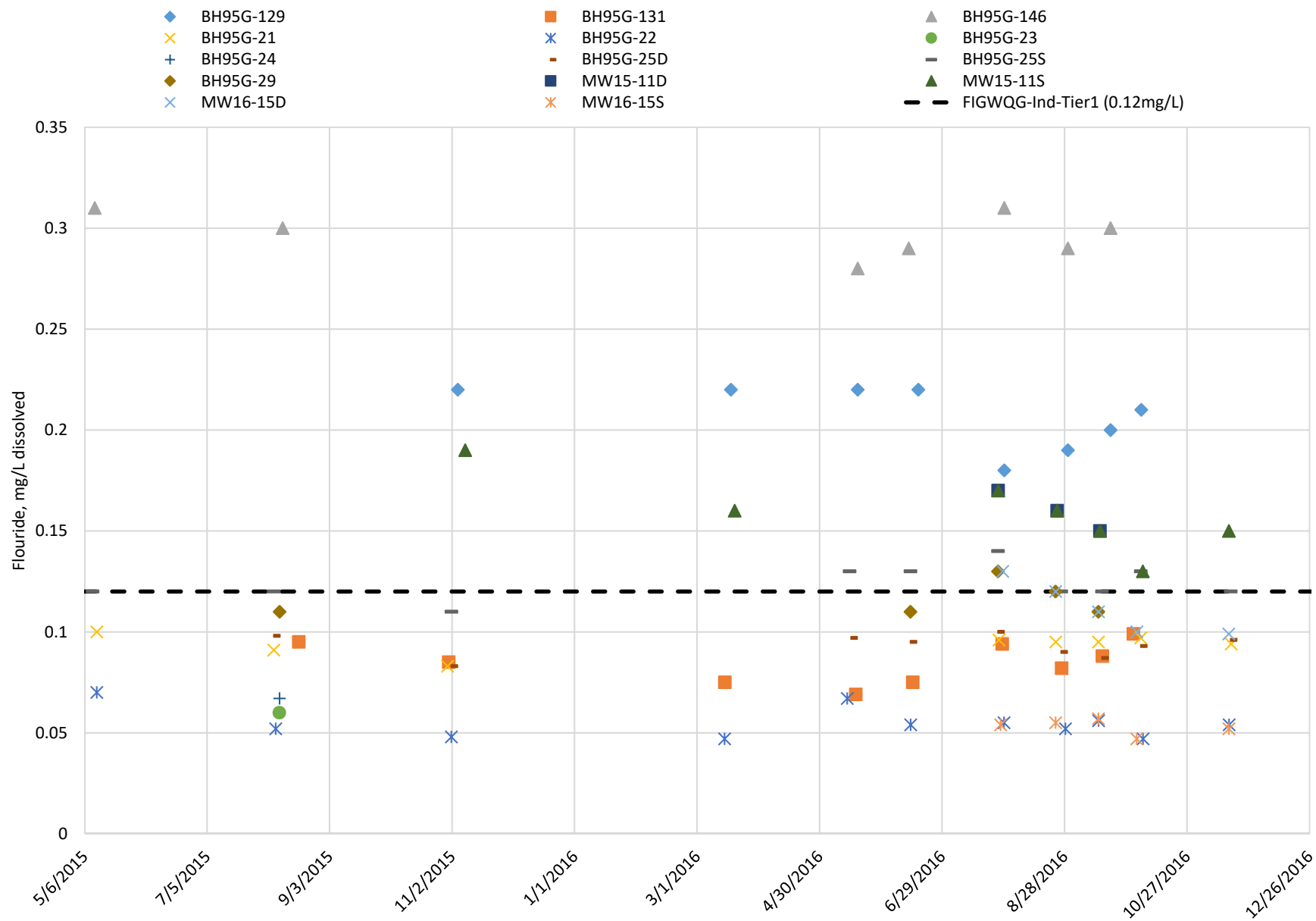


Figure C - 3

# ARSENIC CONCENTRATION PIT

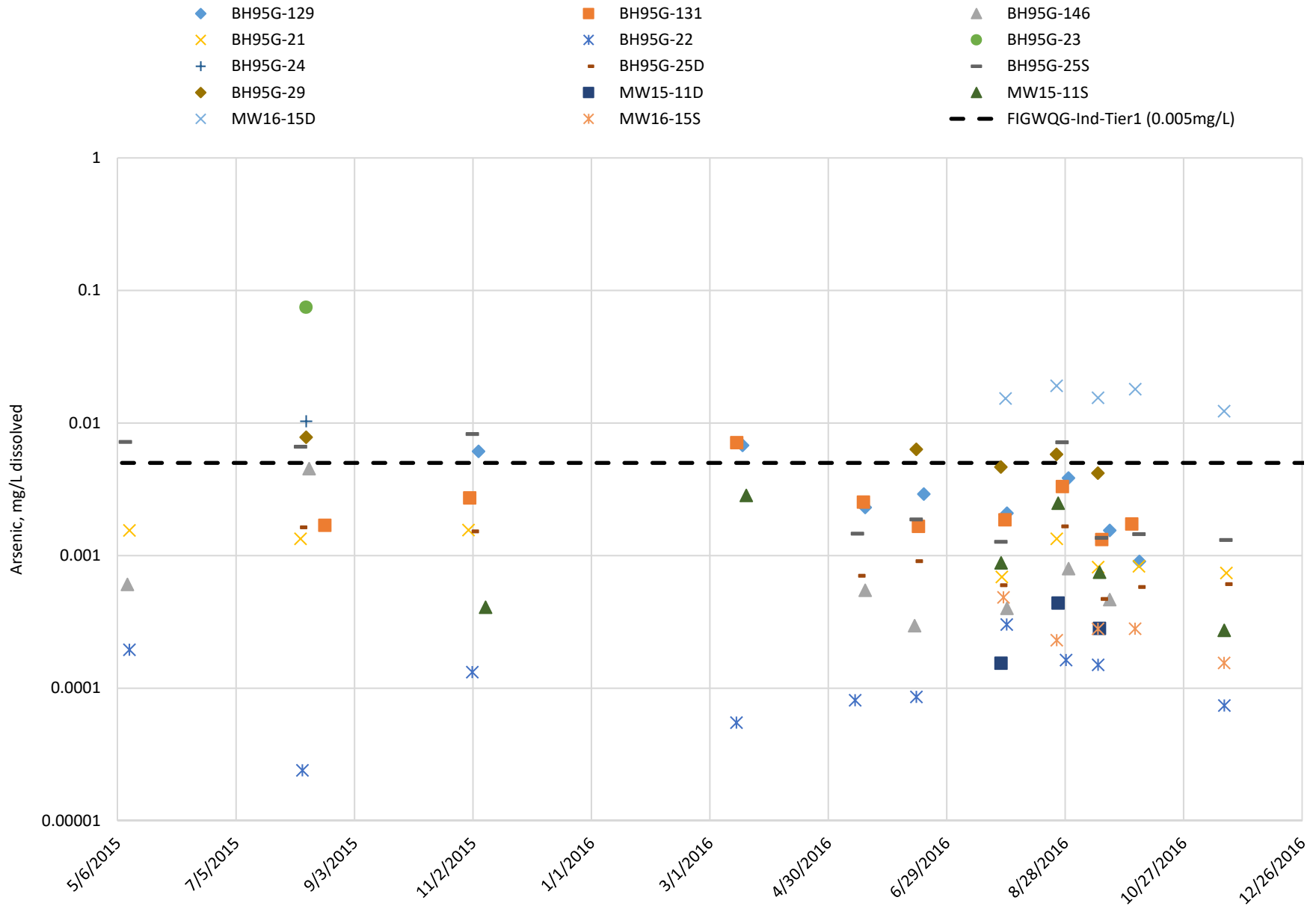


Figure C - 4

# ALUMINUM CONCENTRATION PIT

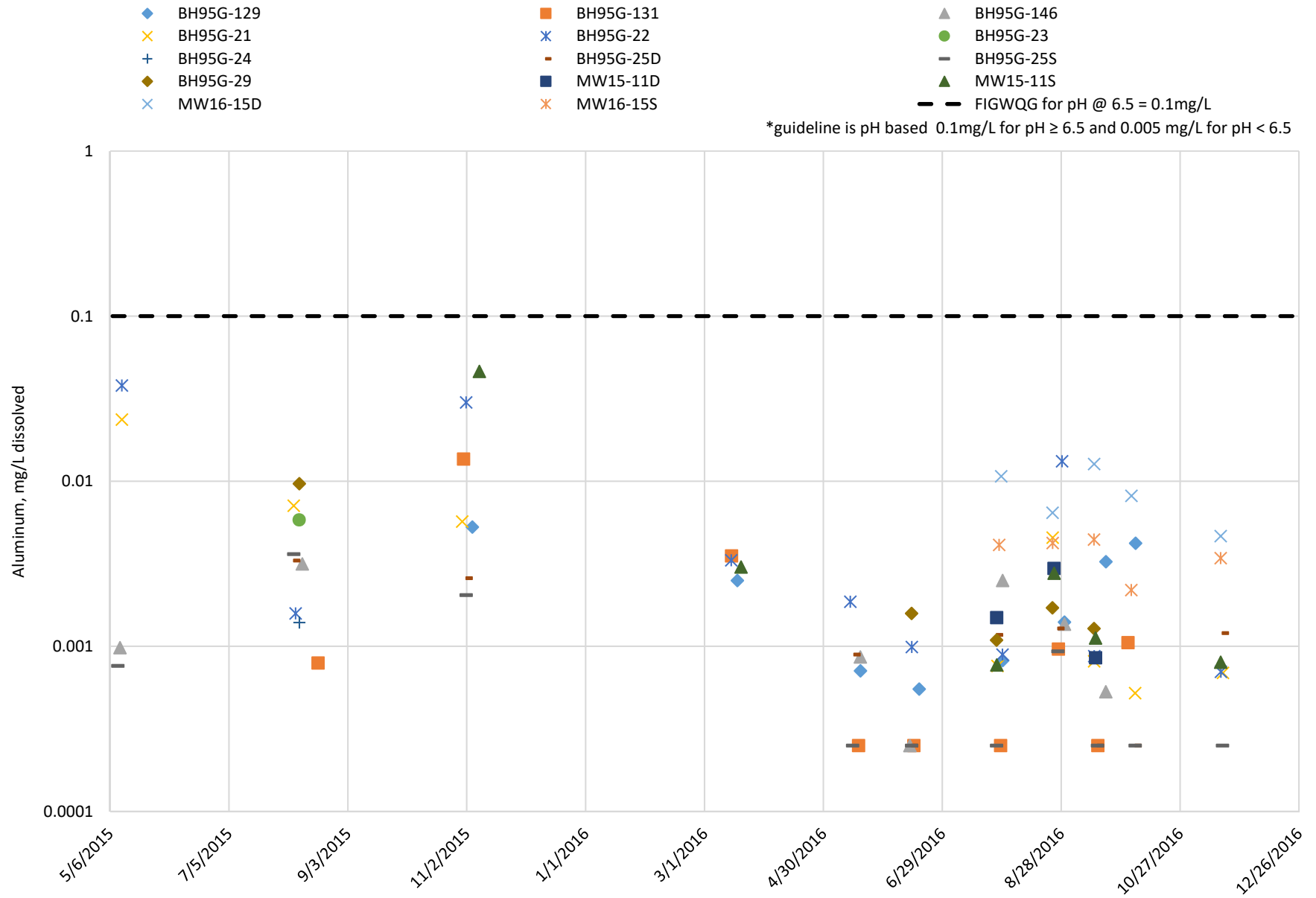


Figure C - 5



# CADMIUM CONCENTRATION PIT

- ◆ BH95G-129
    - ✕ BH95G-21
    - +
    - ◆ BH95G-29
    - ✕ MW16-15D
  - BH95G-131
    - ✕ BH95G-22
    - BH95G-25D
    - MW15-11D
    - ✕ MW16-15S
  - ▲ BH95G-146
    - BH95G-23
    - BH95G-25S
    - ▲ MW15-11S
- - - FIGWQG for hardness @ 130mg/L\* = 0.000196mg/L  
 \*guideline is hardness based range is from 0.00037-0.00013 mg/L

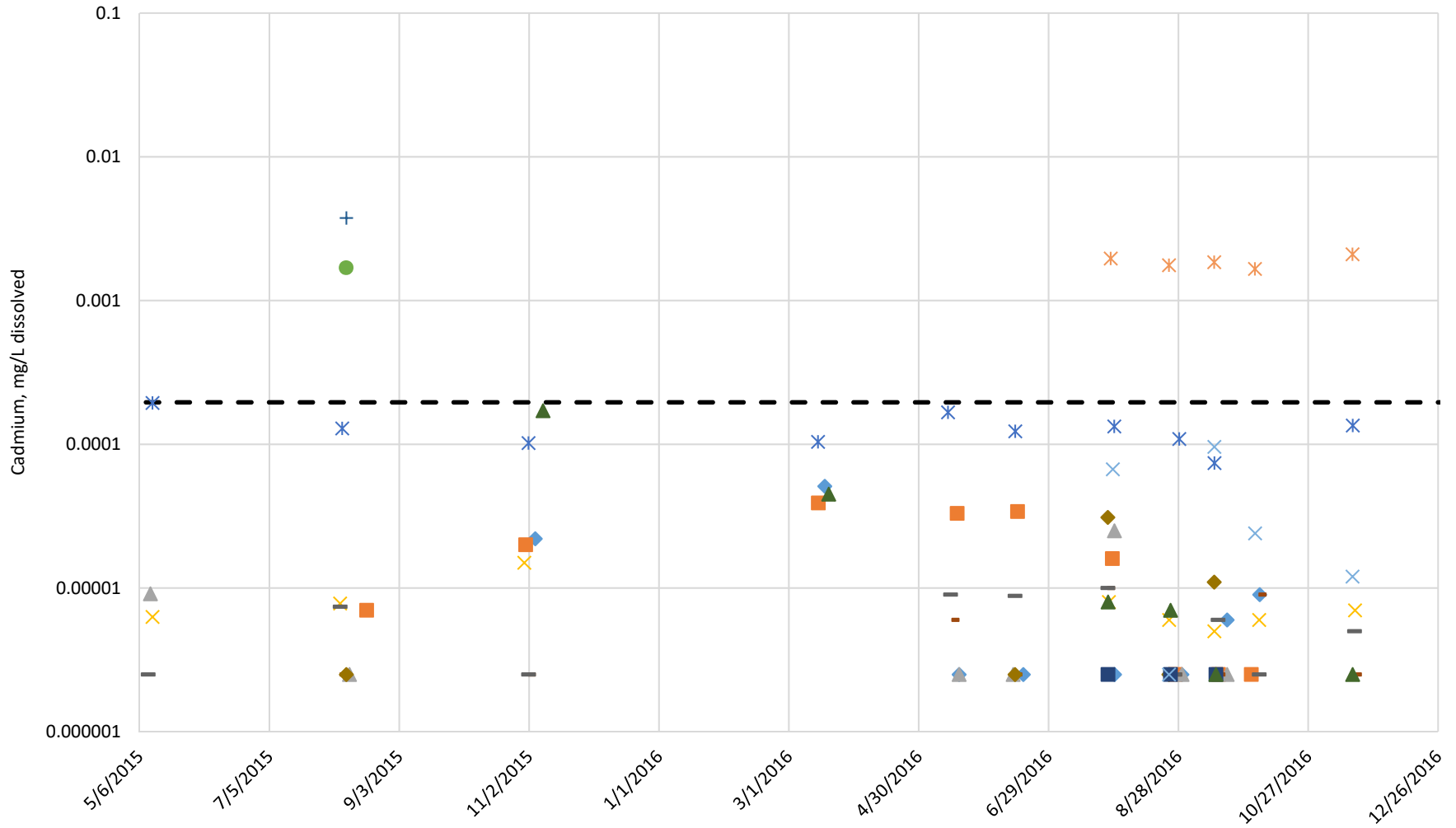


Figure C - 6

# COPPER CONCENTRATION PIT

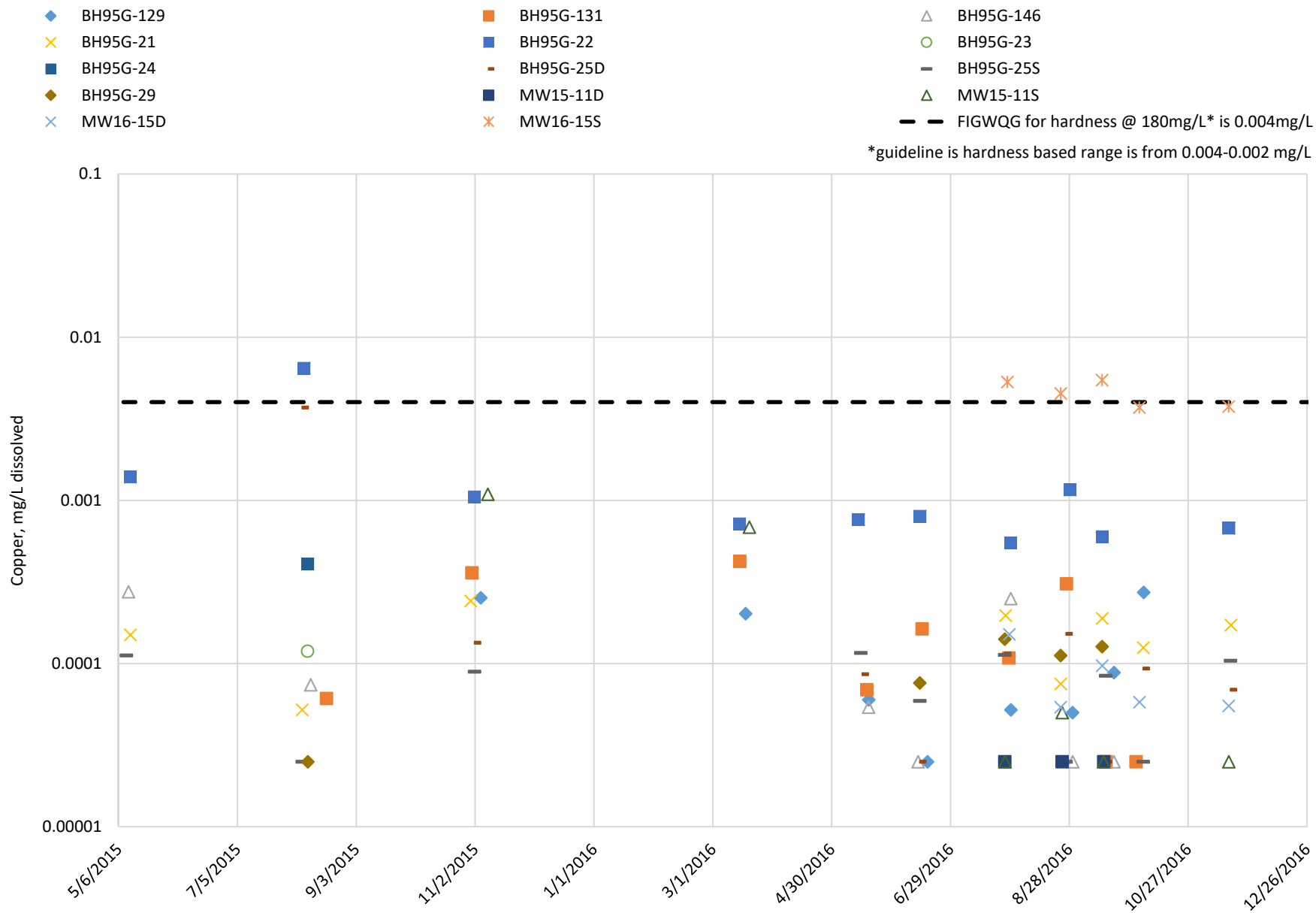


Figure C - 7

# IRON CONCENTRATION PIT

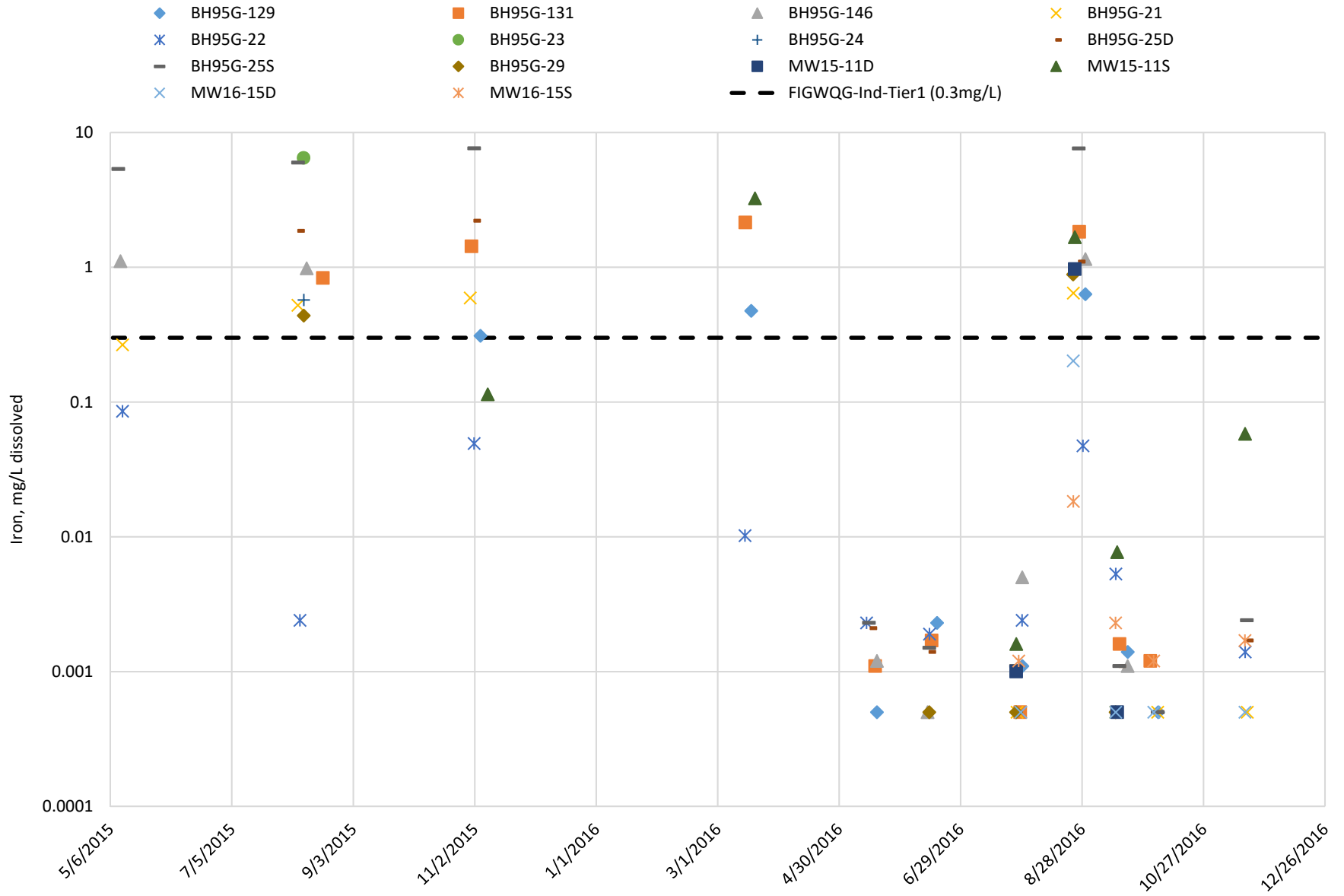


Figure C - 8

# LEAD CONCENTRATION PIT

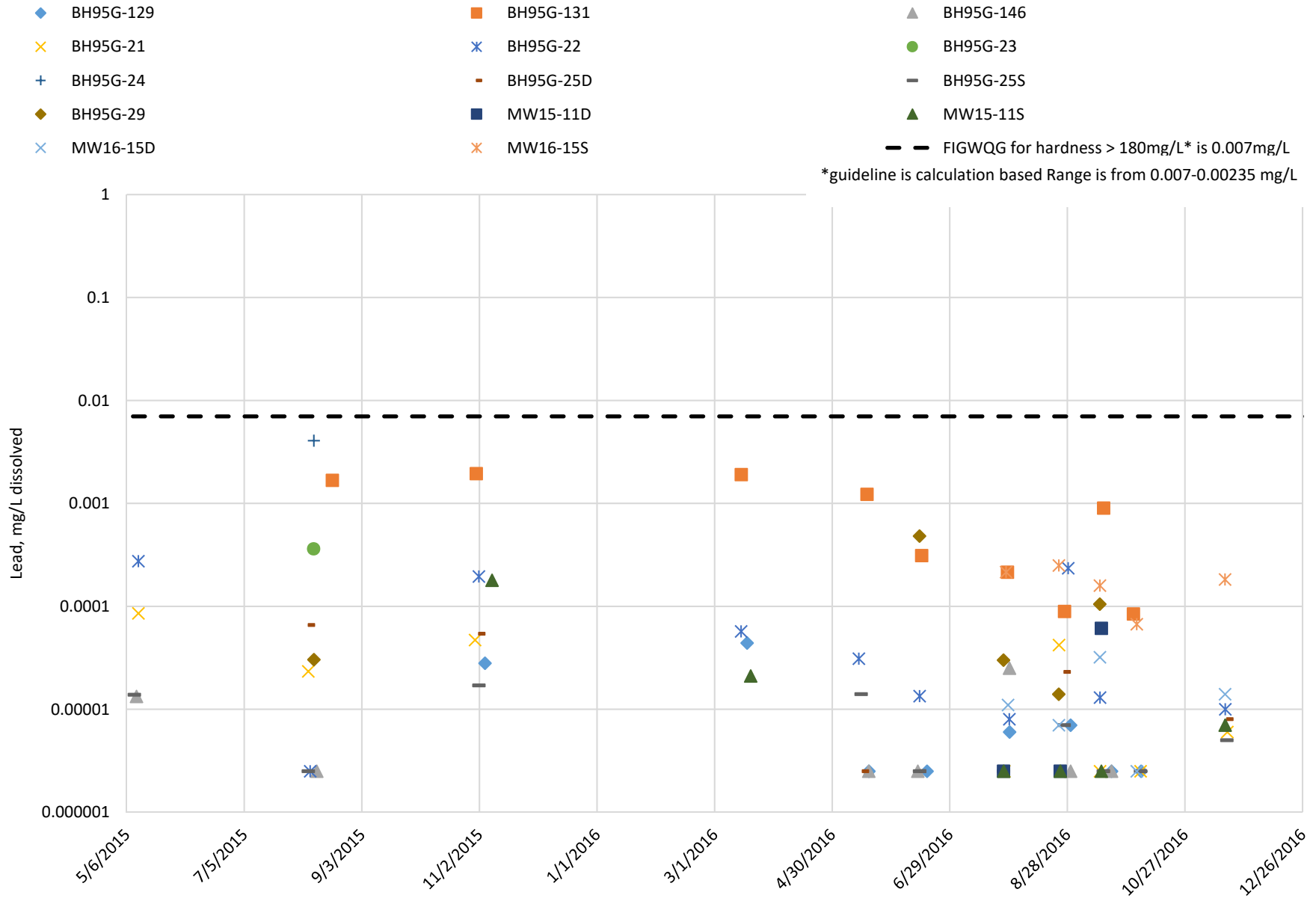


Figure C - 9

# SELENIUM CONCENTRATION PIT

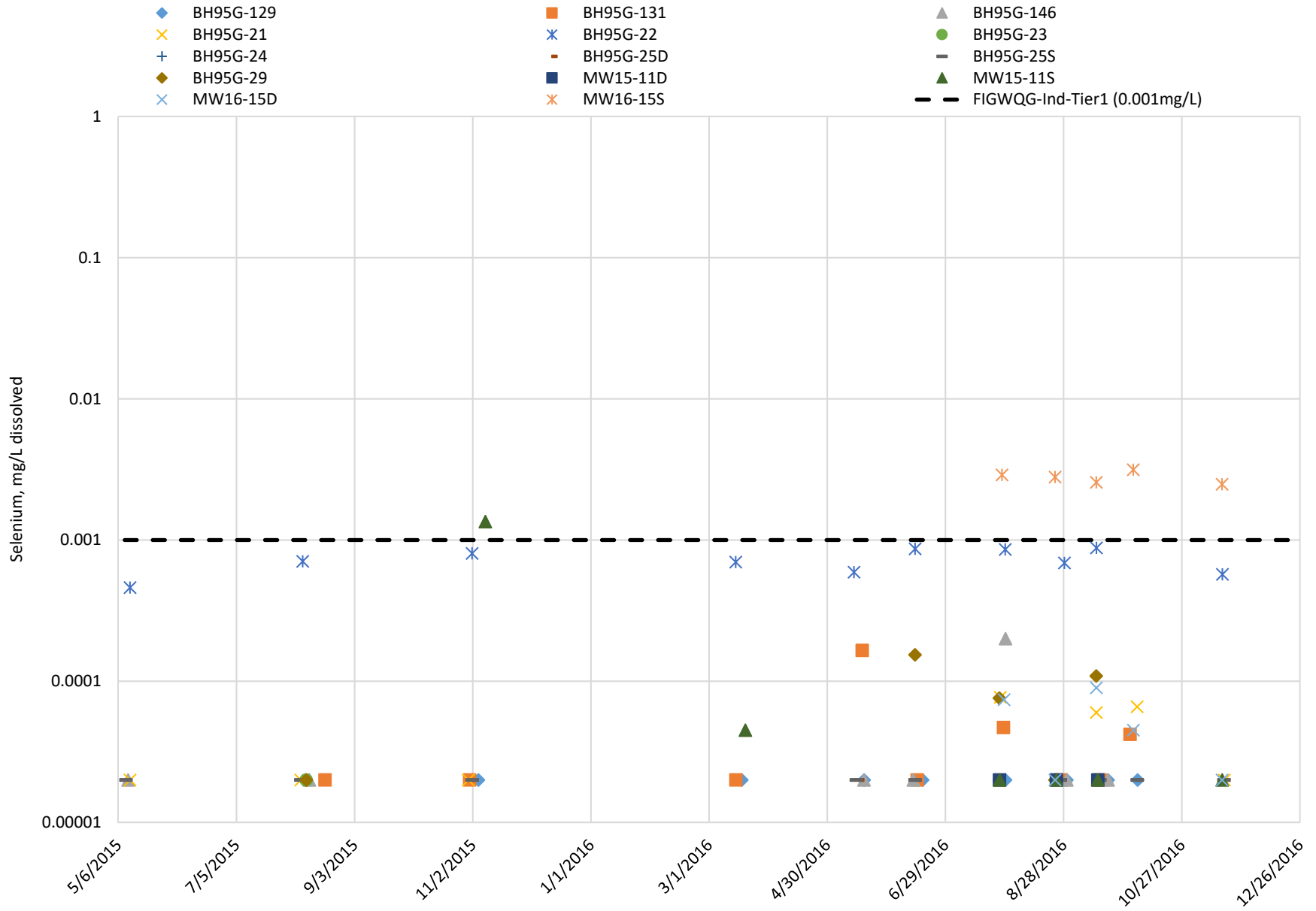


Figure C - 10

# ZINC CONCENTRATION PIT

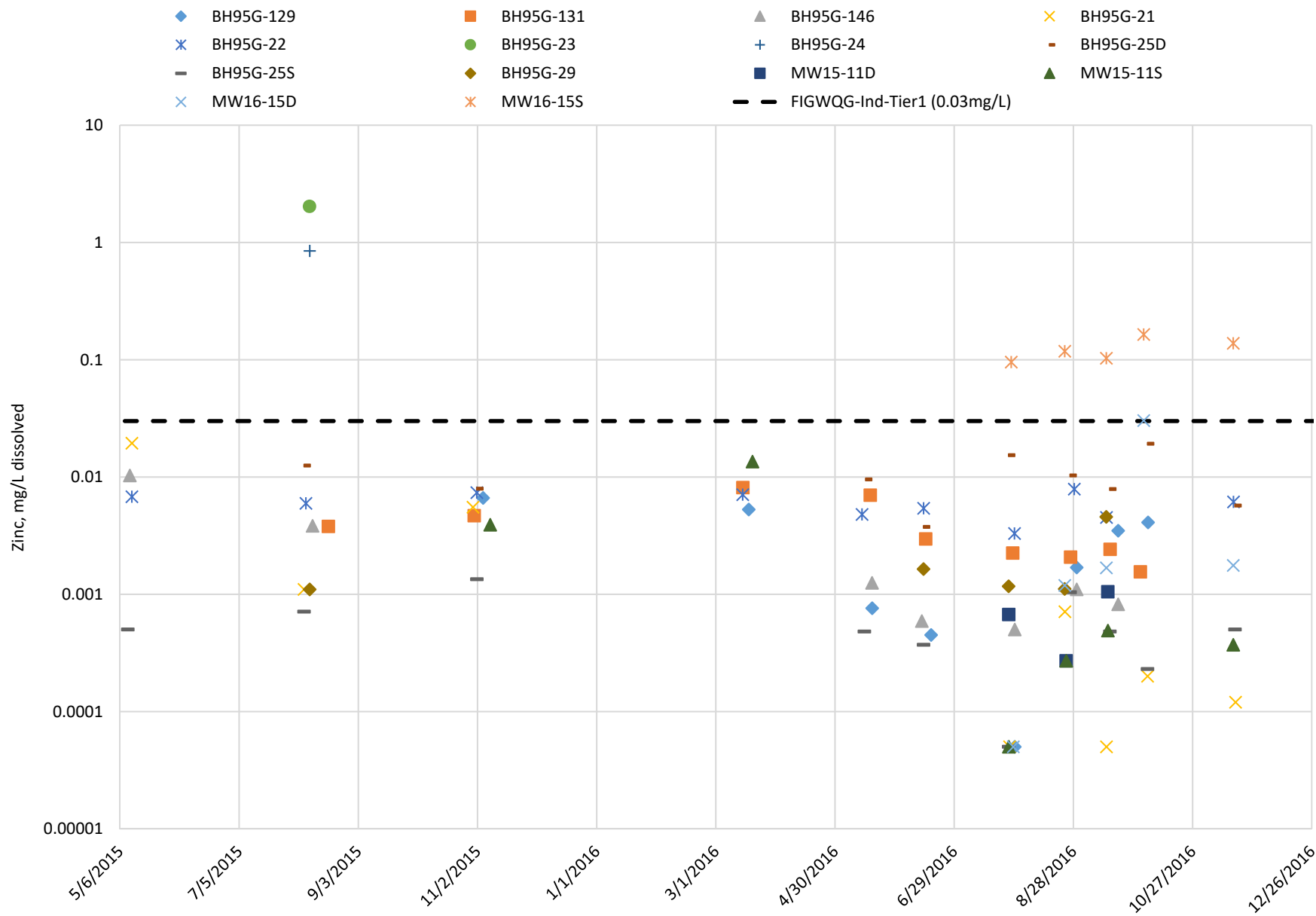


Figure C - 11

# TOTAL IRON CONCENTRATION PIT

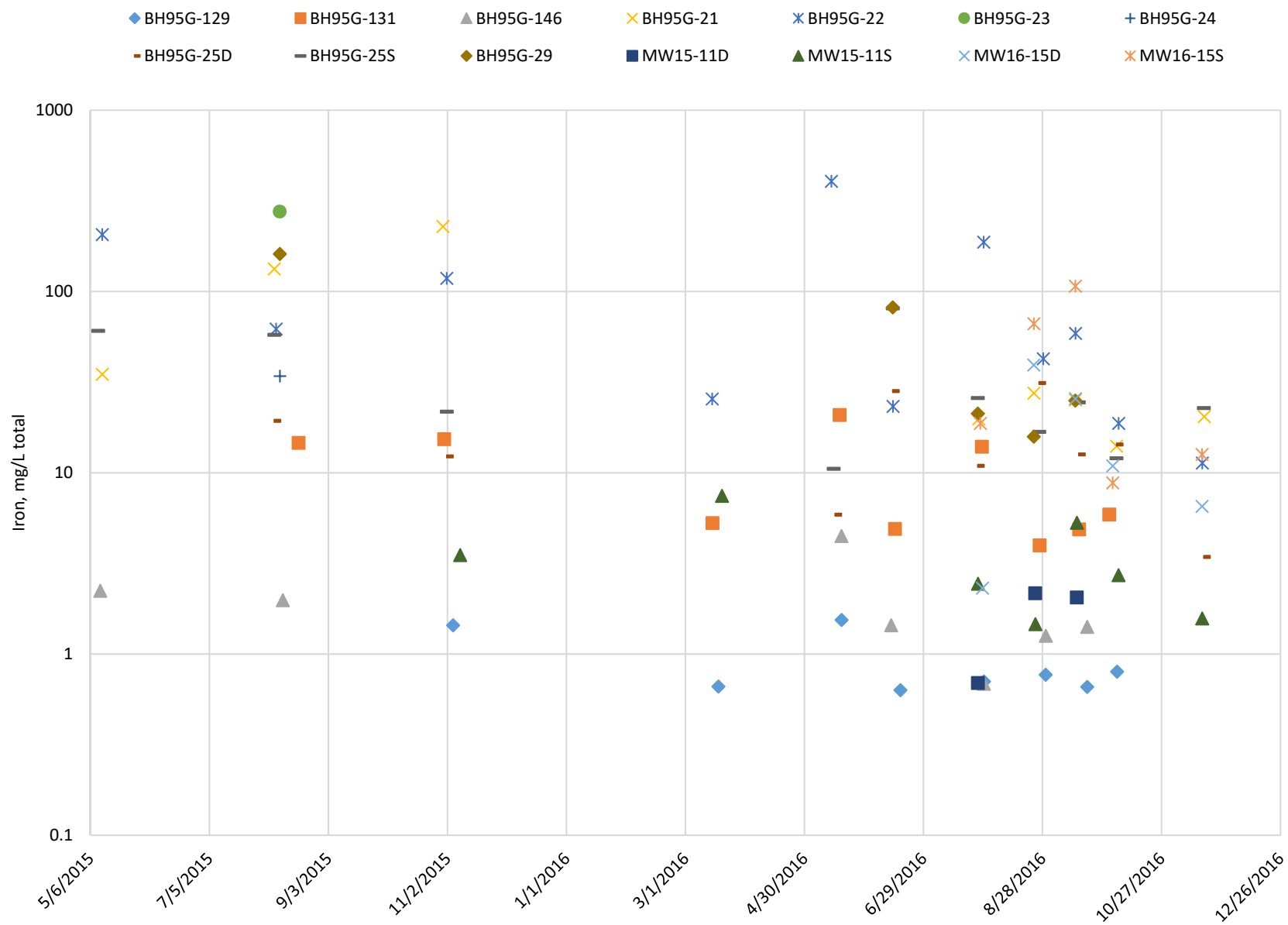


Figure C - 12



C-2

## AREA A GROUNDWATER QUALITY PLOTS

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# AMMONIA-N CONCENTRATION AREA A

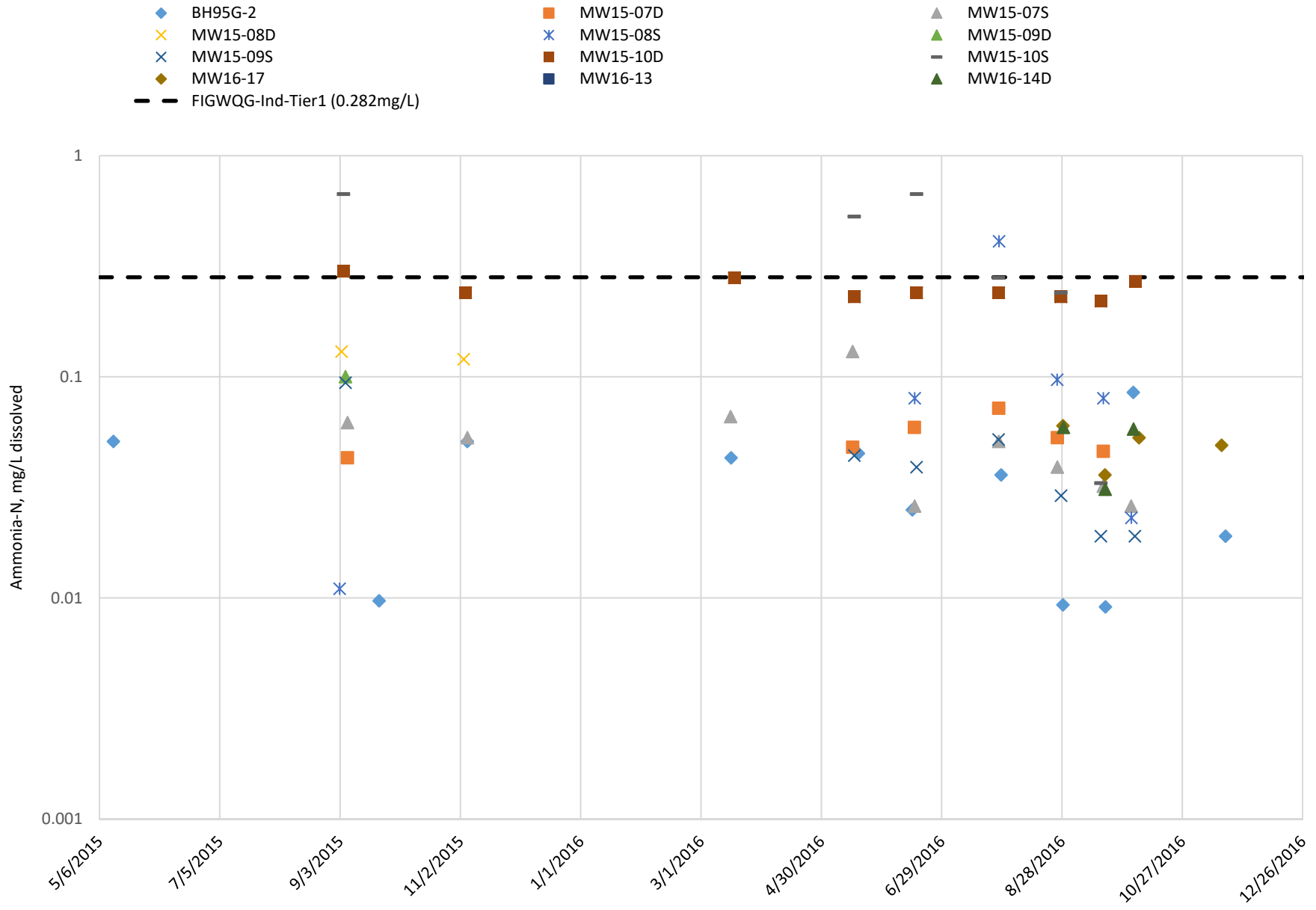


Figure C - 13

# SULPHATE CONCENTRATION AREA A

- ◆ BH95G-2
  - × MW15-08D
  - × MW15-09S
  - ◆ MW16-17
- MW15-07D
  - × MW15-08S
  - MW15-10D
  - MW16-13
- ▲ MW15-07S
  - ▲ MW15-09D
  - MW15-10S
  - ▲ MW16-14D

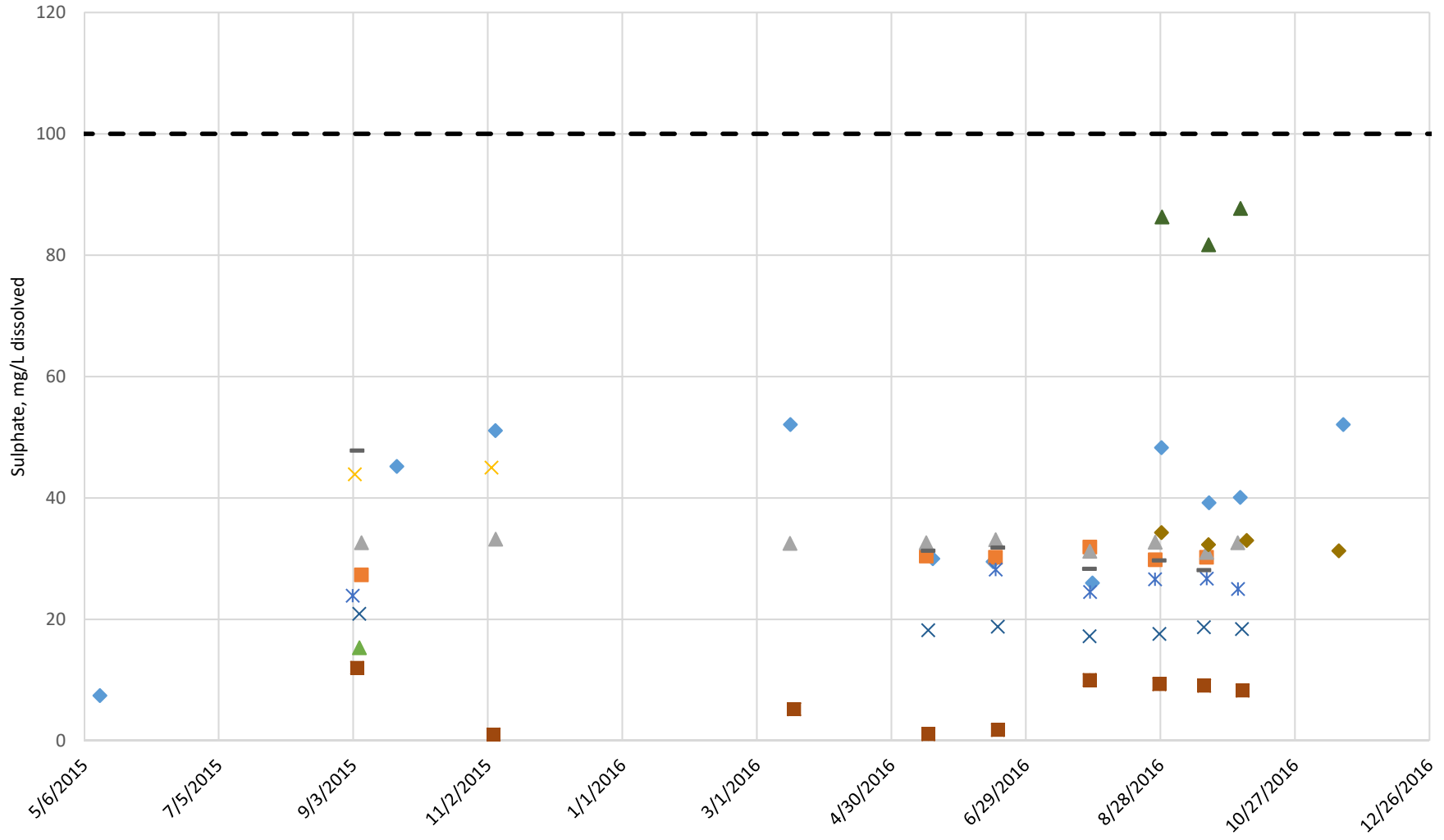


Figure C - 14

# FLOURIDE CONCENTRATION IN AREA A

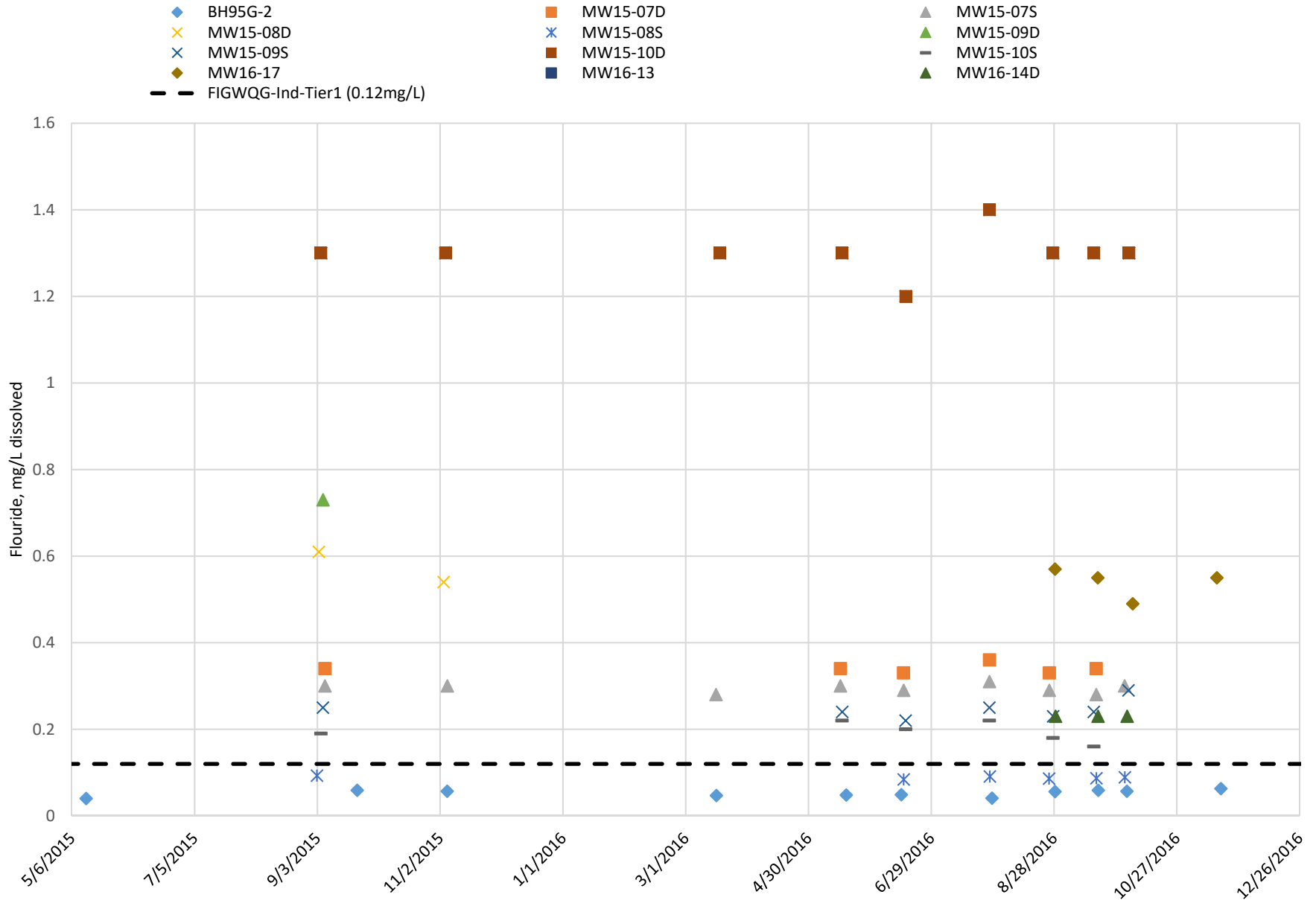


Figure C - 15

# ARSENIC CONCENTRATION AREA A

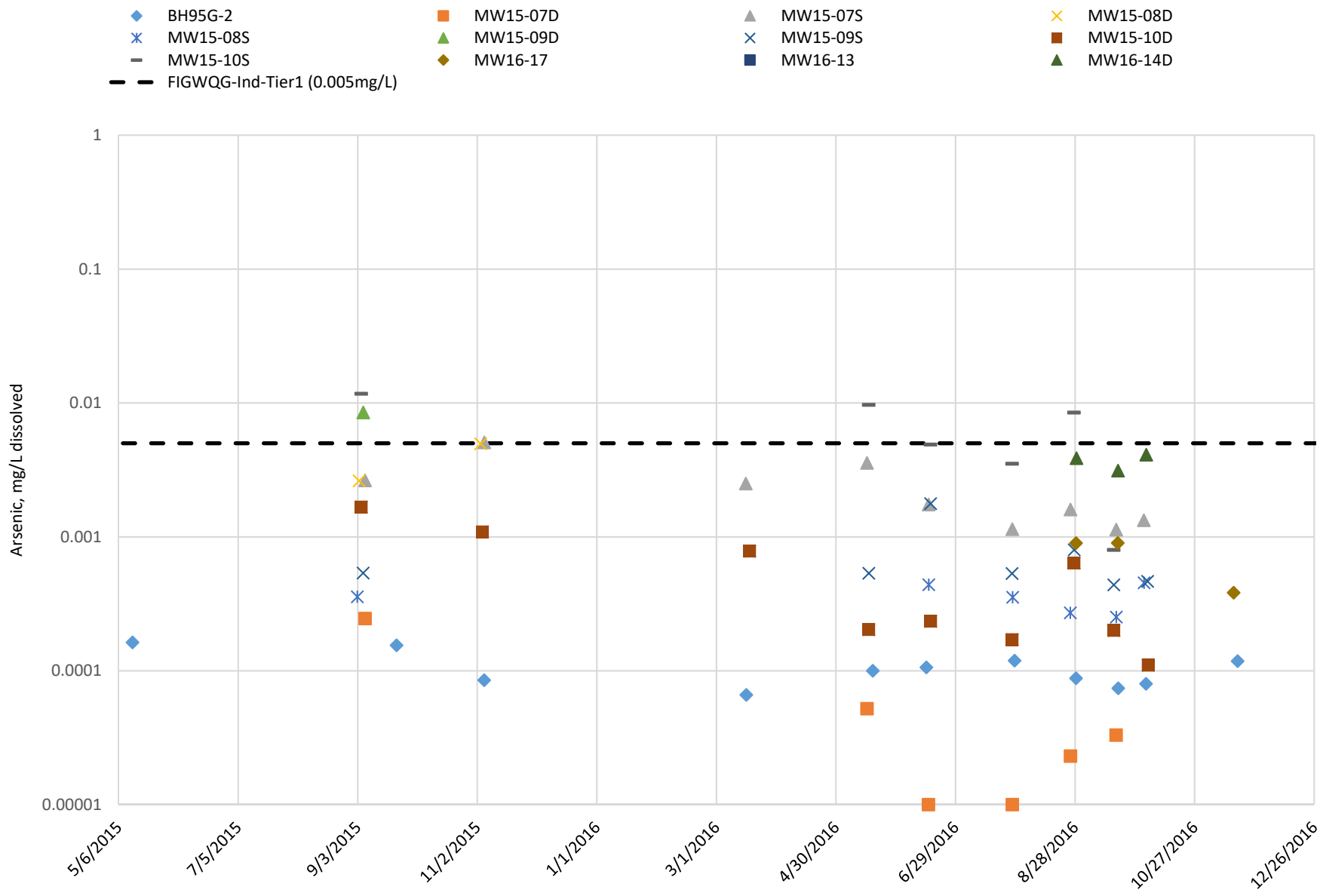


Figure C - 16

# ALUMINUM CONCENTRATION AREA A

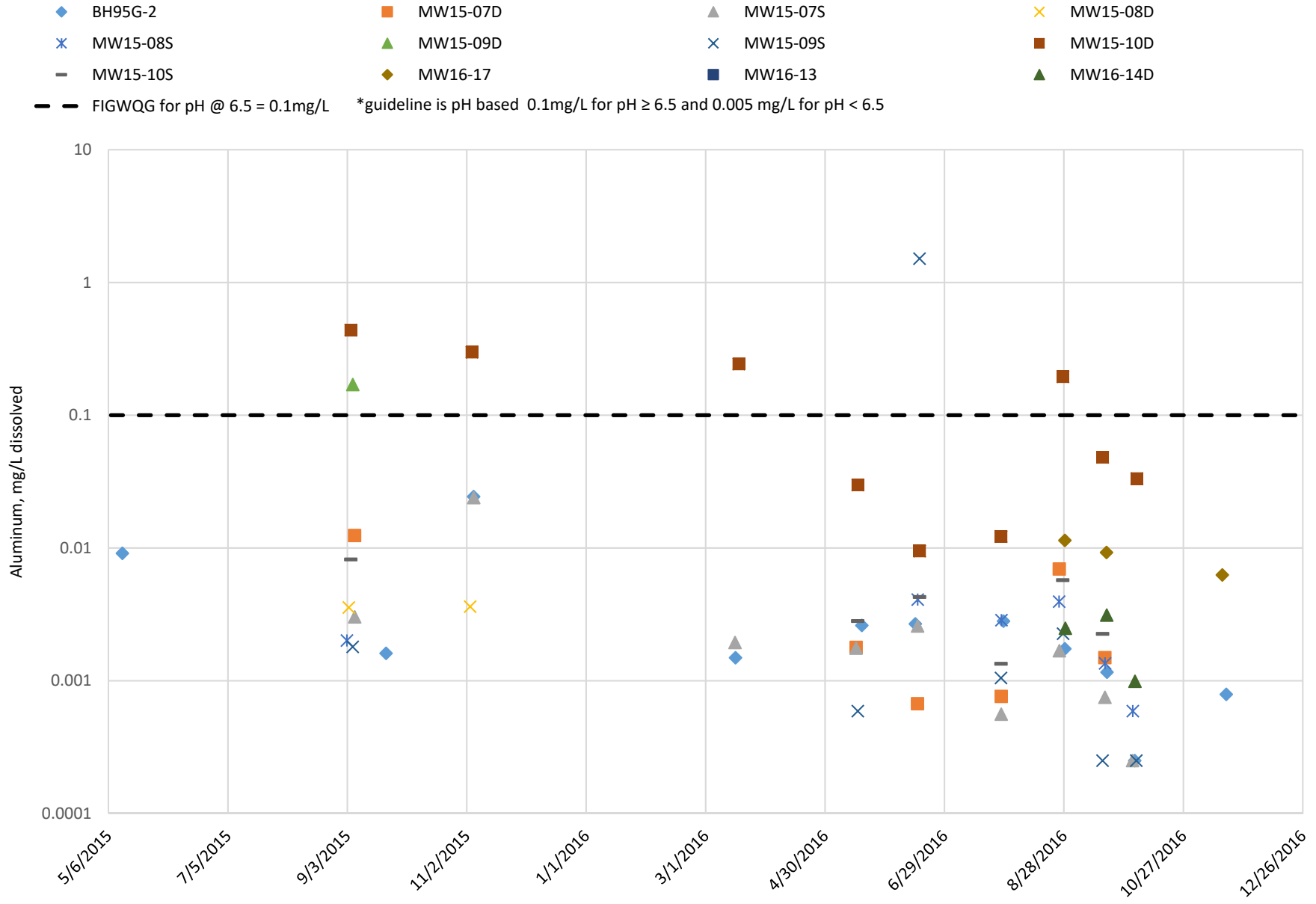


Figure C - 17

# IRON CONCENTRATION AREA A

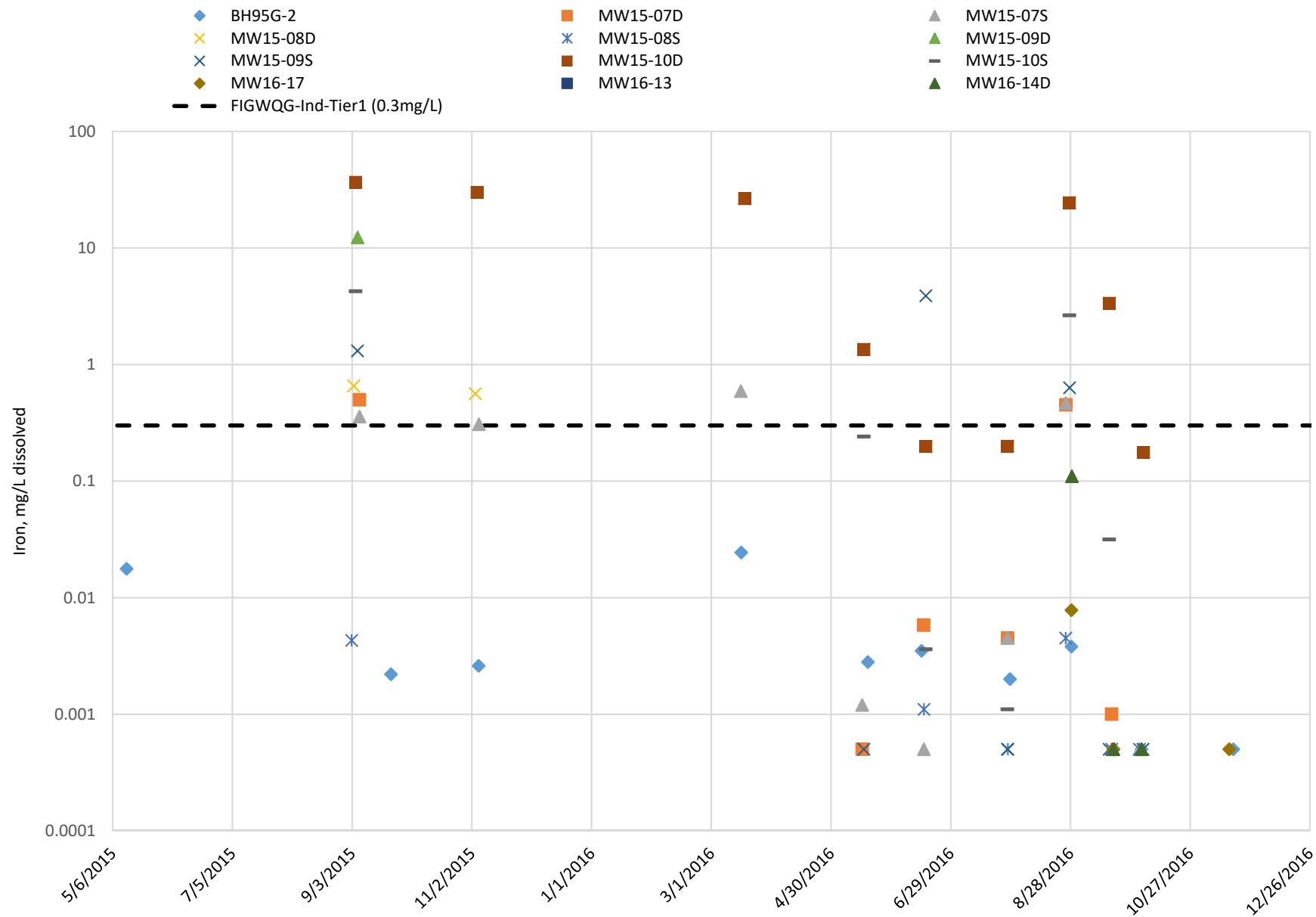


Figure C - 18



# CADMIUM CONCENTRATION AREA A

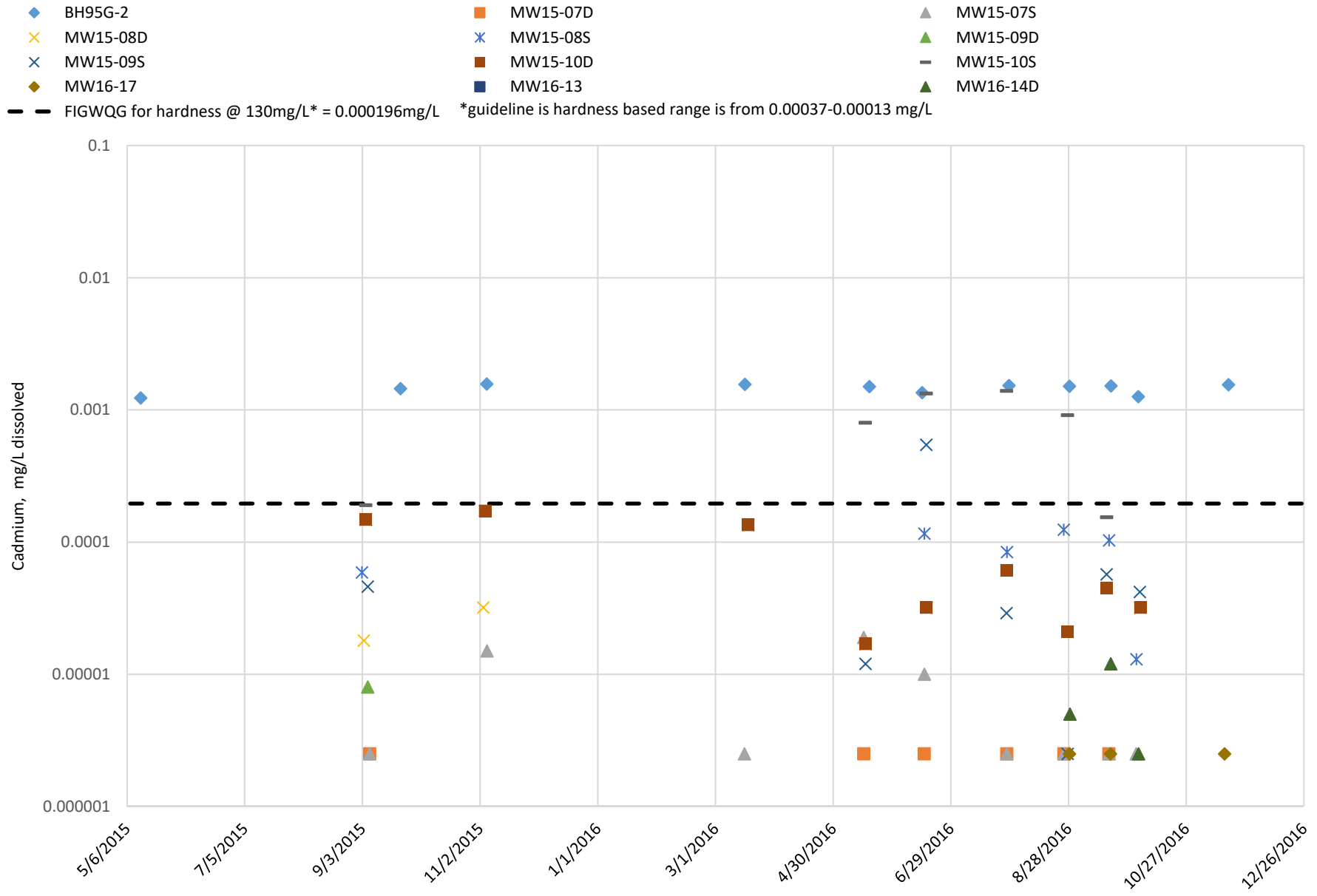


Figure C - 19

# COPPER CONCENTRATION AREA A

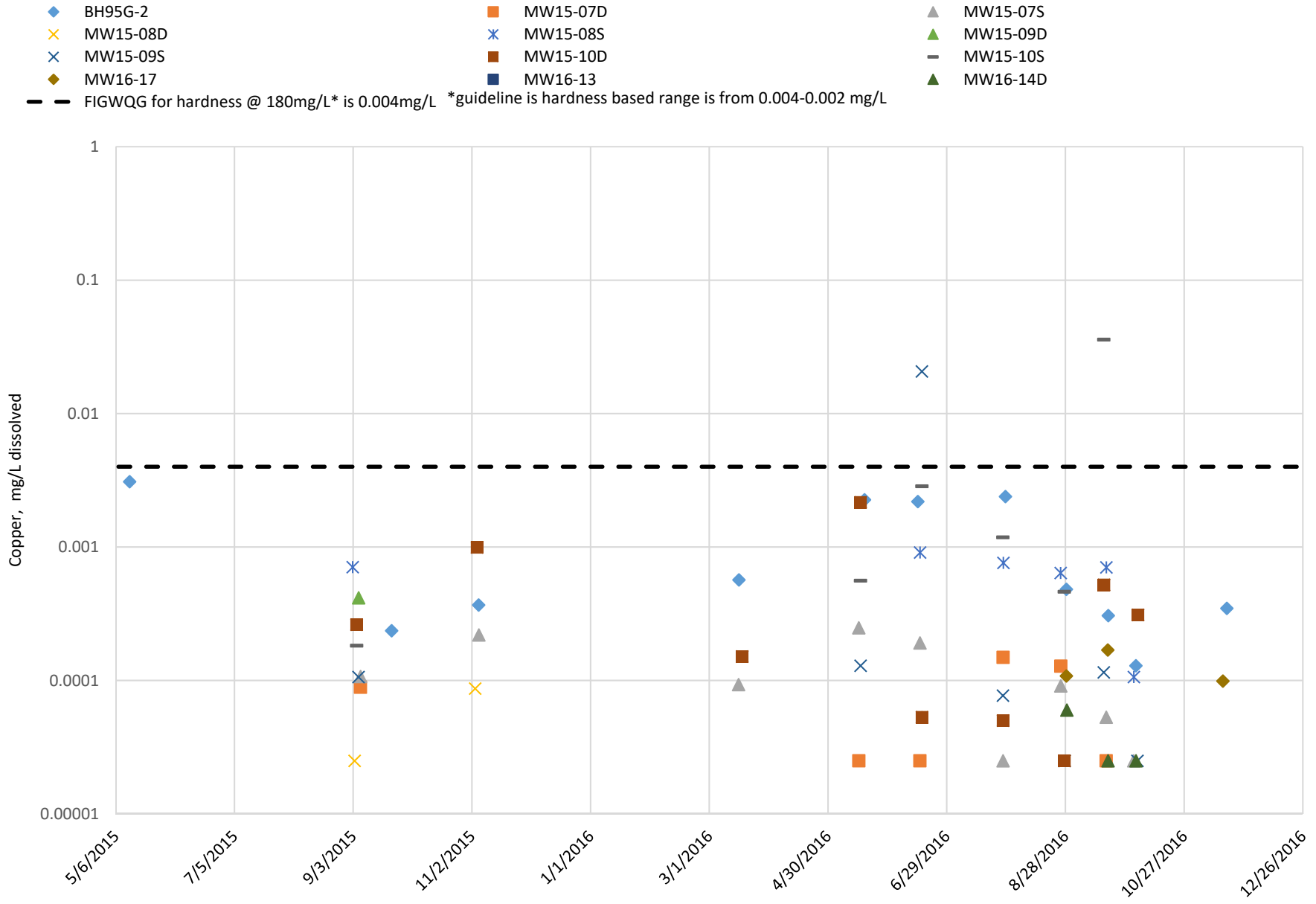


Figure C - 20

# LEAD CONCENTRATION AREA A

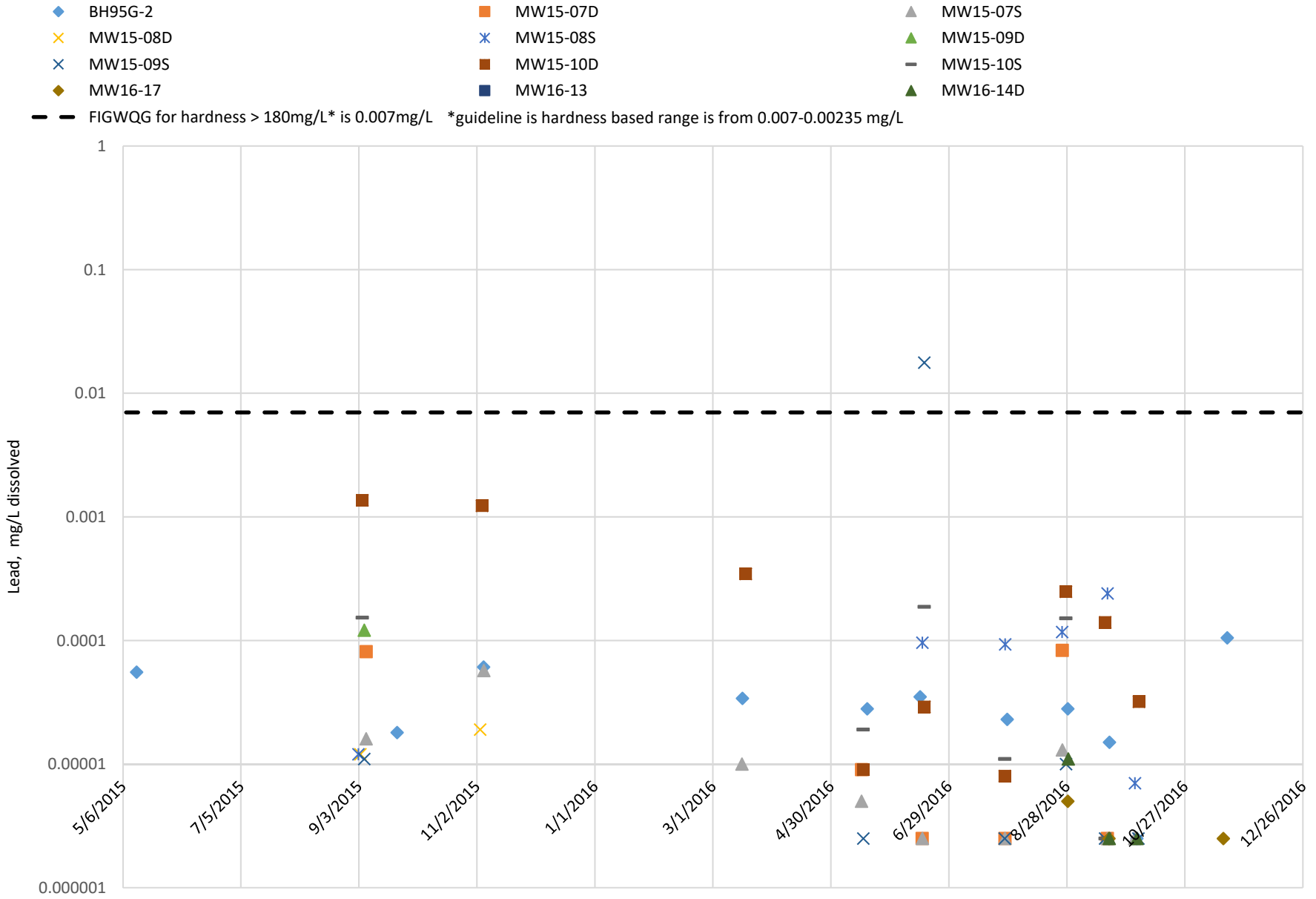


Figure C - 21

# SELENIUM CONCENTRATION AREA A

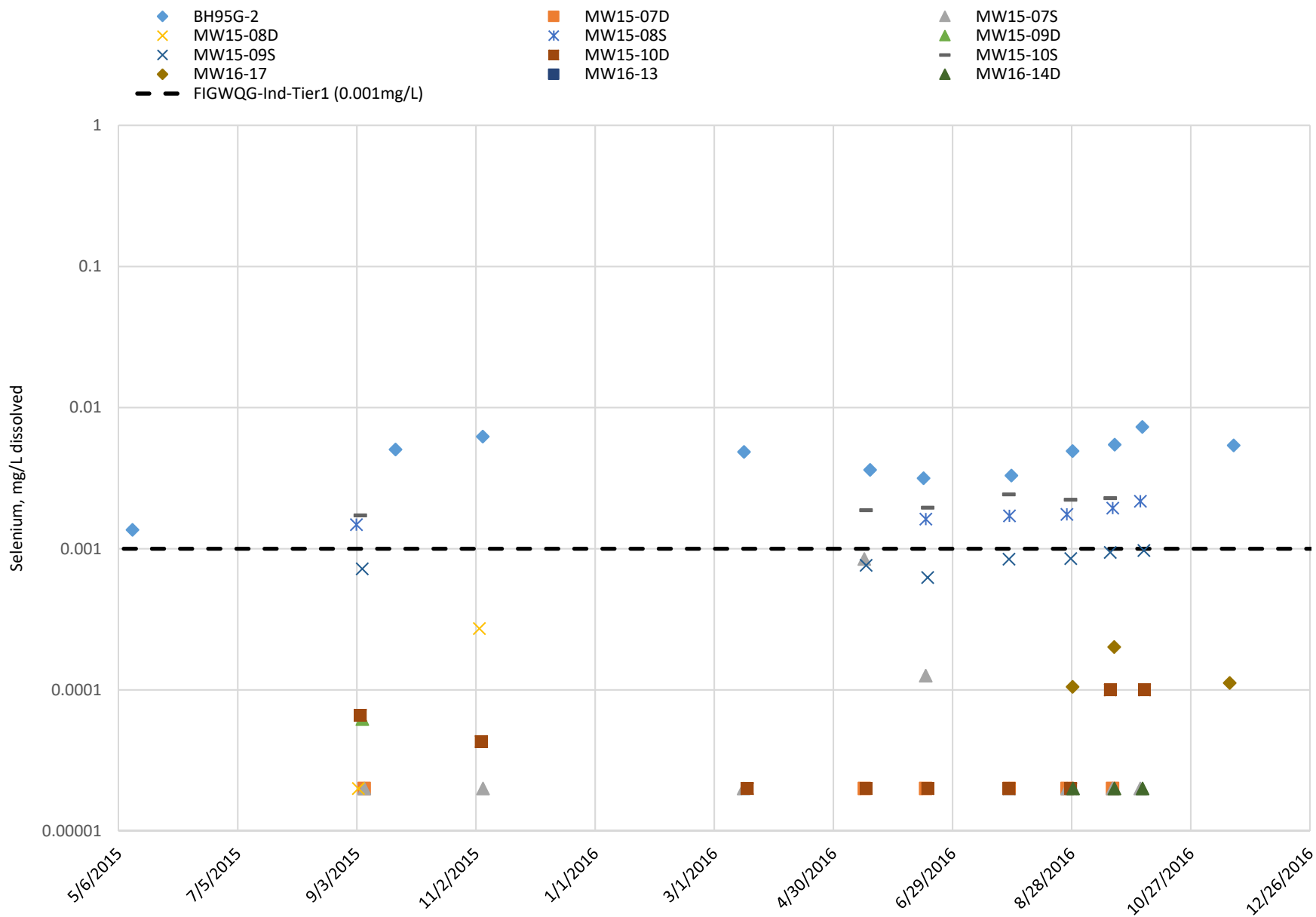


Figure C - 22

# ZINC CONCENTRATION AREA A

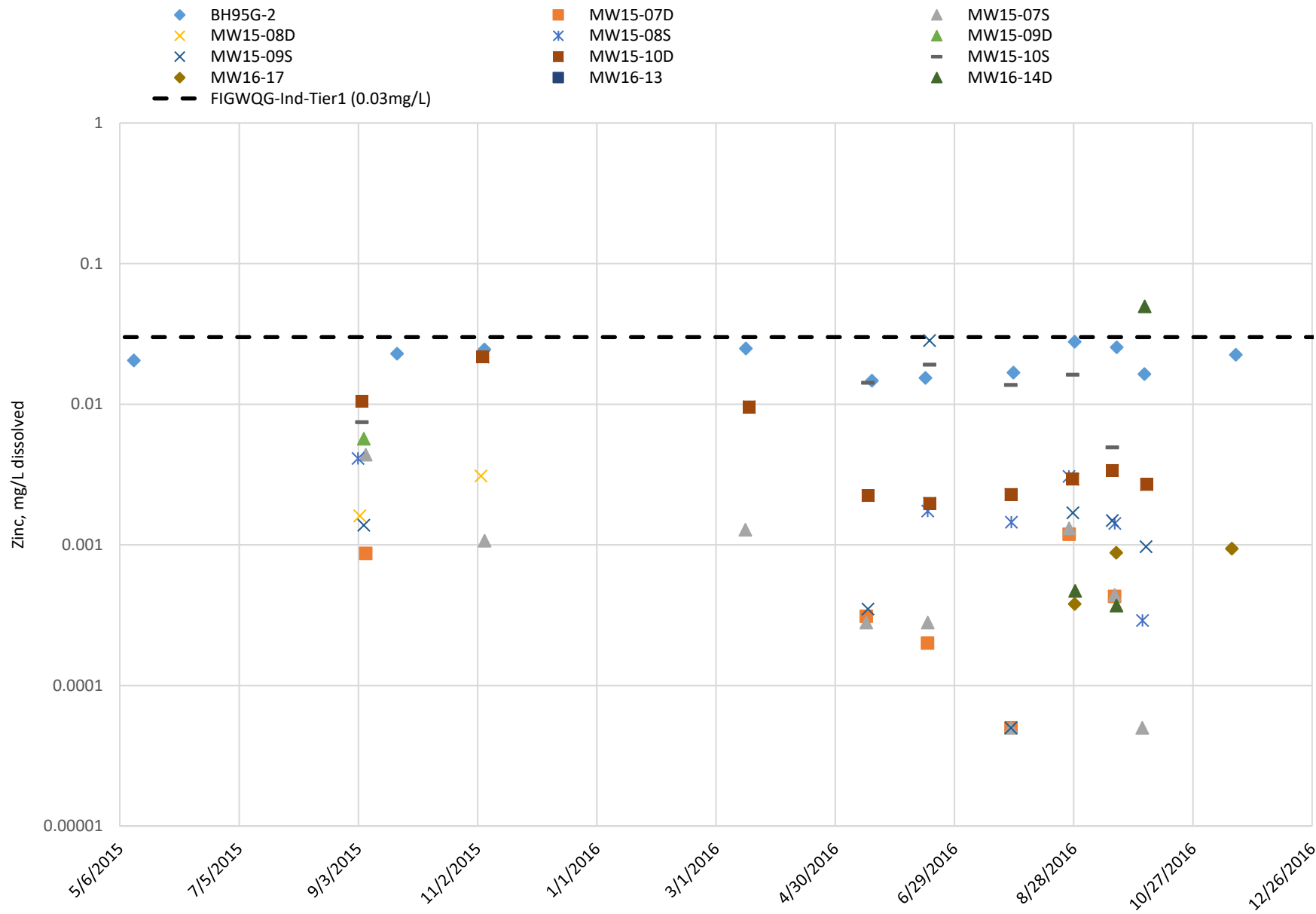


Figure C - 23

# TOTAL IRON CONCENTRATION AREA A

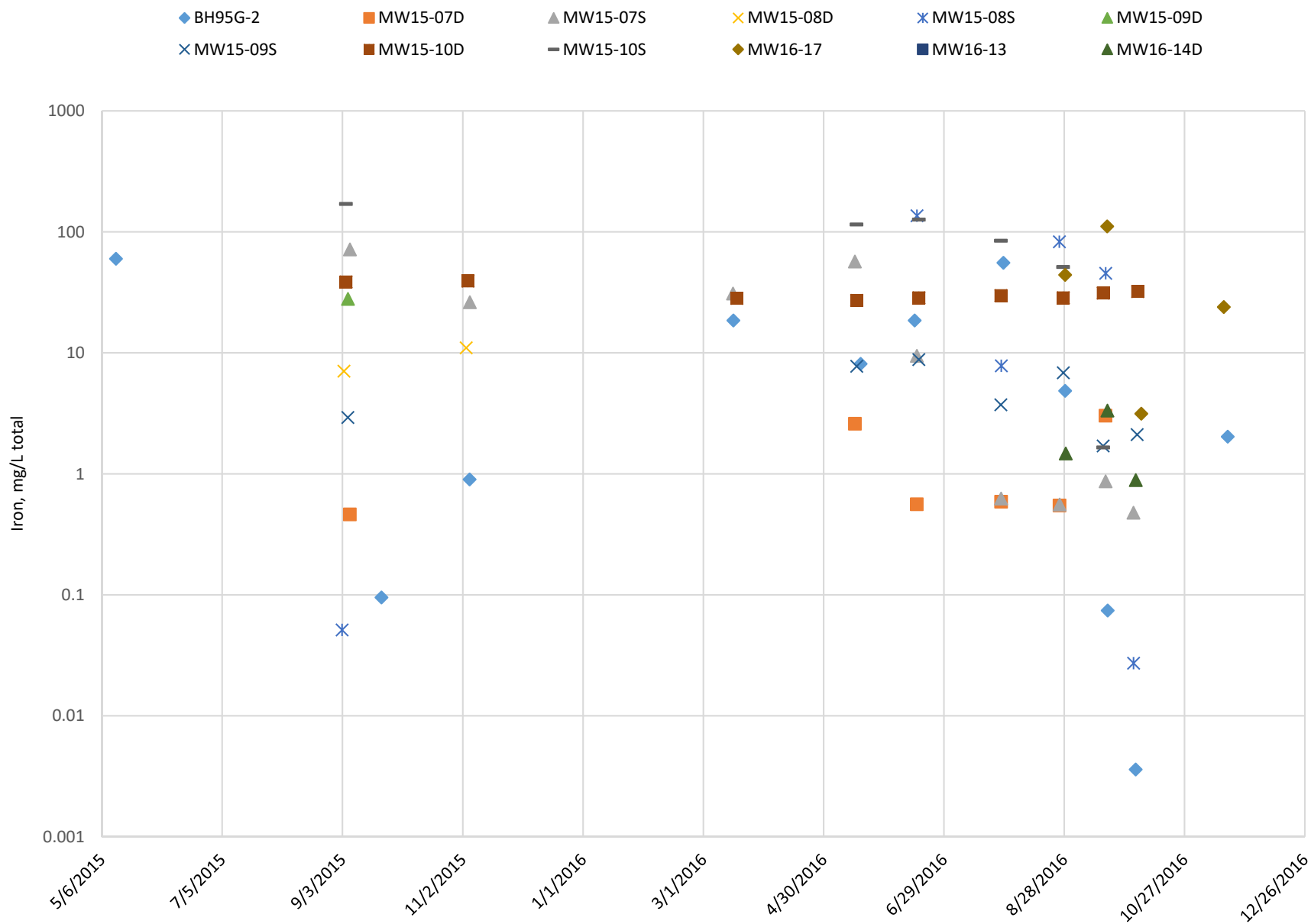


Figure C - 24

C-3

## AREA B GROUNDWATER QUALITY PLOTS

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# SULPHATE CONCENTRATION AREA B

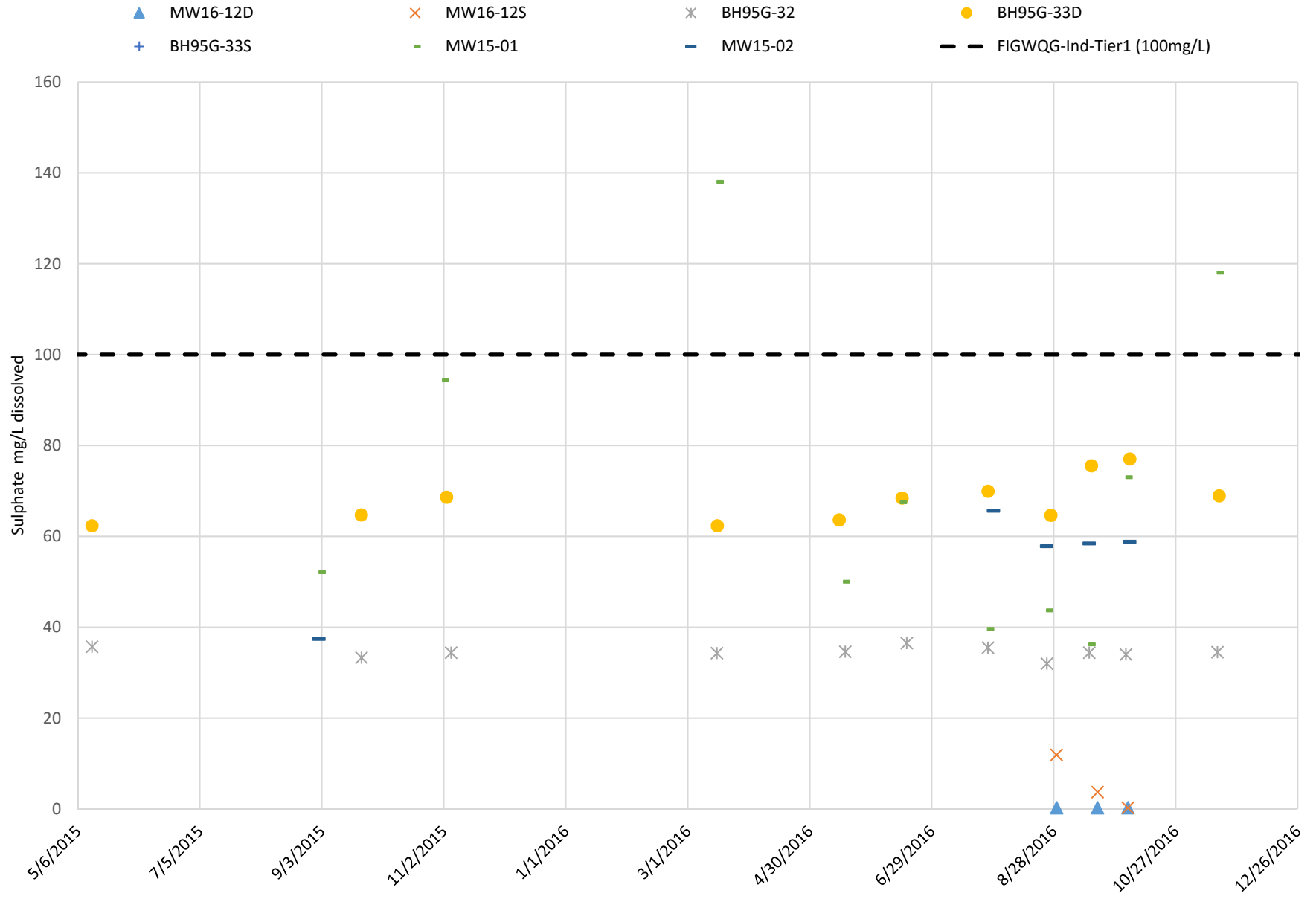


Figure C - 25

# FLOURIDE CONCENTRATION IN AREA B

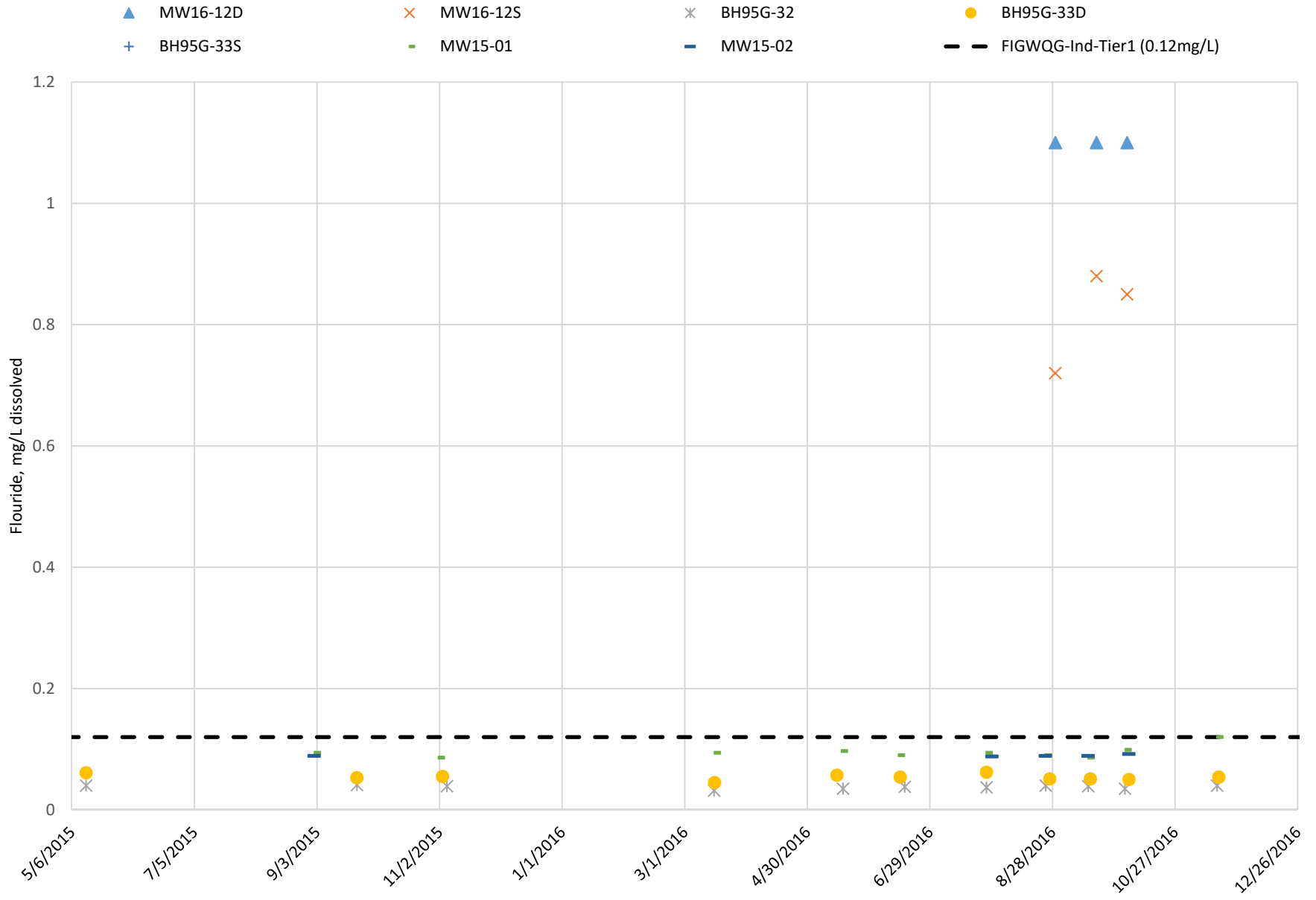


Figure C - 26

# AMMONIA-N CONCENTRATION AREA B



Figure C - 27

# ARSENIC CONCENTRATION AREA B

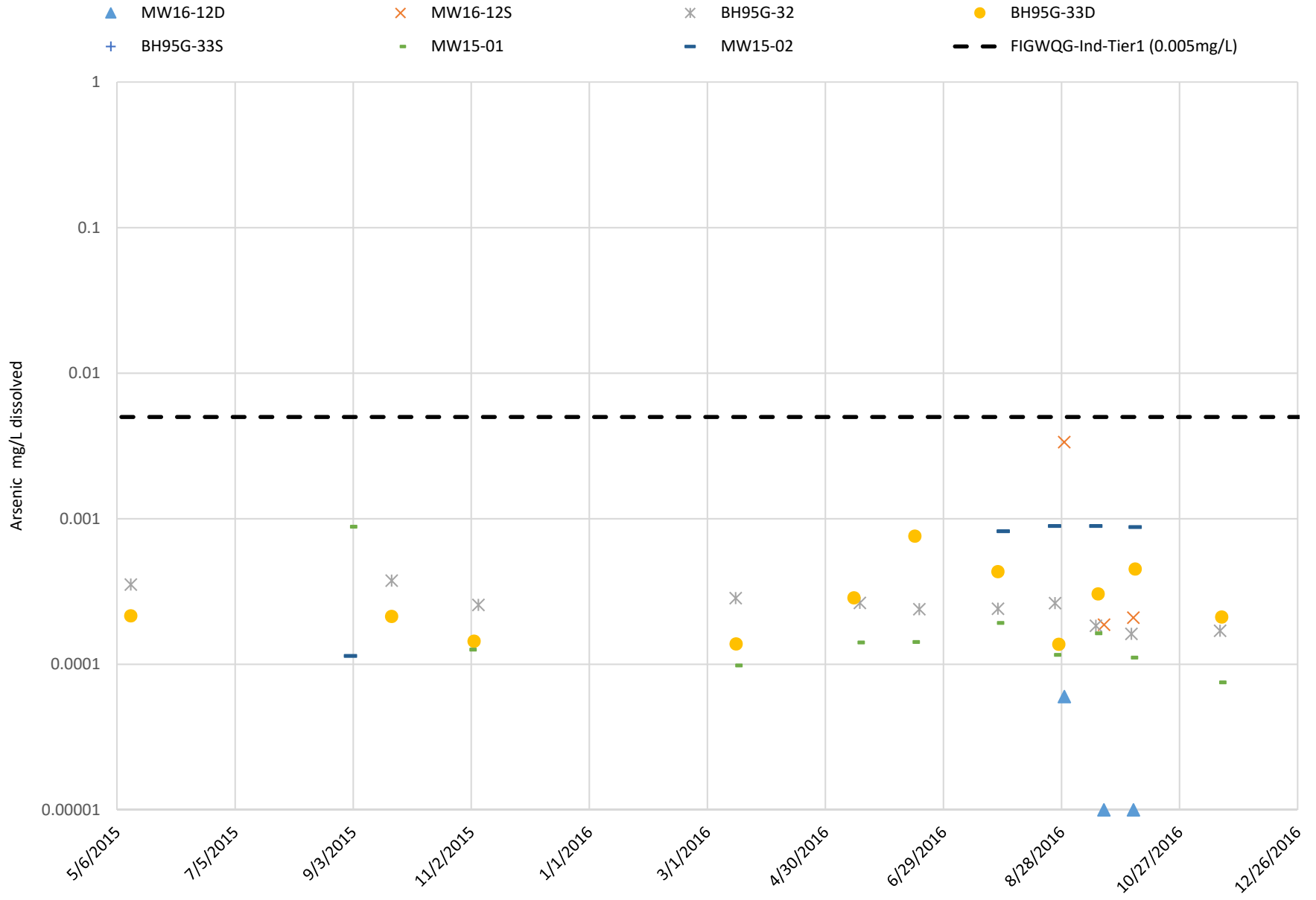


Figure C - 28

# ALUMINUM CONCENTRATION AREA B



Figure C - 29

# CADMIUM CONCENTRATION AREA B

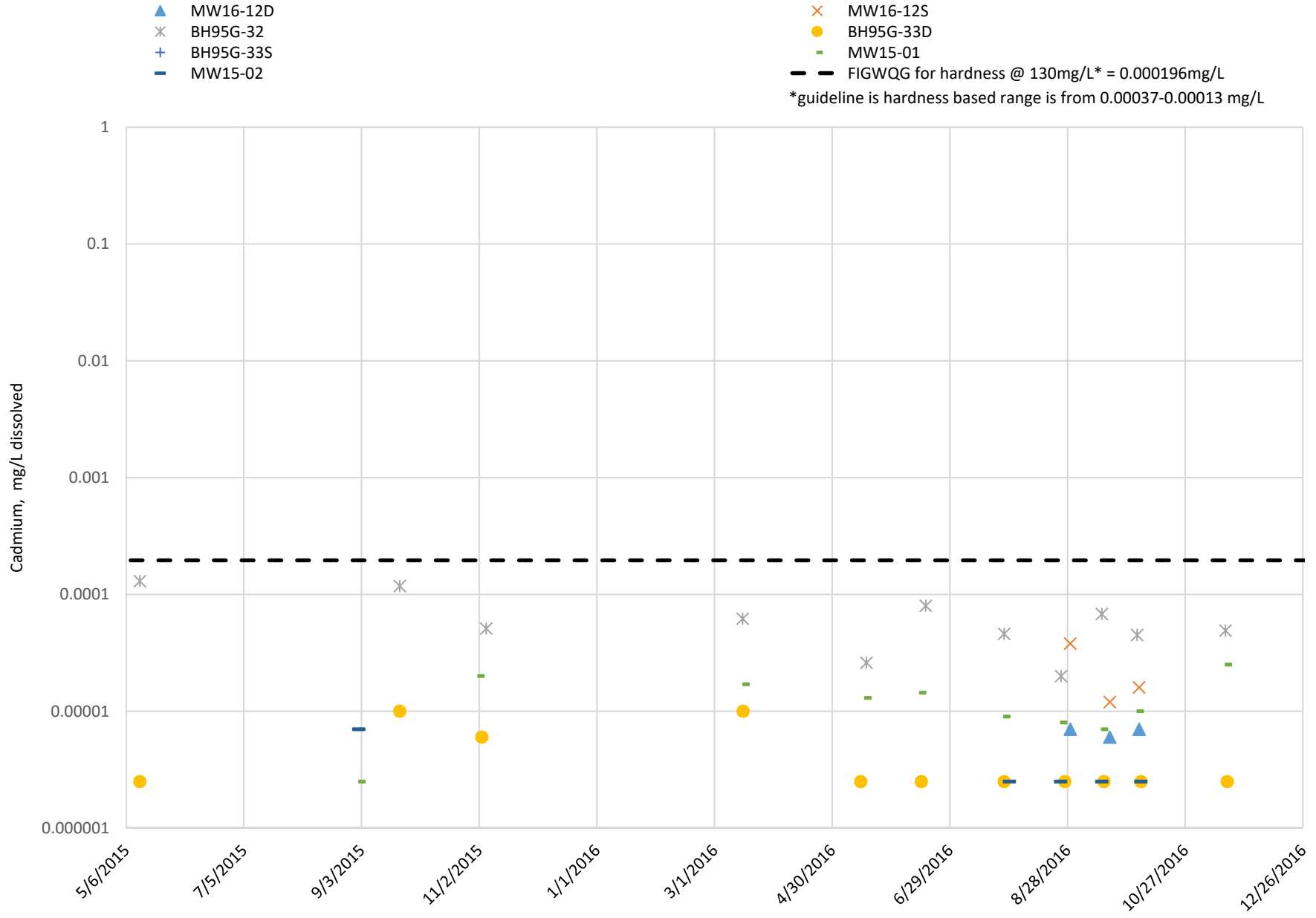


Figure C - 30

## COPPER CONCENTRATION AREA B

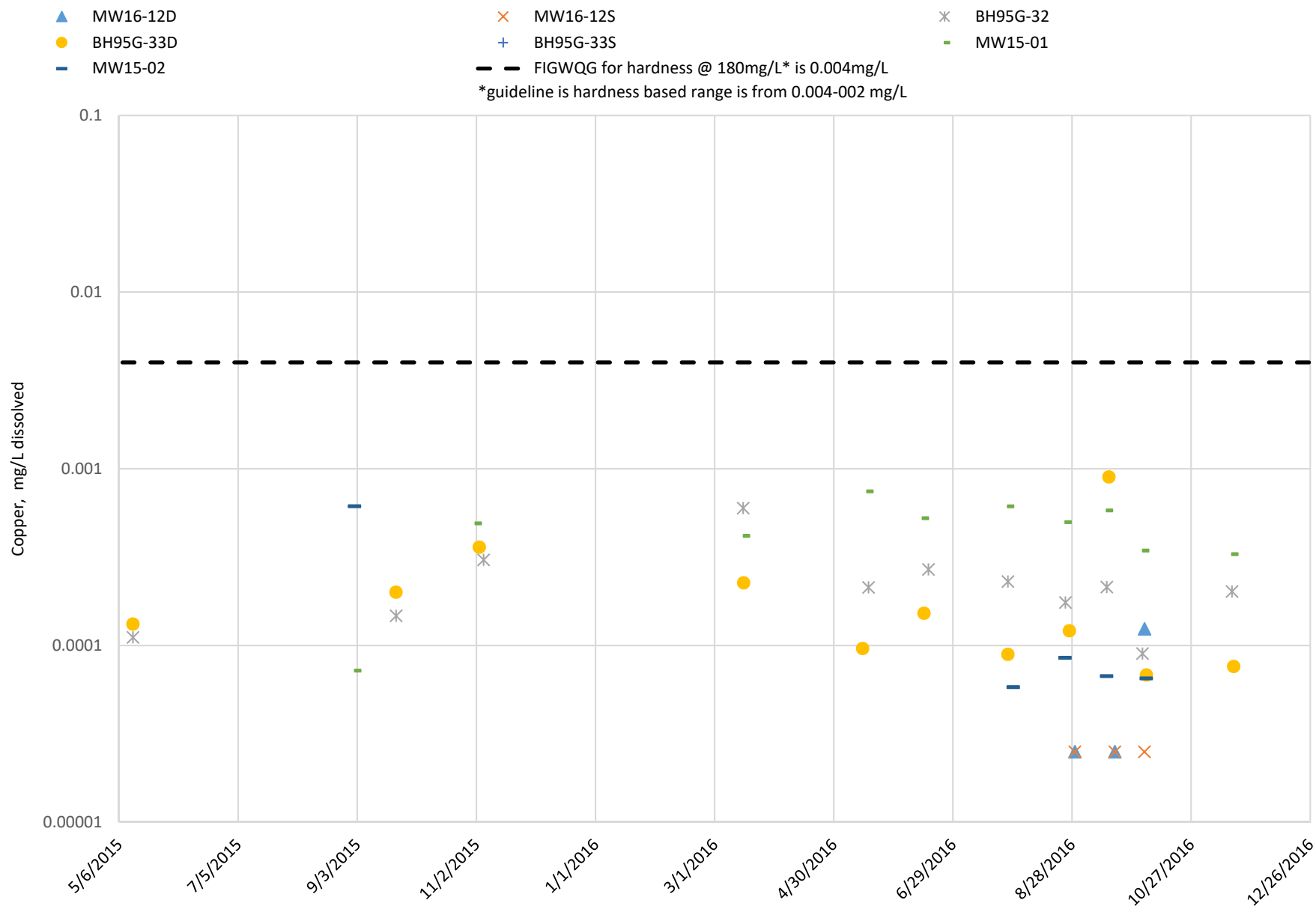


Figure C - 31

# IRON CONCENTRATION AREA B

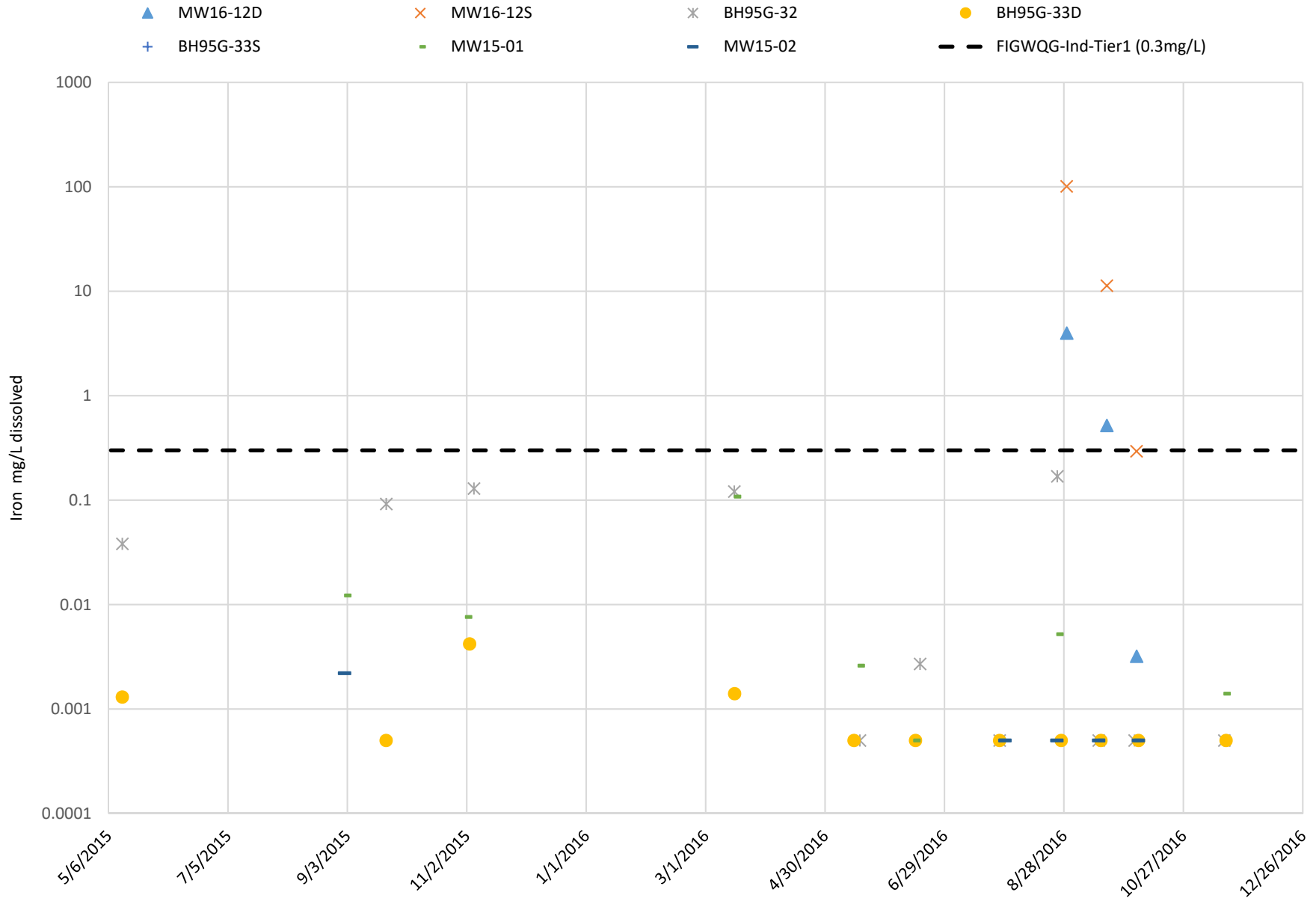


Figure C - 32



# LEAD CONCENTRATION AREA B

- ▲ MW16-12D
  - BH95G-33D
  - MW15-02
  - × MW16-12S
  - + BH95G-33S
  - FIGWQG for hardness > 180mg/L\* is 0.007mg/L
  - × BH95G-32
  - MW15-01
- \*guideline is hardness based range is from 0.007-0.00235 mg/L

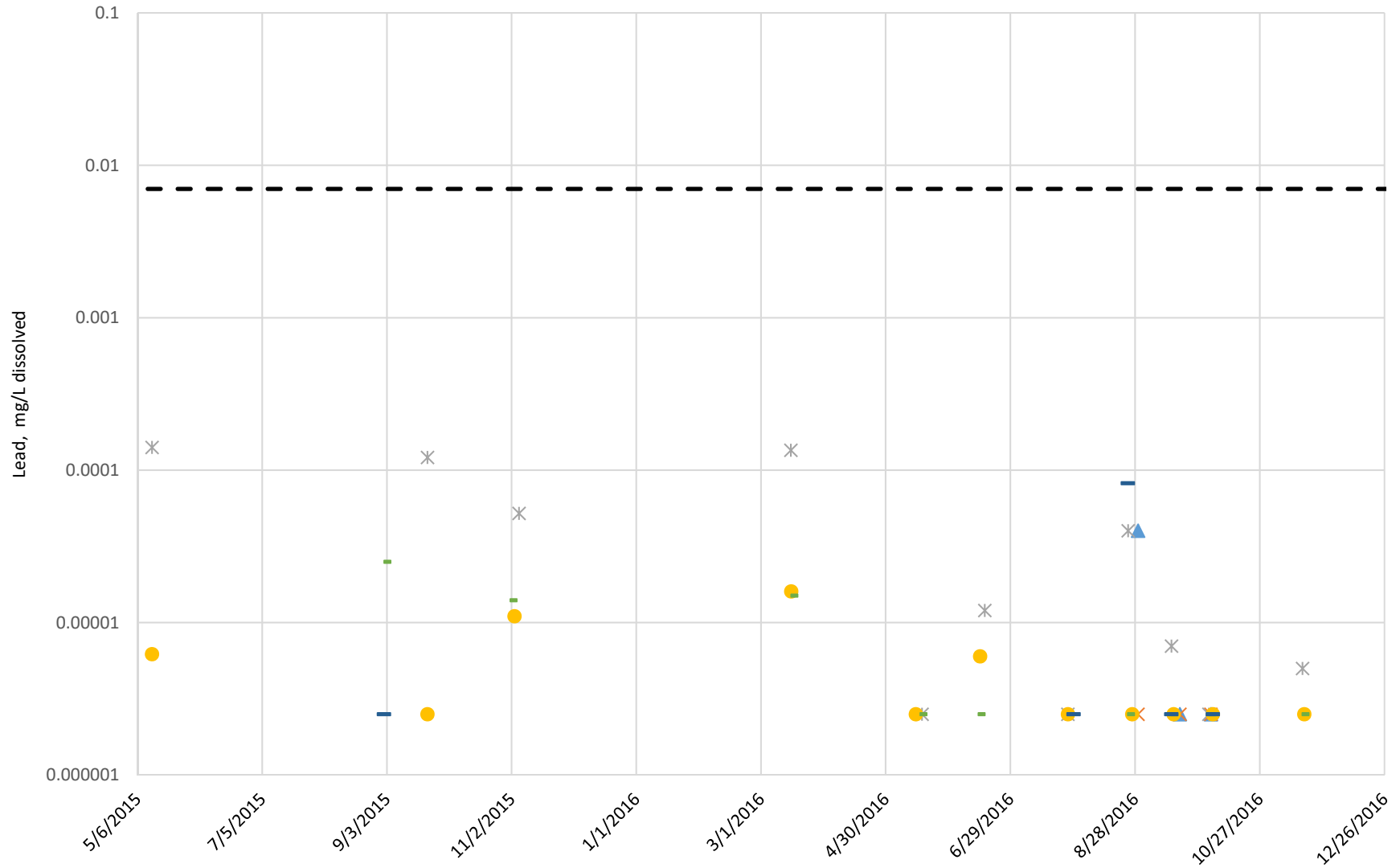


Figure C - 33

# SELENIUM CONCENTRATION AREA B



Figure C - 34

# ZINC CONCENTRATION AREA B

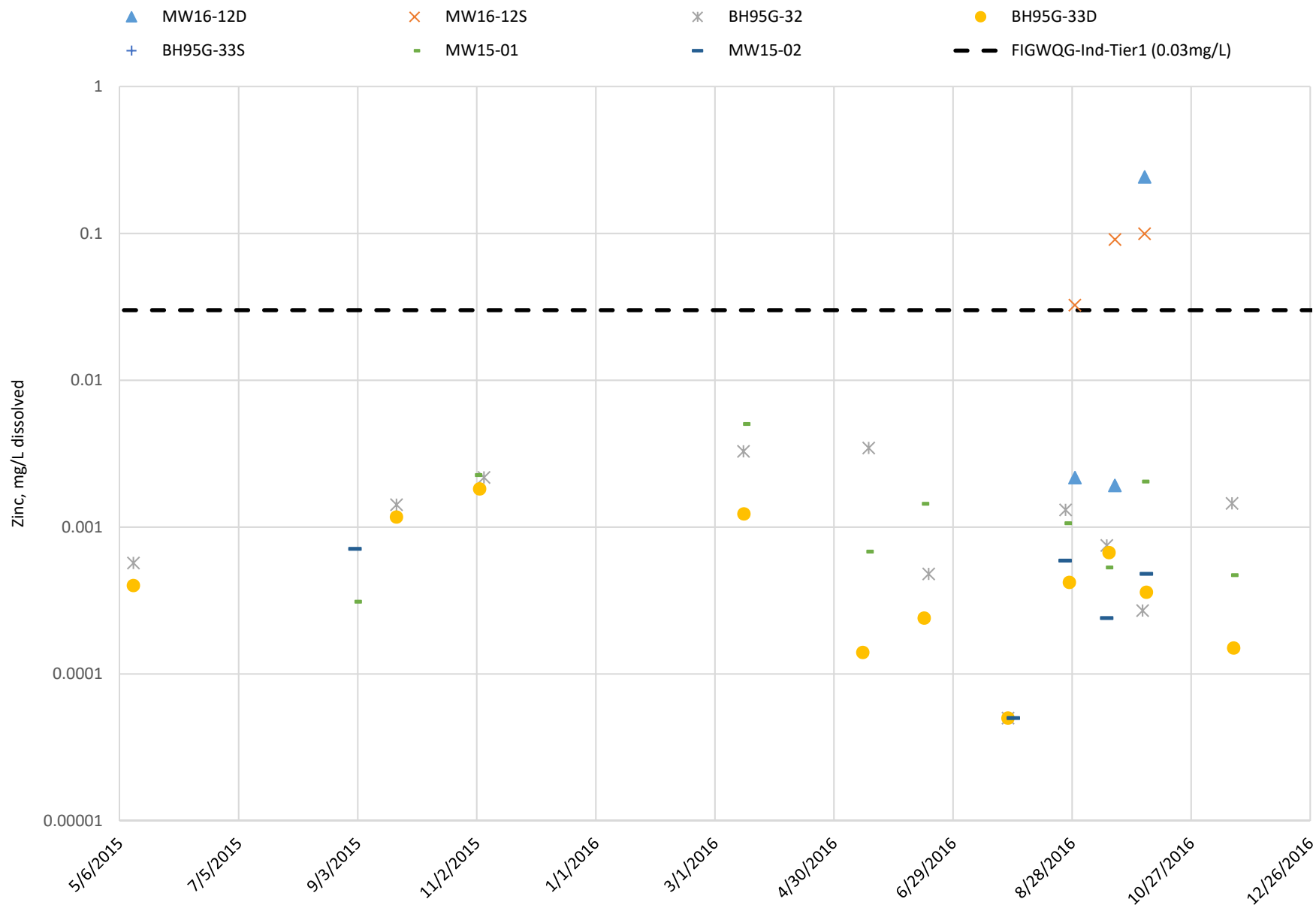


Figure C - 35

# TOTAL IRON CONCENTRATION AREA B

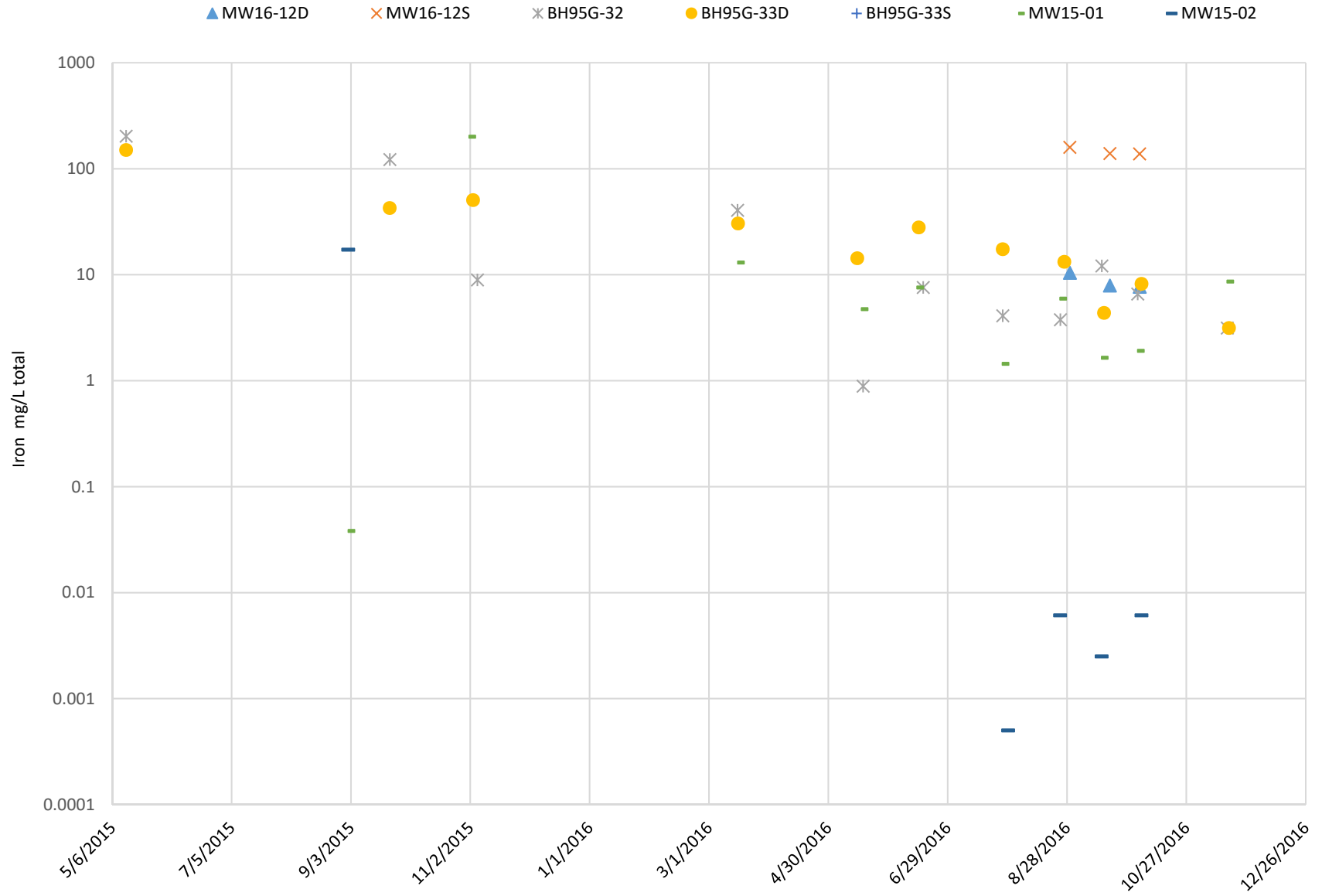


Figure C - 36

C-4

## AREA C GROUNDWATER QUALITY PLOTS

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# AMMONIA-N CONCENTRATION AREA C



Figure C - 37

# SULPHATE CONCENTRATION AREA C

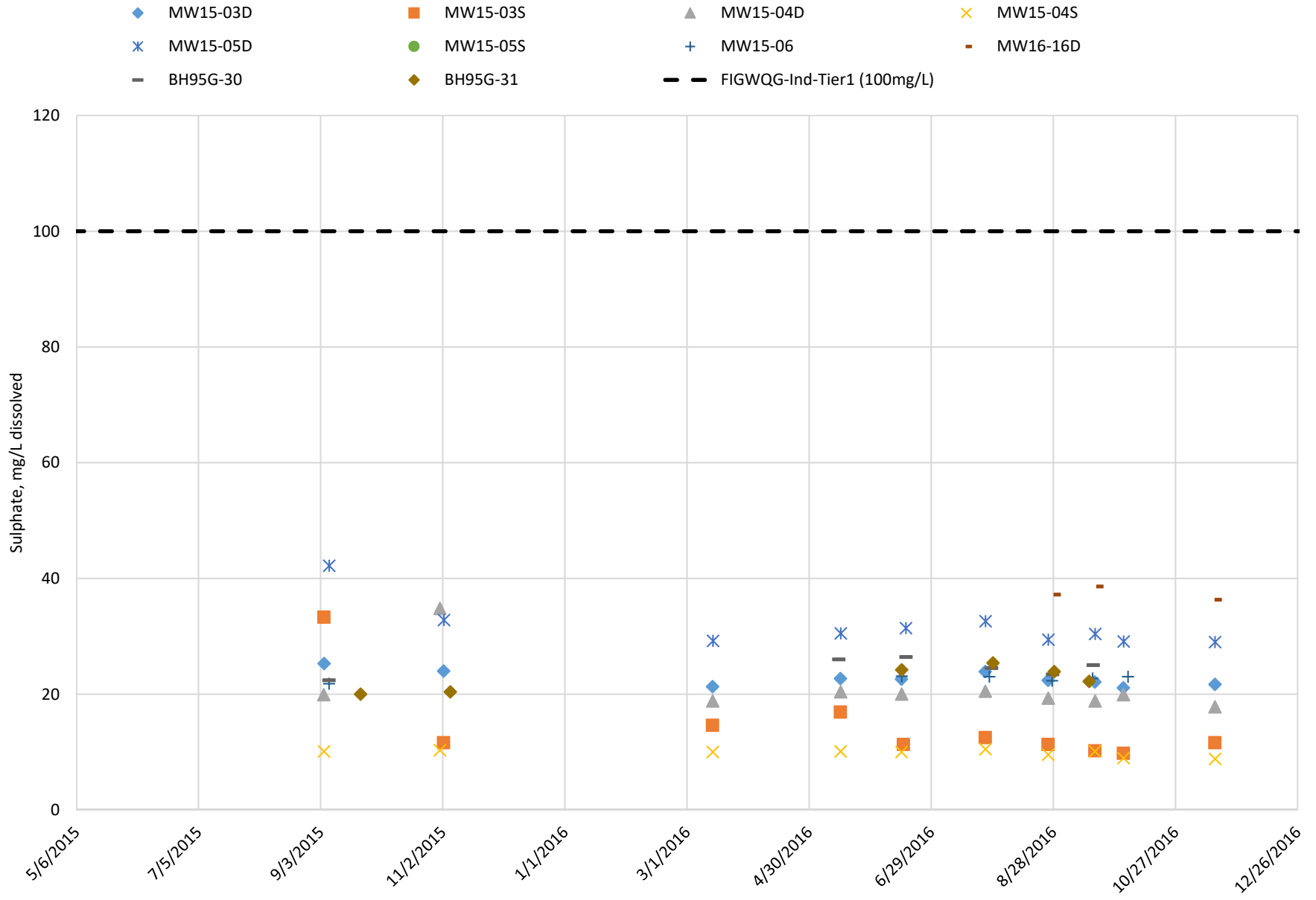


Figure C - 38



# FLOURIDE CONCENTRATION IN AREA C

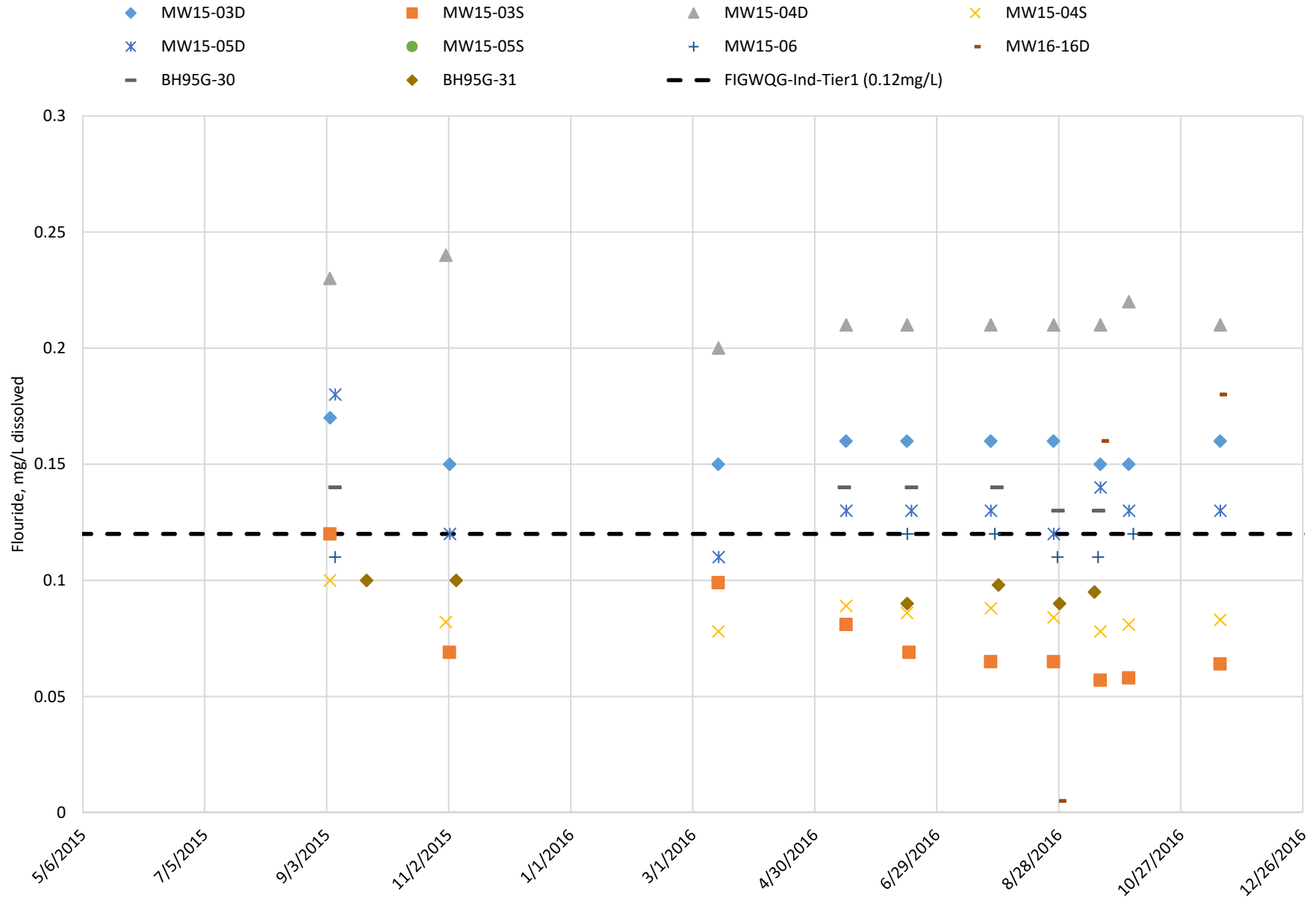


Figure C - 39

# ARSENIC CONCENTRATION AREA C

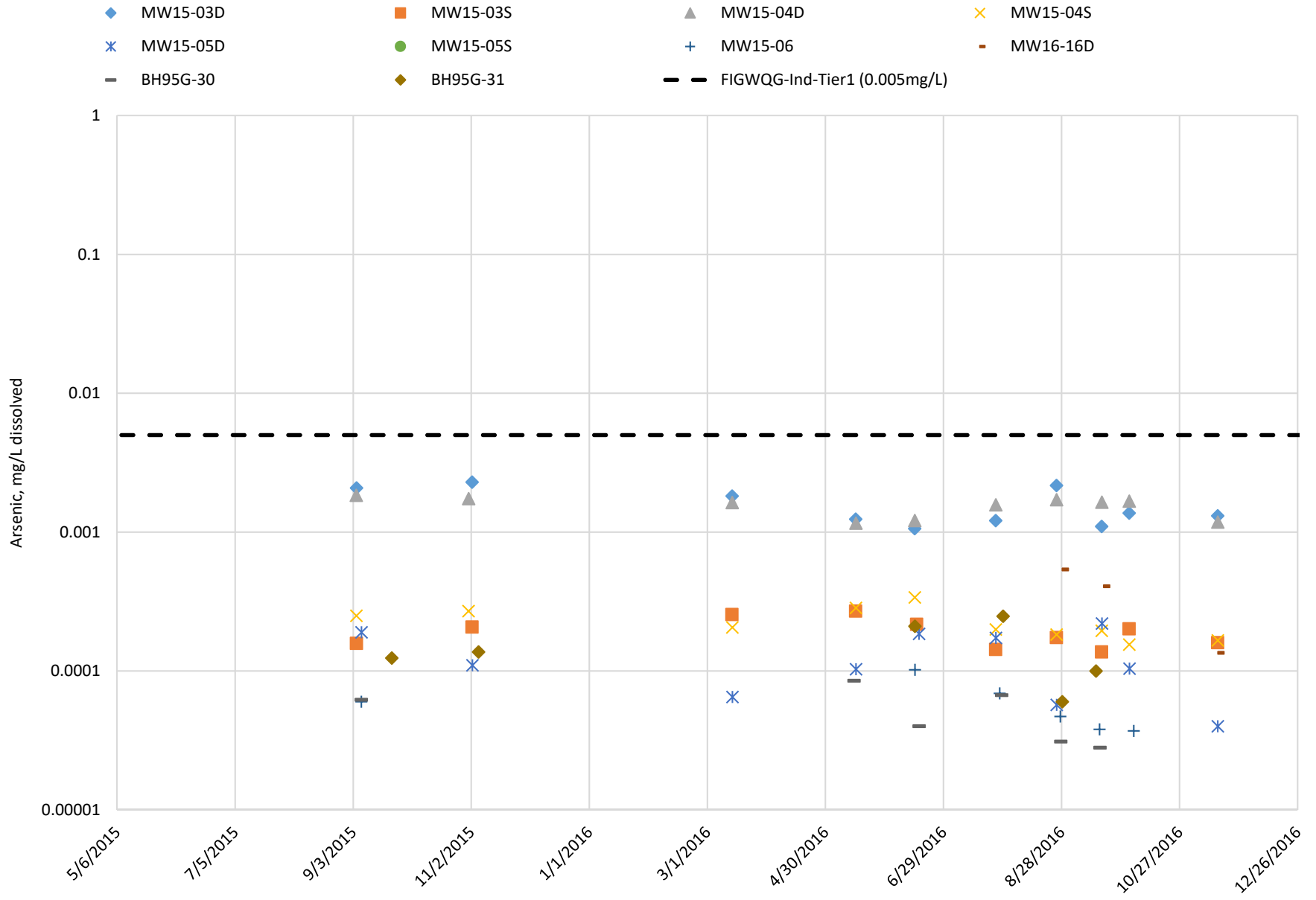


Figure C - 40

# ALUMINUM CONCENTRATION AREA C

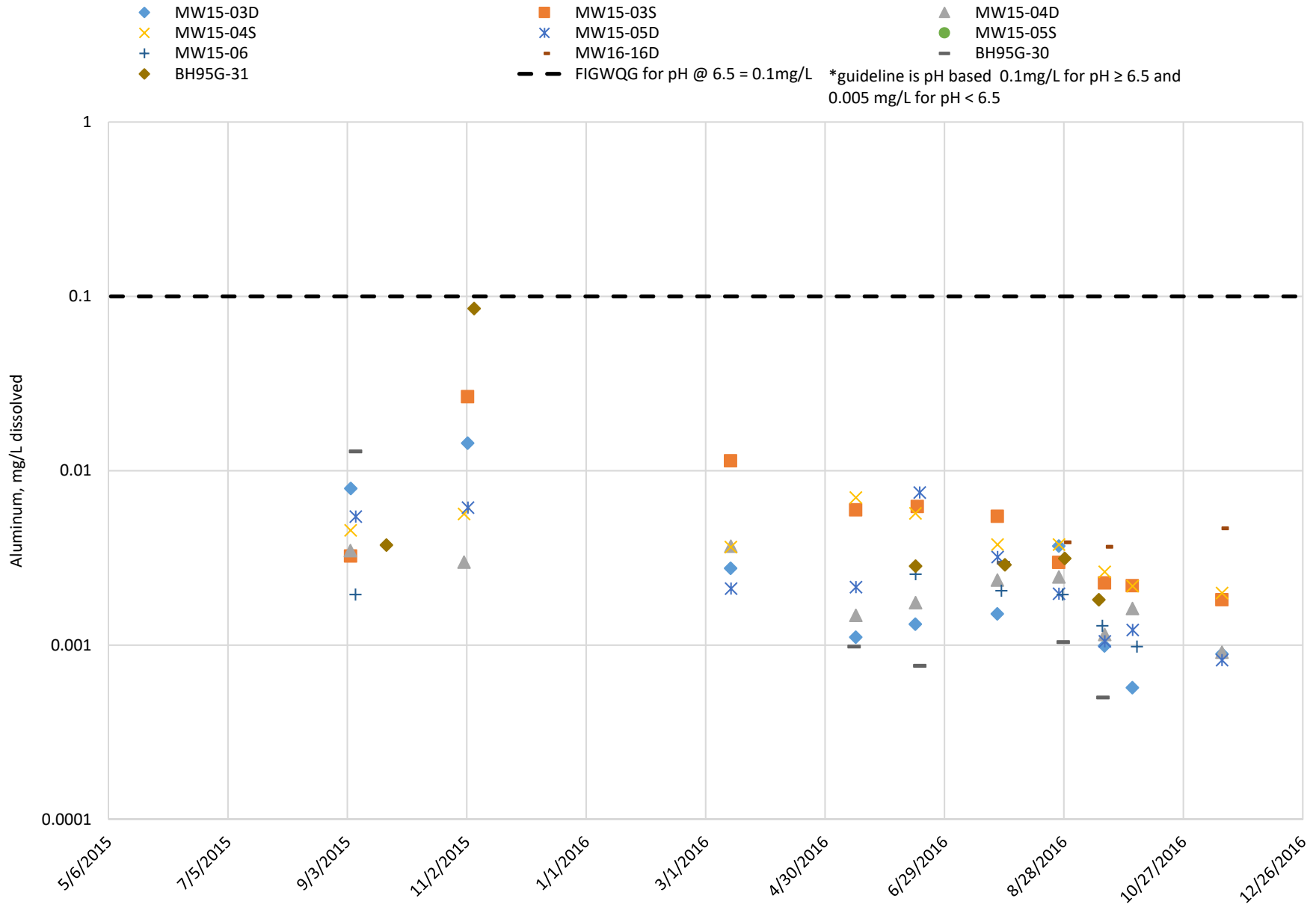


Figure C - 41

# CADMIUM CONCENTRATION AREA C

- ◆ MW15-03D
- ✕ MW15-04S
- +
- ◆ BH95G-31
- MW15-03S
- ✕ MW15-05D
- MW16-16D
- ▲ MW15-04D
- MW15-05S
- BH95G-30
- FIGWQG for hardness @ 130mg/L\* = 0.000196mg/L
- \*guideline is hardness based range is from 0.00037-0.00013 mg/L

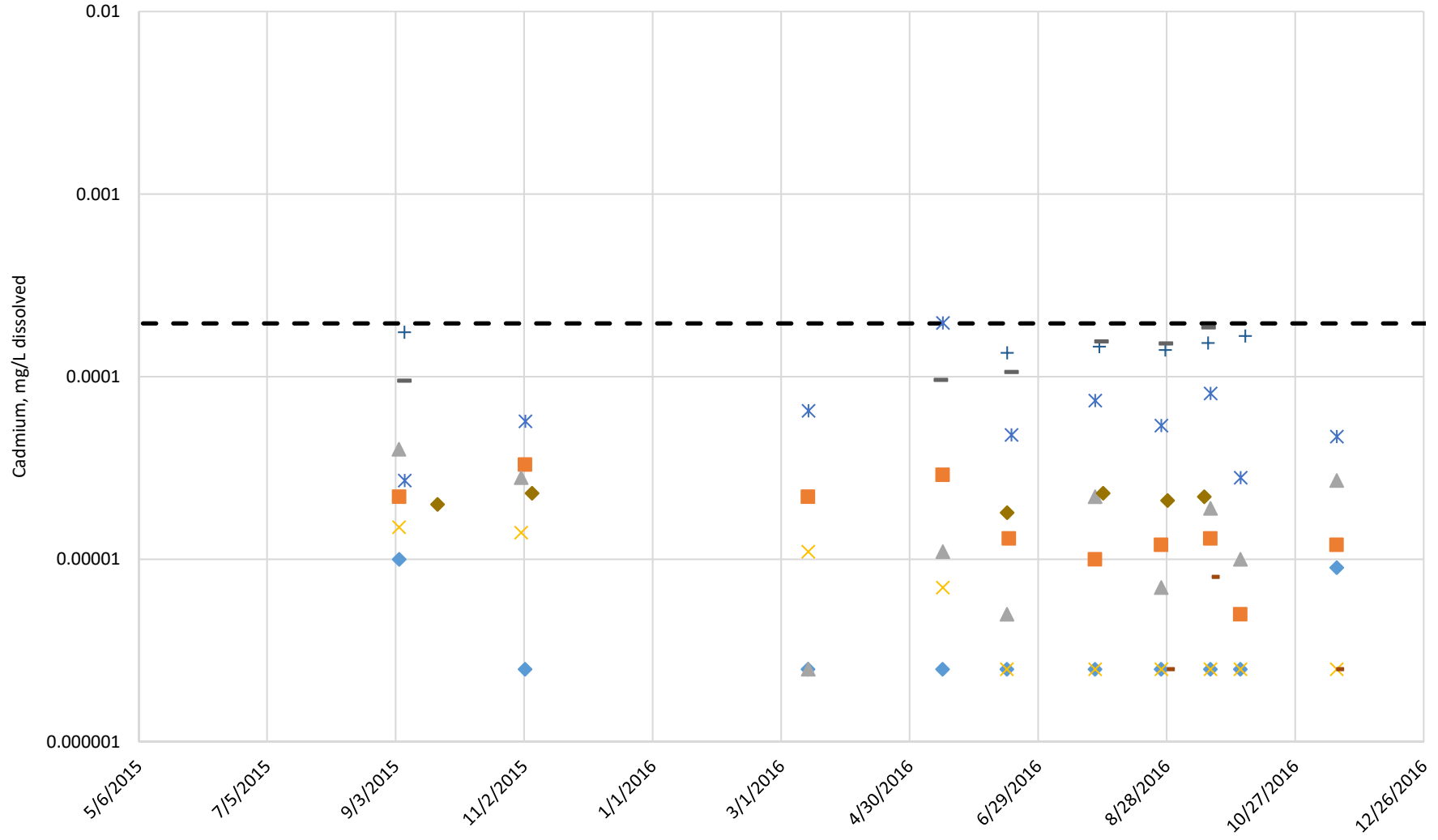


Figure C - 42

# COPPER CONCENTRATION AREA C

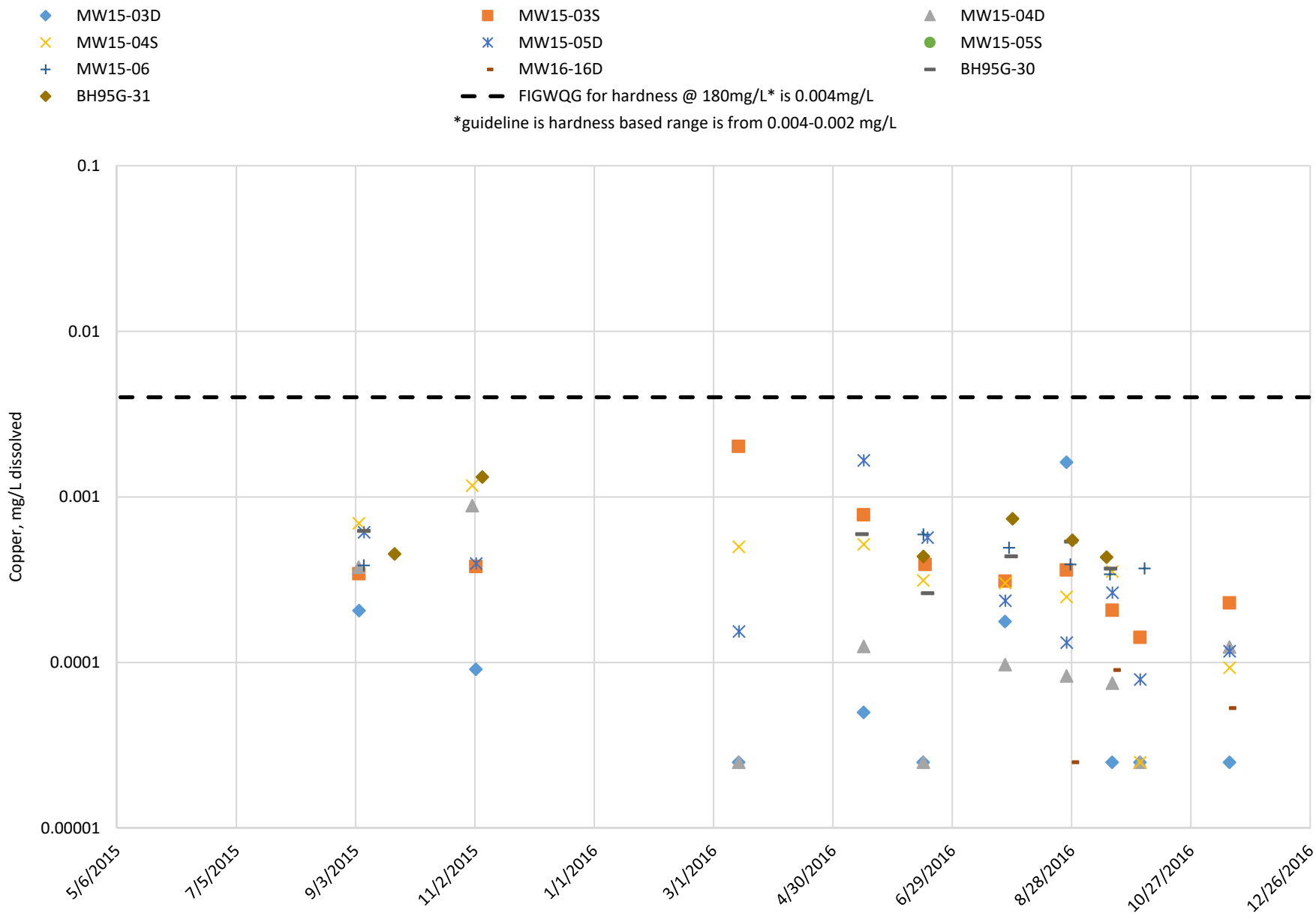


Figure C - 43

# IRON CONCENTRATION AREA C

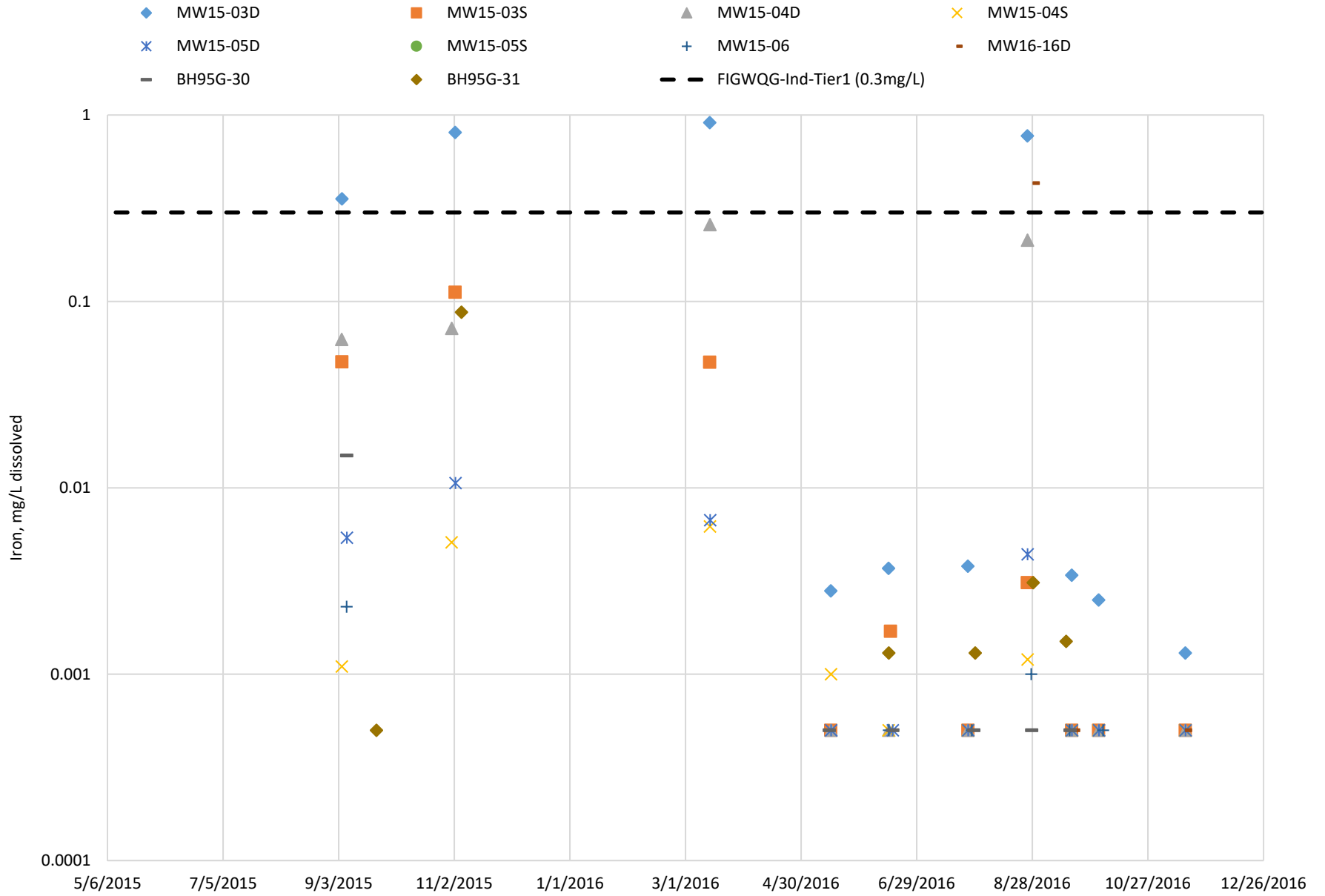


Figure C - 44

# LEAD CONCENTRATION AREA C

- ◆ MW15-03D
  - MW15-03S
  - ▲ MW15-04D
  - × MW15-04S
  - ✖ MW15-05D
  - MW15-05S
  - + MW15-06
  - MW16-16D
  - BH95G-30
  - ◆ BH95G-31
  - FIGWQG for hardness > 180mg/L\* is 0.007mg/L
- \*guideline is hardness based range is from 0.007-0.00235 mg/L

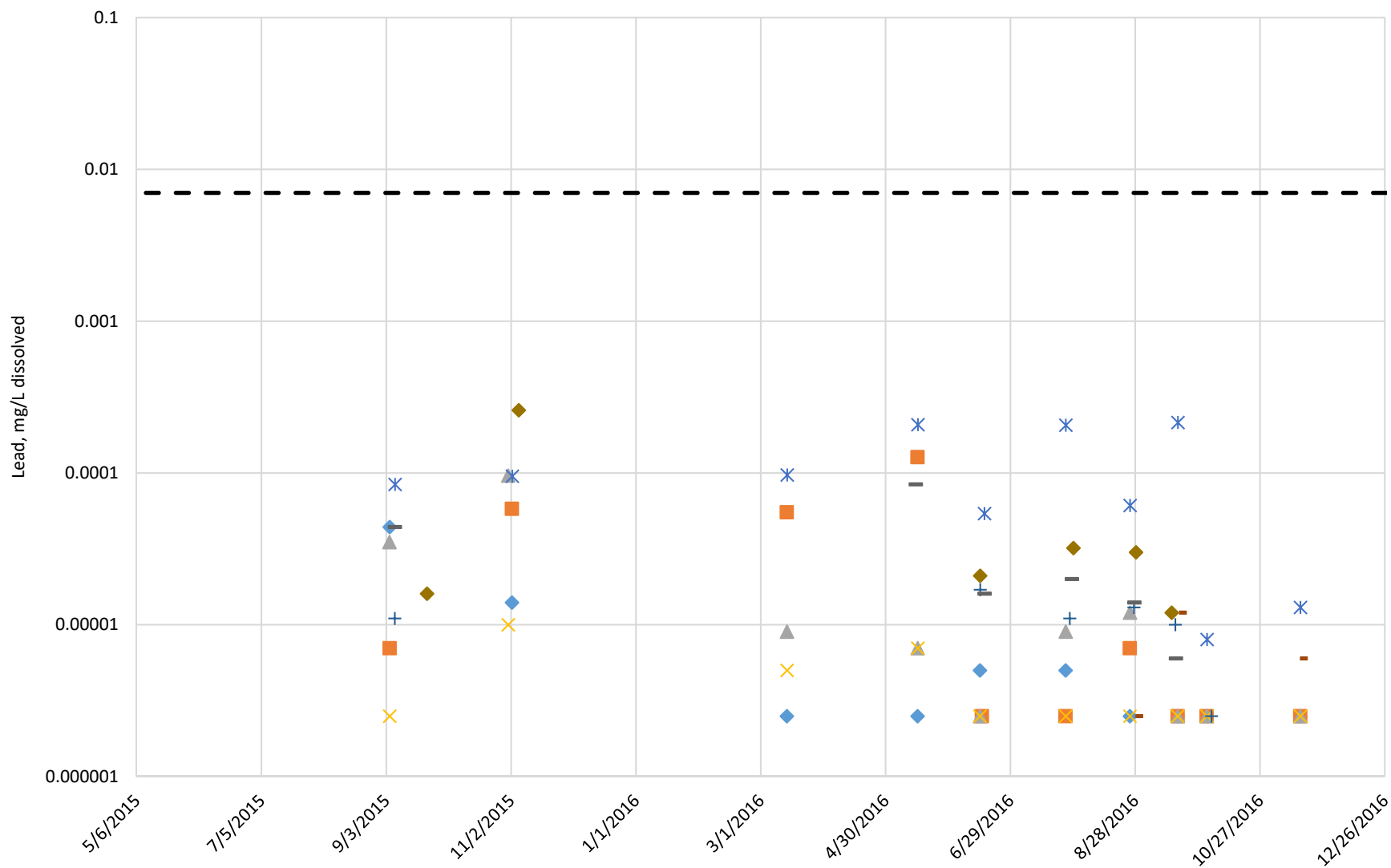


Figure C - 45

# SELENIUM CONCENTRATION AREA C

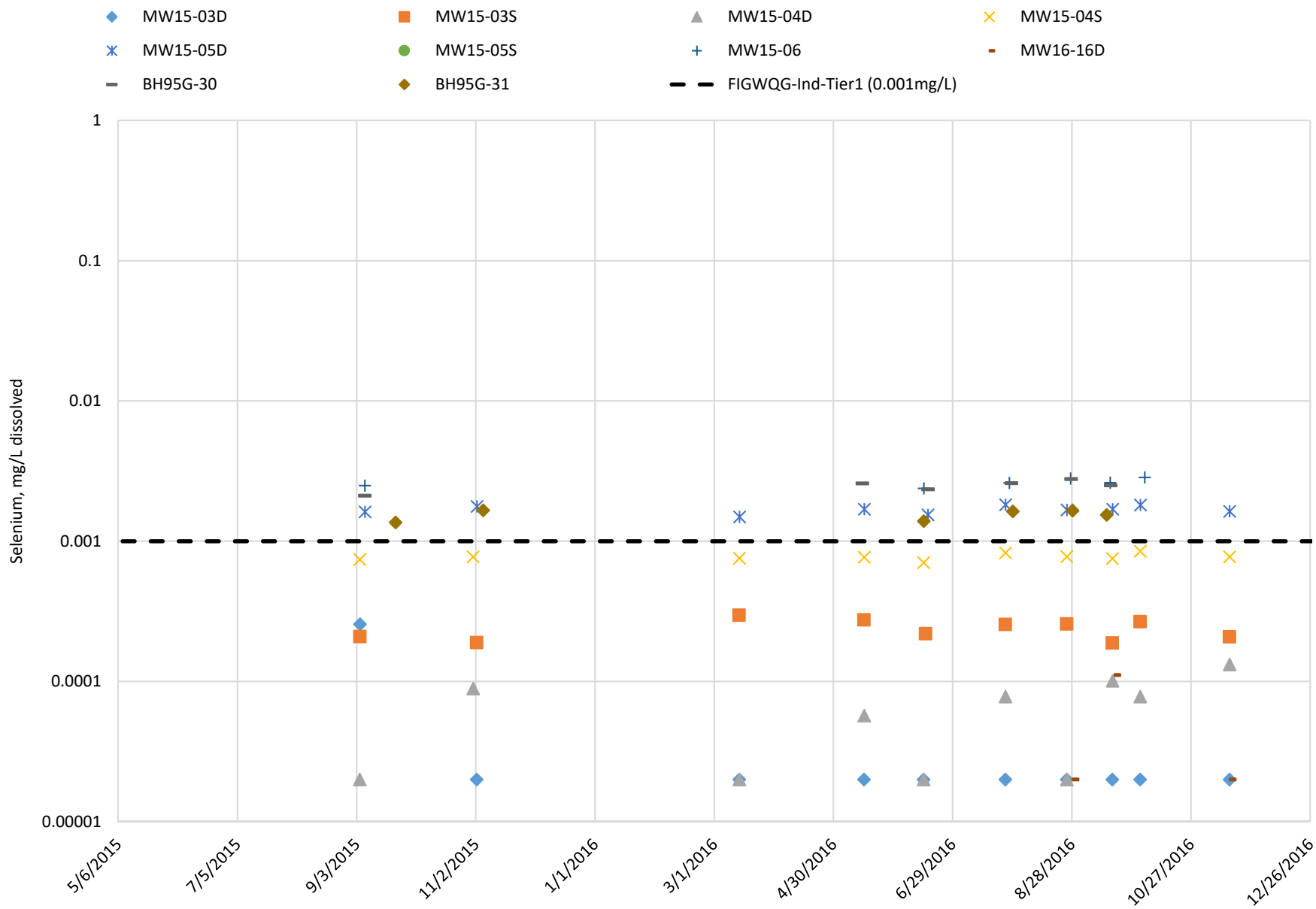


Figure C - 46



# ZINC CONCENTRATION AREA C

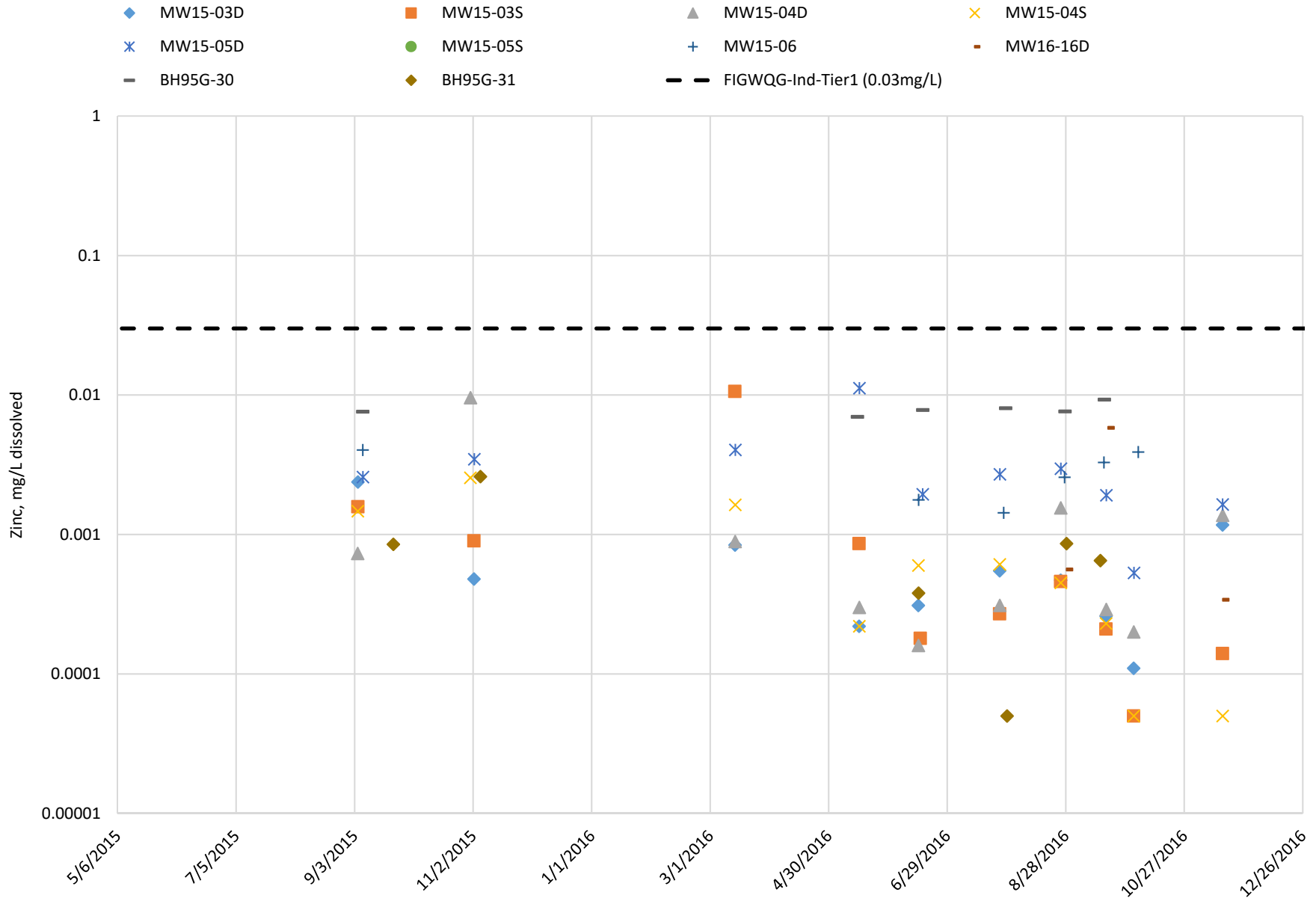


Figure C - 47

# TOTAL IRON CONCENTRATION AREA C

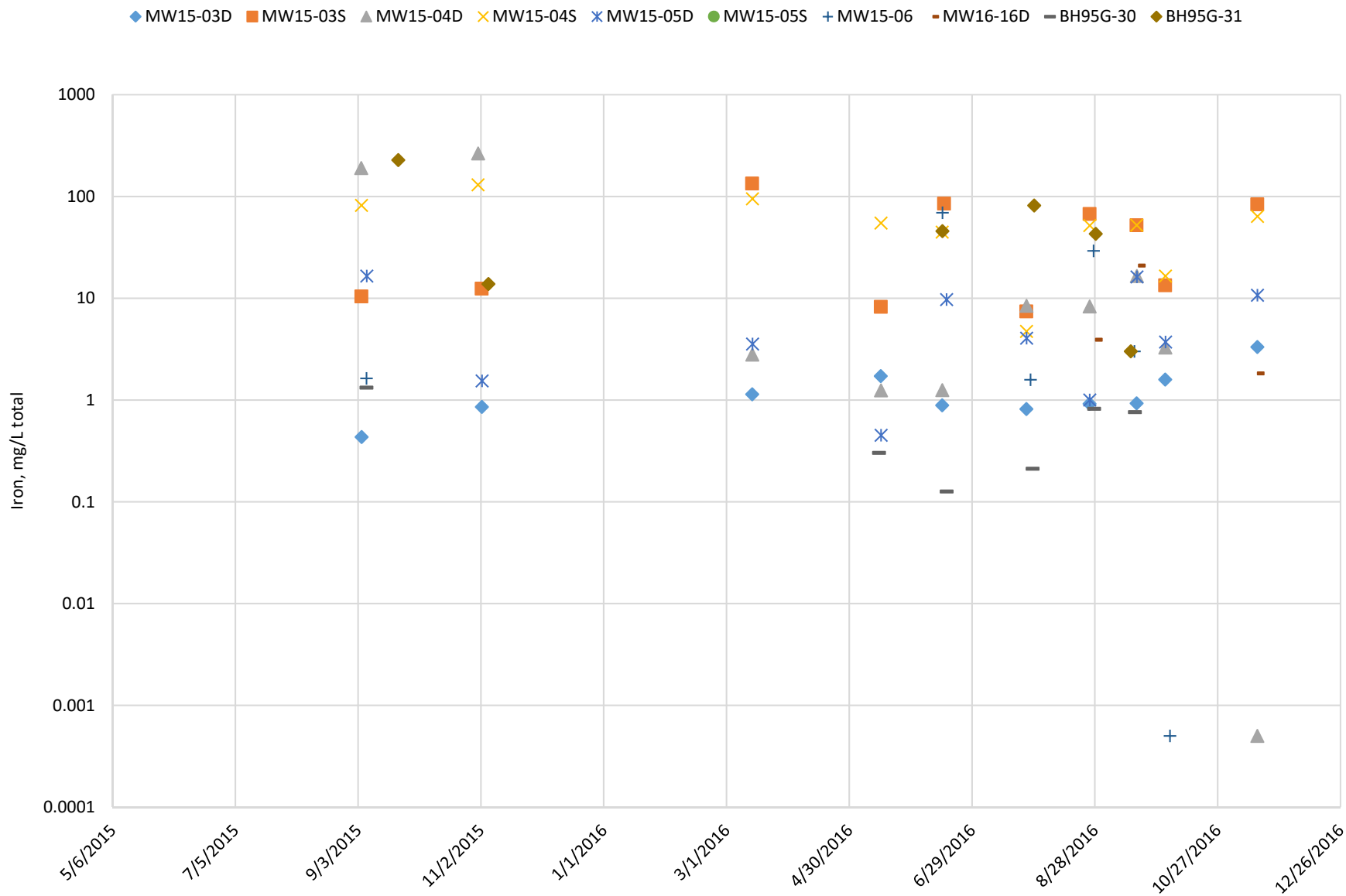


Figure C - 48

## APPENDIX D

# GROUNDWATER QUALITY SUMMARY STATISTICS

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PIT GROUNDWATER QUALITY SUMMARY STATISTICS

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	pH (field)	Specific Conductance (lab)	Temperature (field)	Dissolved Oxygen (field)	Dissolved Oxygen (field)	ORP (field)	Chloride	Fluoride	Sulphate, dissolved	Ammonia (N)	Nitrite (N)	Nitrate (N)	Phosphorus, total-colourimetric	Phosphorus, Total Dissolved	Aluminum (Al), dissolved	Arsenic (As), dissolved	Calcium (Ca), dissolved	Copper (Cu), dissolved	Iron (Fe), total	Lead (Pb), dissolved	Selenium (Se), dissolved	Zinc (Zn), dissolved
Station Name	pH units	µS/cm	C	mg/L	%	mV	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
FIGWQG-Industrial-Tier1	6.5-9						120	0.12	100	0.282	0.06	3		*	0.005	*	*		*		0.001	0.03
BH95G-129																						
Average	7.53	372	2.16	2.7	21.4	3.8	0.93	0.21	40.9	0.037	0.0014	0.0017	0.0201	0.0138	0.00234	0.003313	0.0000123	0.000125	0.9	0.0000119	0.00002	0.00281
Count	8	8	7	8	6	7	8	8	8	8	8	8	8	7	8	8	8	8	8	8	8	8
Minimum	6.82	353	0.95	1.3	12	-76.5	0.25	0.18	33.4	0.031	0.001	0.001	0.0068	0.0035	0.00055	0.000904	0.0000025	0.000025	0.632	0.0000025	0.00002	0.00005
Maximum	7.9	387	3.4	4.1	31	213	2.5	0.22	54.6	0.048	0.0023	0.0055	0.0424	0.0372	0.00527	0.00678	0.000051	0.000273	1.54	0.000044	0.00002	0.00663
Geometric Mean	7.53	372	2.03	2.56	20.5	3	0.71	0.21	40.4	0.036	0.0013	0.0014	0.017	0.0105	0.00173	0.002736	0.0000063	0.000091	0.847	0.000061	0.00002	0.0014
Count <DL	0	0	0	0	0	0	2	0	0	0	5	6	0	0	0	0	0	1	0	4	8	1
Standard Deviation	0.35	13	0.77	0.88	6.6	96.4	0.74	0.02	7	0.006	0.0006	0.0016	0.0122	0.0118	0.00177	0.002128	0.000017	0.000101	0.369	0.0000156	0	0.00243
1st Quartile	7.45	362	1.85	2.2	17.8	-43	0.51	0.2	35.6	0.034	0.001	0.001	0.0105	0.0073	0.00079	0.001955	0.0000025	0.000051	0.66	0.0000025	0.00002	0.00068
Median	7.63	372	2.1	2.77	21.5	-18.4	0.77	0.21	39.7	0.035	0.001	0.001	0.017	0.0095	0.00195	0.00261	0.0000042	0.000074	0.737	0.0000042	0.00002	0.00259
3rd Quartile	7.75	384	2.5	3.07	24.7	-3	1	0.22	44.1	0.037	0.0021	0.0013	0.0261	0.0159	0.00349	0.004415	0.0000122	0.000215	0.959	0.0000122	0.00002	0.0044
Count Over Guideline	0	0	0	0	0	0	0	8	0	0	0	0	0	0	2	0	0	0	0	0	0	0
% Over Guideline	0	0	0	0	0	0	0	100	0	0	0	0	0	0	25	0	0	0	0	0	0	0
BH95G-131																						
Average	7.23	1127	2.92	3.34	27.8	-20.4	0.91	0.085	229	0.041	0.001	0.0018	0.1554	0.0556	0.00232	0.00266	0.0000174	0.000171	9.94	0.000925	0.000042	0.00386
Count	9	9	8	9	6	7	9	9	9	9	9	9	9	8	9	9	9	9	9	9	9	9
Minimum	7.05	1090	1.5	0.67	20	-51.8	0.57	0.069	215	0.032	0.001	0.001	0.0106	0.0076	0.00025	0.00132	0.0000025	0.000025	3.97	0.000084	0.00002	0.00155
Maximum	7.66	1160	4.7	5.8	35.1	66	1.3	0.099	247	0.054	0.001	0.0033	0.383	0.178	0.0136	0.0071	0.000039	0.000423	20.8	0.00194	0.000165	0.00811
Geometric Mean	7.23	1126	2.74	2.91	27.2	1.8	0.87	0.084	229	0.04	0.001	0.0016	0.0895	0.0275	0.00081	0.00232	0.0000105	0.000109	8.31	0.000531	0.00003	0.00334
Count <DL	0	0	0	0	0	0	0	0	0	0	9	5	0	0	4	0	3	2	0	0	6	0
Standard Deviation	0.19	24	1.08	1.51	6.7	39.9	0.27	0.01	10	0.007	0	0.001	0.1268	0.0711	0.00435	0.00178	0.0000149	0.000153	6.22	0.000784	0.000048	0.00231
1st Quartile	7.09	1110	2	2.6	23	-41.2	0.69	0.075	222	0.035	0.001	0.001	0.0299	0.0112	0.00025	0.00169	0.0000025	0.000061	4.89	0.000214	0.00002	0.00224
Median	7.2	1120	3.05	3.4	27	-30.1	0.88	0.085	229	0.039	0.001	0.001	0.162	0.0215	0.00079	0.00186	0.000016	0.000108	5.87	0.000897	0.00002	0.00296
3rd Quartile	7.26	1150	3.55	4.4	34	-22.2	1	0.094	235	0.046	0.001	0.0027	0.189	0.065	0.00105	0.00272	0.000033	0.000308	14.6	0.00167	0.000042	0.00467
Count Over Guideline	0	0	0	0	0	0	0	0	9	0	0	0	0	0	1	0	0	0	0	0	0	0
% Over Guideline	0	0	0	0	0	0	0	0	100	0	0	0	0	0	11.1	0	0	0	0	0	0	0
BH95G-146																						
Average	7.43	758	3.6	2.4	21.9	-43.5	0.44	0.3	251	0.157	0.0013	0.0021	0.1101	0.0894	0.00138	0.00109	0.0000067	0.000104	1.925	0.0000073	0.000046	0.00263
Count	7	7	7	7	5	5	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
Minimum	6.67	740	2.9	1.1	10	-57.5	0.25	0.28	232	0.022	0.001	0.001	0.0034	0.001	0.00025	0.000296	0.0000025	0.000025	0.685	0.0000025	0.00002	0.0005
Maximum	7.76	771	4.7	3.38	31.4	-19.4	0.8	0.31	279	0.78	0.0021	0.0053	0.429	0.433	0.00315	0.00452	0.000025	0.000275	4.47	0.000025	0.00002	0.0103
Geometric Mean	7.42	758	3.5	2.24	19.9	1	0.39	0.3	250	0.067	0.0012	0.0017	0.0369	0.0136	0.00103	0.000678	0.0000042	0.000064	1.659	0.0000044	0.000028	0.00144
Count <DL	0	0	0	0	0	0	4	0	0	0	5	4	0	1	2	0	6	4	0	6	7	1
Standard Deviation	0.37	11	0.6	0.85	9.7	14.3	0.25	0.01	19	0.277	0.0005	0.0016	0.1508	0.1626	0.00107	0.001521	0.0000085	0.00011	1.228	0.0000088	0.000068	0.00357
1st Quartile	7.39	752	3.2	1.83	13	-49	0.25	0.29	237	0.037	0.001	0.001	0.0094	0.0037	0.00069	0.000433	0.0000025	0.000025	1.335	0.0000025	0.00002	0.00071
Median	7.54	758	3.3	2.53	27	-46.7	0.25	0.3	243	0.045	0.001	0.001	0.0734	0.0067	0.00098	0.000547	0.0000025	0.000054	1.44	0.0000025	0.00002	0.0011
3rd Quartile	7.63	767	3.8	3.05	28	-44.8	0.66	0.3	264	0.087	0.0015	0.0027	0.123	0.089	0.00193	0.000701	0.0000058	0.000162	2.105	0.0000079	0.00002	0.00254
Count Over Guideline	0	0	0	0	0	0	0	7	7	1	0	0	0	0	0	0	0	0	0	0	0	0
% Over Guideline	0	0	0	0	0	0	0	100	100	14.3	0	0	0	0	0	0	0	0	0	0	0	0

	pH (field)	Specific Conductance (lab)	Temperature (field)	Dissolved Oxygen (field)	Dissolved Oxygen (field)	ORP (field)	Chloride	Fluoride	Sulphate, dissolved	Ammonia (N)	Nitrite (N)	Nitrate (N)	Phosphorus, total-colourimetric	Phosphorus, Total Dissolved	Aluminum (Al), dissolved	Arsenic (As), dissolved	Calcium (Ca), dissolved	Copper (Cu), dissolved	Iron (Fe), total	Lead (Pb), dissolved	Selenium (Se), dissolved	Zinc (Zn), dissolved
Station Name	pH units	µS/cm	C	mg/L	%	mV	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
FIGWQG-Industrial-Tier1	6.5-9						120	0.12	100	0.282	0.06	3		*	0.005	*	*		*		0.001	0.03
BH95G-21																						
Average	7.52	405	2.2	1.5	17	8.9	0.82	0.094	47.1	0.068	0.0014	0.0031	1.2873	0.1124	0.00546	0.001109	0.0000076	0.00015	62.8	0.0000264	0.000038	0.0034
Count	8	8	7	8	5	5	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Minimum	7.3	400	0.7	0	12	-67.8	0.25	0.083	46	0.019	0.001	0.001	0.0072	0.001	0.00052	0.000691	0.000005	0.000052	14	0.0000025	0.00002	0.00005
Maximum	7.65	411	4.3	3.1	27	246.8	1.9	0.1	48.6	0.27	0.0038	0.0048	7.33	0.393	0.0236	0.00156	0.000015	0.000242	228	0.0000854	0.000077	0.0194
Geometric Mean	7.51	405	1.9	1.52	16	3	0.63	0.094	47.1	0.047	0.0012	0.0027	0.378	0.0225	0.00236	0.001053	0.0000072	0.000135	37.8	0.0000118	0.000032	0.00052
Count <DL	0	0	0	0	0	0	3	0	0	0	7	2	0	1	0	0	0	0	0	3	5	2
Standard Deviation	0.12	4	1.2	0.88	6	133.4	0.6	0.005	1	0.082	0.001	0.0015	2.4572	0.1554	0.00778	0.000374	0.0000031	0.000064	77.2	0.00003	0.000025	0.00672
1st Quartile	7.43	403	1.5	1.27	13	-49.2	0.25	0.093	46.4	0.034	0.001	0.002	0.3115	0.0024	0.00074	0.000799	0.000006	0.000112	20.2	0.0000025	0.00002	0.0001
Median	7.56	404	1.7	1.5	15	-46.7	0.78	0.095	47	0.044	0.001	0.0034	0.359	0.0357	0.00268	0.001086	0.0000066	0.000161	26.4	0.0000147	0.00002	0.00046
3rd Quartile	7.59	407	2.8	1.77	17	-38.5	1.09	0.096	47.9	0.051	0.001	0.0041	0.7632	0.1643	0.00604	0.001393	0.0000078	0.000191	59.4	0.0000432	0.000062	0.00221
Count Over Guideline	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Over Guideline	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BH95G-22																						
Average	7.21	348	3.69	8.09	75.2	209.8	0.59	0.055	44.2	0.082	0.0062	0.33	1.1471	0.0965	0.00914	0.000126	0.000127	0.001414	105.3	0.0000838	0.000712	0.00592
Count	11	11	11	11	7	8	11	11	11	11	11	11	11	9	10	10	10	10	10	10	10	10
Minimum	5.98	315	1.17	6.27	53.5	68.4	0.25	0.047	35.1	0.011	0.001	0.105	0.0158	0.0025	0.0007	0.000024	0.000074	0.000549	11.3	0.0000025	0.000461	0.0033
Maximum	7.56	391	10	11	96	390	1.3	0.07	52.8	0.51	0.026	0.768	6.61	0.358	0.038	0.000302	0.000194	0.00644	405	0.000274	0.000879	0.00787
Geometric Mean	7.2	347	3.17	7.95	73.9	177	0.46	0.054	43.9	0.044	0.003	0.274	0.2658	0.0302	0.00309	0.000103	0.000123	0.001005	59.9	0.0000308	0.000699	0.00574
Count <DL	0	0	0	0	0	0	6	0	0	0	5	0	0	0	0	0	0	0	0	1	0	0
Standard Deviation	0.45	23	2.39	1.62	14.9	126.5	0.43	0.008	5.5	0.143	0.0081	0.207	2.093	0.1293	0.01375	0.000081	0.000034	0.001786	120.1	0.0001067	0.000141	0.00143
1st Quartile	7.14	330	2.5	7.2	65.2	128.4	0.25	0.05	40.5	0.032	0.001	0.162	0.1363	0.0154	0.00092	0.000076	0.000105	0.000686	24.4	0.0000108	0.000616	0.00494
Median	7.39	352	3.2	7.7	77	147.9	0.25	0.054	44.5	0.04	0.0023	0.358	0.305	0.0287	0.00172	0.000109	0.000126	0.00078	58.7	0.0000222	0.000702	0.00605
3rd Quartile	7.5	362	3.8	8.62	84.7	335.7	0.94	0.056	48	0.049	0.0071	0.413	0.488	0.196	0.01073	0.00016	0.000135	0.001133	152.5	0.0001605	0.000844	0.007
Count Over Guideline	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0
% Over Guideline	9.1	0	0	0	0	0	0	0	0	9.1	0	0	0	0	0	0	0	10	0	0	0	0
BH95G-23																						
Average	7.02	267	0.5	1.14			0.25	0.06	72.8	0.5	0.001	0.001	0.0918	0.0214	0.00583	0.0747	0.00169	0.000119	276	0.000361	0.00002	2.03
Count	1	1	1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Minimum	7.02	267	0.5	1.14			0.25	0.06	72.8	0.5	0.001	0.001	0.0918	0.0214	0.00583	0.0747	0.00169	0.000119	276	0.000361	0.00002	2.03
Maximum	7.02	267	0.5	1.14			0.25	0.06	72.8	0.5	0.001	0.001	0.0918	0.0214	0.00583	0.0747	0.00169	0.000119	276	0.000361	0.00002	2.03
Geometric Mean	7.02	267	0.5	1.14			0.25	0.06	72.8	0.5	0.001	0.001	0.0918	0.0214	0.00583	0.0747	0.00169	0.000119	276	0.000361	0.00002	2.03
Count <DL	0	0	0	0			1	0	0	0	1	1	0	0	0	0	0	0	0	0	1	0
Standard Deviation	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1st Quartile	7.02	267	0.5	1.14			0.25	0.06	72.8	0.5	0.001	0.001	0.0918	0.0214	0.00583	0.0747	0.00169	0.000119	276	0.000361	0.00002	2.03
Median	7.02	267	0.5	1.14			0.25	0.06	72.8	0.5	0.001	0.001	0.0918	0.0214	0.00583	0.0747	0.00169	0.000119	276	0.000361	0.00002	2.03
3rd Quartile	7.02	267	0.5	1.14			0.25	0.06	72.8	0.5	0.001	0.001	0.0918	0.0214	0.00583	0.0747	0.00169	0.000119	276	0.000361	0.00002	2.03
Count Over Guideline	0	0	0	0			0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	1
% Over Guideline	0	0	0	0			0	0	0	100	0	0	0	0	0	100	100	0	0	0	0	100



Station Name	pH (field)	Specific Conductance (lab)	Temperature (field)	Dissolved Oxygen (field)	Dissolved Oxygen (field)	ORP (field)	Chloride	Fluoride	Sulphate, dissolved	Ammonia (N)	Nitrite (N)	Nitrate (N)	Phosphorus, total-colourimetric	Phosphorus, Total Dissolved	Aluminum (Al), dissolved	Arsenic (As), dissolved	Calcium (Ca), dissolved	Copper (Cu), dissolved	Iron (Fe), total	Lead (Pb), dissolved	Selenium (Se), dissolved	Zinc (Zn), dissolved
	pH units	µS/cm	C	mg/L	%	mV	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
FIGWQG-Industrial-Tier1	6.5-9						120	0.12	100	0.282	0.06	3		*	0.005	*	*		*	0.001	0.03	
BH95G-24																						
Average	7.24	768	0.6	0.82			0.63	0.067	135	0.062	0.0062	0.0054	0.0065	0.004	0.00139	0.0103	0.00375	0.000408	34.1	0.00406	0.00002	0.845
Count	1	1	1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Minimum	7.24	768	0.6	0.82			0.63	0.067	135	0.062	0.0062	0.0054	0.0065	0.004	0.00139	0.0103	0.00375	0.000408	34.1	0.00406	0.00002	0.845
Maximum	7.24	768	0.6	0.82			0.63	0.067	135	0.062	0.0062	0.0054	0.0065	0.004	0.00139	0.0103	0.00375	0.000408	34.1	0.00406	0.00002	0.845
Geometric Mean	7.24	768	0.6	0.82			0.63	0.067	135	0.062	0.0062	0.0054	0.0065	0.004	0.00139	0.0103	0.00375	0.000408	34.1	0.00406	0.00002	0.845
Count <DL	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Standard Deviation	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1st Quartile	7.24	768	0.6	0.82			0.63	0.067	135	0.062	0.0062	0.0054	0.0065	0.004	0.00139	0.0103	0.00375	0.000408	34.1	0.00406	0.00002	0.845
Median	7.24	768	0.6	0.82			0.63	0.067	135	0.062	0.0062	0.0054	0.0065	0.004	0.00139	0.0103	0.00375	0.000408	34.1	0.00406	0.00002	0.845
3rd Quartile	7.24	768	0.6	0.82			0.63	0.067	135	0.062	0.0062	0.0054	0.0065	0.004	0.00139	0.0103	0.00375	0.000408	34.1	0.00406	0.00002	0.845
Count Over Guideline	0	0	0	0			0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	1
% Over Guideline	0	0	0	0			0	0	100	0	0	0	0	0	0	100	100	0	0	0	0	100
BH95G-25D																						
Average	7.14	1047	2	1.27	13.6	2.3	1.2	0.093	236	0.101	0.0015	0.008	0.1382	0.0598	0.00124	0.000964	0.0000044	0.000489	15.34	0.0000181	0.00002	0.01023
Count	9	9	9	8	6	7	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
Minimum	7	1020	1	0	9	-42.3	0.8	0.083	220	0.07	0.001	0.001	0.0059	0.0034	0.00025	0.00047	0.0000025	0.000025	3.43	0.0000025	0.00002	0.00375
Maximum	7.26	1070	3.8	2.6	22	175	2	0.1	257	0.2	0.0058	0.053	0.413	0.365	0.0033	0.00166	0.00001	0.0037	31.2	0.0000658	0.00002	0.0192
Geometric Mean	7.14	1047	1.9	1.28	12.6	2.1	1.2	0.093	236	0.095	0.0012	0.0023	0.0538	0.0188	0.00084	0.00086	0.0000037	0.000113	12.64	0.0000074	0.00002	0.00922
Count <DL	0	0	0	0	0	0	0	0	0	0	8	6	0	0	3	0	6	2	0	5	9	0
Standard Deviation	0.09	17	0.9	0.85	6.1	77.4	0.3	0.006	15	0.04	0.0016	0.0171	0.1606	0.1169	0.00107	0.000495	0.0000031	0.001205	9.37	0.0000248	0	0.00481
1st Quartile	7.05	1040	1.4	0.9	9.2	-38.3	1	0.09	222	0.079	0.001	0.001	0.0105	0.0063	0.00025	0.000597	0.0000025	0.000069	10.9	0.0000025	0.00002	0.00787
Median	7.15	1050	1.9	1.09	10.4	-18.7	1.1	0.095	238	0.081	0.001	0.001	0.078	0.0163	0.00117	0.000703	0.0000025	0.000093	12.6	0.0000025	0.00002	0.00953
3rd Quartile	7.22	1060	2.4	1.5	18.5	-10.6	1.2	0.097	249	0.1	0.001	0.0035	0.256	0.0286	0.00128	0.00152	0.000006	0.000134	19.3	0.000023	0.00002	0.0125
Count Over Guideline	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0
% Over Guideline	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0
BH95G-25S																						
Average	7.25	940	1.8	2.55	12.4	-47.7	0.97	0.12	191	0.33	0.0021	0.0017	0.6064	0.0328	0.00088	0.00379	0.0000056	0.000075	33.3	0.0000069	0.00002	0.00057
Count	10	10	10	9	7	7	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Minimum	7.13	895	0.1	0	2	-91.6	0.51	0.11	171	0.16	0.001	0.001	0.0047	0.0024	0.00025	0.00127	0.0000025	0.000025	10.5	0.0000025	0.00002	0.00005
Maximum	7.5	981	3.3	11.3	26.9	111.5	1.3	0.14	203	0.91	0.0095	0.0041	3.28	0.113	0.00361	0.00824	0.00001	0.000116	80.5	0.000017	0.00002	0.00134
Geometric Mean	7.25	940	1.3	1.76	9.3	2	0.93	0.12	190	0.29	0.0014	0.0015	0.1056	0.0149	0.00051	0.00275	0.0000048	0.000063	26.7	0.0000051	0.00002	0.00043
Count <DL	0	0	0	0	0	0	0	0	0	0	8	6	0	0	6	0	4	3	0	5	10	1
Standard Deviation	0.11	27	0.9	3.41	8.7	71.3	0.26	0.01	9	0.21	0.0027	0.0011	1.0154	0.0381	0.00112	0.00305	0.000003	0.000039	24	0.0000058	0	0.00038
1st Quartile	7.19	920	1.2	0.7	5.5	-81.8	0.83	0.12	189	0.23	0.001	0.001	0.0179	0.0049	0.00025	0.00138	0.0000025	0.000034	18	0.0000025	0.00002	0.0004
Median	7.23	946	1.6	1.8	13	-71.7	1.02	0.12	190	0.27	0.001	0.001	0.1016	0.009	0.00025	0.00166	0.0000055	0.000086	23.5	0.0000038	0.00002	0.00049
3rd Quartile	7.29	960	2.4	2.1	16.9	-59.1	1.18	0.13	196	0.29	0.001	0.0024	0.7758	0.0568	0.00089	0.00702	0.0000085	0.00011	49.6	0.0000121	0.00002	0.00066
Count Over Guideline	0	0	0	0	0	0	0	4	10	4	0	0	0	0	0	4	0	0	0	0	0	0
% Over Guideline	0	0	0	0	0	0	0	40	100	40	0	0	0	0	0	40	0	0	0	0	0	0

	pH (field)	Specific Conductance (lab)	Temperature (field)	Dissolved Oxygen (field)	Dissolved Oxygen (field)	ORP (field)	Chloride	Fluoride	Sulfate, dissolved	Ammonia (N)	Nitrite (N)	Nitrate (N)	Phosphorus, total-colourimetric	Phosphorus, Total Dissolved	Aluminum (Al), dissolved	Arsenic (As), dissolved	Calcium (Ca), dissolved	Copper (Cu), dissolved	Iron (Fe), total	Lead (Pb), dissolved	Selenium (Se), dissolved	Zinc (Zn), dissolved
Station Name	pH units	µS/cm	C	mg/L	%	mV	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
FIGWQG-Industrial-Tier1	6.5-9						120	0.12	100	0.282	0.06	3		*	0.005	*	*		*	0.001	0.03	
BH95G-29																						
Average	7.45	436	2.2	1.24	12	-48	1.18	0.12	47.6	0.33	0.0053	0.0015	1.4303	0.891	0.00306	0.00576	0.0000099	0.000096	60.9	0.001321	0.000076	0.00192
Count	5	5	5	5	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Minimum	7.35	428	-0.1	0.8	8	-56.2	0.88	0.11	44	0.06	0.001	0.001	0.0316	0.001	0.00109	0.00419	0.0000025	0.000025	15.8	0.000014	0.00002	0.0011
Maximum	7.56	441	3.4	2.1	20	-36.3	1.6	0.13	50.2	1.2	0.0159	0.0022	3.35	2.31	0.00966	0.00782	0.000031	0.000141	161	0.000481	0.000154	0.00457
Geometric Mean	7.45	436	2.2	1.15	12	1	1.14	0.12	47.5	0.162	0.0026	0.0014	0.4597	0.2123	0.00205	0.00562	0.0000056	0.000082	40.6	0.0000578	0.000055	0.00161
Count <DL	0	0	0	0	0	0	0	0	0	0	3	3	0	1	0	0	3	1	0	0	2	0
Standard Deviation	0.09	5	1.4	0.56	5	9.3	0.34	0.01	2.7	0.49	0.0066	0.0006	1.4385	0.9429	0.0037	0.00144	0.0000124	0.000047	62	0.0001982	0.000058	0.0015
1st Quartile	7.37	435	1.9	0.81	9	-55.1	0.94	0.11	45.8	0.071	0.001	0.001	0.0598	0.264	0.00128	0.00466	0.0000025	0.000076	21.2	0.00003	0.00002	0.00111
Median	7.47	436	2.4	1	11	-49.8	0.96	0.11	48.1	0.1	0.001	0.001	1.41	0.52	0.00158	0.00581	0.0000025	0.000112	25	0.0000303	0.000076	0.00117
3rd Quartile	7.49	440	3.4	1.5	15	-42.8	1.5	0.12	49.9	0.22	0.0078	0.0021	2.3	1.36	0.00171	0.00633	0.000011	0.000127	81.7	0.000105	0.000109	0.00164
Count Over Guideline	0	0	0	0	0	0	0	1	0	1	0	0	0	0	3	0	0	0	0	0	0	0
% Over Guideline	0	0	0	0	0	0	0	20	0	20	0	0	0	0	60	0	0	0	0	0	0	0
MW15-11D																						
Average	7.5	560	2.2	2.2	18	-51.9	1.11	0.16	67.8	0.114	0.001	0.0015	0.0272	0.015	0.00177	0.000291	0.0000025	0.000025	1.634	0.000022	0.00002	0.00066
Count	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Minimum	7.41	546	2	1.6	13	-60.5	0.84	0.15	63.1	0.071	0.001	0.001	0.008	0.0041	0.00085	0.000154	0.0000025	0.000025	0.691	0.0000025	0.00002	0.00027
Maximum	7.55	567	2.5	2.7	21	-37	1.3	0.17	74.5	0.19	0.001	0.0025	0.0376	0.0351	0.00296	0.000438	0.0000025	0.000025	2.16	0.000061	0.00002	0.00105
Geometric Mean	7.5	560	2.2	2.1	17	1	1.09	0.16	67.7	0.103	0.001	0.0014	0.0221	0.0094	0.00155	0.000267	0.0000025	0.000025	1.452	0.0000073	0.00002	0.00057
Count <DL	0	0	0	0	0	0	0	0	0	0	3	2	0	0	0	0	3	3	0	2	3	0
Standard Deviation	0.08	12	0.3	0.6	4	13	0.24	0.01	5.9	0.066	0	0.0009	0.0167	0.0174	0.00108	0.000142	0	0	0.818	0.0000338	0	0.00039
1st Quartile	7.47	556	2	1.9	16	-59.4	1.02	0.15	64.5	0.076	0.001	0.001	0.0221	0.0049	0.00117	0.000218	0.0000025	0.000025	1.37	0.0000025	0.00002	0.00047
Median	7.53	566	2.1	2.2	19	-58.2	1.2	0.16	65.9	0.081	0.001	0.001	0.0361	0.0058	0.00149	0.000282	0.0000025	0.000025	2.05	0.0000025	0.00002	0.00067
3rd Quartile	7.54	566	2.3	2.5	20	-47.6	1.25	0.17	70.2	0.136	0.001	0.0018	0.0369	0.0204	0.00222	0.00036	0.0000025	0.000025	2.105	0.0000317	0.00002	0.00086
Count Over Guideline	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Over Guideline	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MW15-11S																						
Average	7.5	612	2.21	1.62	12.3	61.4	4.35	0.16	92.5	0.182	0.0059	0.0264	0.0998	0.0191	0.00911	0.001271	0.0000393	0.000316	3.49	0.0000358	0.000246	0.0031
Count	7	7	7	7	5	6	7	7	7	7	7	7	7	5	6	6	6	6	7	6	6	6
Minimum	7.21	556	0.59	1	9	-81.3	0.93	0.13	61.5	0.054	0.001	0.001	0.0168	0.0114	0.00077	0.000273	0.0000025	0.000025	1.46	0.0000025	0.00002	0.00005
Maximum	7.79	701	4.3	3.2	17	448	24	0.19	138	0.64	0.0216	0.0871	0.35	0.0384	0.00462	0.00284	0.000171	0.00109	7.45	0.000179	0.00135	0.0135
Geometric Mean	7.49	609	1.91	1.51	12	6.5	1.66	0.16	88.4	0.112	0.003	0.0063	0.0547	0.017	0.00254	0.000896	0.0000118	0.000091	2.98	0.0000086	0.000046	0.00071
Count <DL	0	0	0	0	0	0	0	0	0	0	3	2	0	0	0	0	2	3	0	3	4	1
Standard Deviation	0.19	57	1.18	0.76	3	211.9	8.67	0.02	30.5	0.22	0.0076	0.0395	0.1198	0.0114	0.0182	0.001104	0.0000665	0.00046	2.18	0.0000705	0.000541	0.0053
1st Quartile	7.39	569	1.55	1.2	11	-62.2	0.99	0.15	69.4	0.058	0.001	0.0016	0.0181	0.0118	0.00088	0.000492	0.0000036	0.000025	2	0.0000025	0.00002	0.0003
Median	7.5	594	2.3	1.36	11.3	-53.3	1.1	0.16	80.9	0.062	0.0031	0.0024	0.0517	0.0132	0.00194	0.000815	0.0000075	0.000038	2.72	0.0000048	0.00002	0.00043
3rd Quartile	7.59	646	2.6	1.7	13	117	1.2	0.17	114	0.2	0.0067	0.0457	0.122	0.0206	0.00296	0.00208	0.0000358	0.000526	4.4	0.0000175	0.000039	0.00306
Count Over Guideline	0	0	0	0	0	0	0	7	2	2	0	0	0	0	0	0	0	0	0	0	1	0
% Over Guideline	0	0	0	0	0	0	0	100	28.6	28.6	0	0	0	0	0	0	0	0	0	0	16.7	0

	pH (field)	Specific Conductance (lab)	Temperature (field)	Dissolved Oxygen (field)	Dissolved Oxygen (field)	Orp (field)	Chloride	Fluoride	Sulphate, dissolved	Ammonia (N)	Nitrite (N)	Nitrate (N)	Phosphorus, total-colourimetric	Phosphorus, Total Dissolved	Aluminium (Al), dissolved	Arsenic (As), dissolved	Calcium (Ca), dissolved	Copper (Cu), dissolved	Iron (Fe), total	Lead (Pb), dissolved	Selenium (Se), dissolved	Zinc (Zn), dissolved
Station Name	pH units	µS/cm	C	mg/L	%	mV	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
FIGWQG-Industrial-Tier1	6.5-9						120	0.12	100	0.282	0.06	3		*	0.005	*	*		*		0.001	0.03
MW16-15D																						
Average	7.66	381	2.5	1.87	17	17.8	0.8	0.112	71.4	0.048	0.001	0.0019	0.2867	0.137	0.00853	0.016	0.0000403	0.000083	16.93	0.0000133	0.00005	0.007
Count	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Minimum	7.4	375	1.4	1.2	11	-52.9	0.25	0.099	66.8	0.041	0.001	0.001	0.0286	0.0223	0.00465	0.0123	0.0000025	0.000054	2.31	0.0000025	0.00002	0.00005
Maximum	7.9	387	3.8	3.4	29	206.1	1.6	0.13	82.6	0.054	0.001	0.0033	0.577	0.567	0.0127	0.0191	0.000096	0.000151	39.3	0.000032	0.00009	0.0303
Geometric Mean	7.66	381	2.4	1.73	16	3.8	0.67	0.111	71.1	0.048	0.001	0.0016	0.1896	0.0516	0.00802	0.0159	0.0000215	0.000076	11.06	0.0000097	0.000041	0.0014
Count <DL	0	0	0	0	0	0	1	0	0	0	5	3	0	0	0	0	1	0	0	1	2	1
Standard Deviation	0.19	5	0.9	0.9	8	107.6	0.51	0.013	6.4	0.006	0	0.0012	0.2286	0.2405	0.00323	0.0026	0.0000397	0.000042	15.28	0.0000113	0.000032	0.01305
1st Quartile	7.58	378	1.8	1.3	11	-46.4	0.59	0.1	68.7	0.043	0.001	0.001	0.159	0.0241	0.00644	0.0153	0.000012	0.000055	6.53	0.000007	0.00002	0.00119
Median	7.62	379	2.7	1.53	13	-21.8	0.63	0.11	69.3	0.05	0.001	0.001	0.198	0.0268	0.00815	0.0155	0.000024	0.000058	10.9	0.000011	0.000045	0.00168
3rd Quartile	7.79	385	2.9	1.9	20	4.1	0.91	0.12	69.4	0.051	0.001	0.0032	0.471	0.0449	0.0107	0.018	0.000067	0.000097	25.6	0.000014	0.000074	0.00176
Count Over Guideline	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	0	0	1
% Over Guideline	0	0	0	0	0	0	0	20	0	0	0	0	0	0	0	100	0	0	0	0	0	20
MW16-15S																						
Average	7.1	263	3.7	7.8	70.9	178.3	0.75	0.053	41.4	0.0351	0.0015	0.431	0.605	0.1988	0.00367	0.000286	0.00187	0.00455	42.7	0.000174	0.00277	0.1237
Count	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Minimum	6.92	256	1.1	7.2	61.3	118	0.25	0.047	36.6	0.0094	0.001	0.362	0.211	0.0184	0.00219	0.000155	0.00166	0.00371	8.79	0.000067	0.00248	0.0955
Maximum	7.49	274	8.3	8.8	88	320.4	1	0.057	44.6	0.061	0.0036	0.537	1.25	0.641	0.00443	0.000484	0.0021	0.00546	107	0.000249	0.00315	0.164
Geometric Mean	7.1	263	2.9	7.78	70.2	166.9	0.67	0.053	41.3	0.0294	0.0013	0.427	0.496	0.0953	0.00356	0.000267	0.00186	0.00449	27.14	0.00016	0.00276	0.1213
Count <DL	0	0	0	0	0	0	1	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0
Standard Deviation	0.23	7	2.9	0.66	10.8	81	0.33	0.004	3	0.02	0.0012	0.064	0.415	0.2561	0.00091	0.000122	0.00017	0.00083	42.8	0.000069	0.00027	0.0278
1st Quartile	6.96	257	1.7	7.31	62	143.7	0.6	0.052	40.5	0.024	0.001	0.409	0.274	0.0295	0.00342	0.00023	0.00176	0.00376	12.6	0.000159	0.00256	0.103
Median	7.01	262	2.6	7.6	70	147.3	0.96	0.054	42.1	0.034	0.001	0.421	0.603	0.127	0.00411	0.00028	0.00185	0.00452	18.7	0.000182	0.00279	0.118
3rd Quartile	7.11	266	4.7	8.1	73	161.9	0.96	0.055	43	0.047	0.001	0.424	0.688	0.178	0.00422	0.000281	0.00196	0.00531	66.4	0.000215	0.00289	0.138
Count Over Guideline	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5	0	0	5	5	
% Over Guideline	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	100	0	0	100	100	

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AREA A GROUNDWATER QUALITY SUMMARY STATISTICS

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Station Name	pH (field)	Specific Conductance (lab)	Temperature (field)	Dissolved Oxygen (field)	Dissolved Oxygen (field)	ORP (field)	Chloride	Fluoride	Sulfate, dissolved	Ammonia (N)	Nitrite (N)	Nitrate (N)	Phosphorus, total-colourimetric	Phosphorus, Total Dissolved	Aluminum (Al), dissolved	Arsenic (As), dissolved	Calcium (Ca), dissolved	Copper (Cu), dissolved	Iron (Fe), total	Lead (Pb), dissolved	Selenium (Se), dissolved	Zinc (Zn), dissolved
	pH units	µS/cm	C	mg/L	%	mV	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
FIGWQG-Industrial-Tier1	6.5-9						120	0.12	100	0.282	0.06	3		*	0.005	*	*	0.3	*	0.001	0.03	
BH95G-15D																						
Average	7.4	356	0.9	3.83	32.5	238.8	0.48	0.15	13.8	0.038	0.0036	0.585	0.79	0.5803	0.0008	0.000146	0.000031	0.000077	29.94	0.000011	0.00344	0.00097
Count	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Minimum	7.26	353	0.6	1.46	12.1	115.5	0.25	0.15	13.5	0.023	0.002	0.567	0.42	0.0505	0.00071	0.000106	0.000029	0.000025	6.67	0.000008	0.00311	0.00094
Maximum	7.54	359	1.2	6.2	53	362	0.71	0.15	14.1	0.053	0.0052	0.603	1.16	1.11	0.0009	0.000187	0.000034	0.000128	53.2	0.000014	0.00377	0.001
Geometric Mean	7.4	356	0.8	3.01	25.3	204.5	0.42	0.15	13.8	0.035	0.0032	0.585	0.7	0.2368	0.0008	0.000141	0.000031	0.000057	18.84	0.000011	0.00342	0.00097
Count <DL	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Standard Deviation	0.2	4	0.4	3.35	28.9	174.3	0.33	0	0.4	0.021	0.0023	0.025	0.52	0.7492	0.00013	0.000057	0.000004	0.000073	32.9	0.000004	0.00047	0.00004
1st Quartile	7.33	354	0.8	2.65	22.3	177.1	0.36	0.15	13.7	0.03	0.0028	0.576	0.6	0.3154	0.00076	0.000126	0.00003	0.000051	18.3	0.00001	0.00328	0.00096
Median	7.4	356	0.9	3.83	32.5	238.8	0.48	0.15	13.8	0.038	0.0036	0.585	0.79	0.5803	0.0008	0.000146	0.000031	0.000077	29.94	0.000011	0.00344	0.00097
3rd Quartile	7.47	358	1.1	5.02	42.8	300.4	0.59	0.15	13.9	0.045	0.0044	0.594	0.97	0.8451	0.00085	0.000167	0.000033	0.000102	41.57	0.000012	0.0036	0.00098
Count Over Guideline	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
% Over Guideline	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0
BH95G-2																						
Average	7.55	497	1.41	4.71	40.2	196.4	0.8	0.052	38.28	0.0348	0.0018	0.512	1.1545	0.1955	0.00442	0.000105	0.00146	0.001124	15.3146	0.0000368	0.0046	0.0211
Count	11	11	10	11	7	8	11	11	11	11	11	11	11	10	11	11	11	11	11	11	11	11
Minimum	7.25	263	-0.1	3.4	28	35.1	0.25	0.04	7.43	0.0091	0.001	0.372	0.0069	0.0048	0.00025	0.000066	0.00123	0.000129	0.0036	0.0000025	0.00136	0.0147
Maximum	7.73	586	2.7	6.88	58.8	400	1.2	0.063	52.1	0.085	0.005	1.36	8.66	1.02	0.0244	0.000163	0.00157	0.00309	59.9	0.000105	0.00729	0.0278
Geometric Mean	7.55	486	1.29	4.59	38.9	148.6	0.75	0.052	34.46	0.0272	0.0015	0.473	0.2015	0.0384	0.00213	0.000101	0.00145	0.000668	2.0017	0.0000268	0.00426	0.0206
Count <DL	0	0	0	0	0	0	1	0	0	0	7	0	0	0	1	0	0	0	0	1	0	0
Standard Deviation	0.16	95	0.96	1.17	11.3	144.2	0.27	0.008	13.95	0.0235	0.0013	0.284	2.5247	0.352	0.00704	0.000032	0.00012	0.001106	22.0615	0.0000282	0.00164	0.0046
1st Quartile	7.54	441	0.67	3.71	31.4	99.8	0.64	0.048	29.75	0.0143	0.001	0.397	0.0298	0.0085	0.00133	0.000082	0.0014	0.000326	0.4965	0.0000205	0.00346	0.0166
Median	7.55	546	1.5	4.7	40.1	121.6	0.8	0.056	40.1	0.036	0.001	0.435	0.442	0.0259	0.00174	0.0001	0.00151	0.000482	4.85	0.000028	0.00492	0.0225
3rd Quartile	7.68	558	2.1	5.61	46	342.2	0.98	0.058	49.7	0.048	0.0022	0.454	0.8535	0.1268	0.00275	0.000119	0.00154	0.002225	18.5	0.0000452	0.00543	0.0247
Count Over Guideline	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	1	0	0	11	0
% Over Guideline	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	9.1	0	0	100	0
MW15-07D																						
Average	7.49	404	2.4	3.44	30.9	-28.7	0.63	0.34	30	0.053	0.0013	0.001	0.0175	0.006	0.00401	0.000062	0.0000025	0.000073	1.294	0.0000301	0.00002	0.00051
Count	6	6	6	6	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Minimum	7.34	399	0.5	0.9	7	-59.4	0.25	0.33	27.3	0.043	0.001	0.001	0.0022	0.0021	0.00067	0.00001	0.0000025	0.000025	0.461	0.0000025	0.00002	0.00005
Maximum	7.56	415	3.9	6	50	51.6	1.1	0.36	31.9	0.072	0.0029	0.001	0.0886	0.019	0.0124	0.000245	0.0000025	0.000149	3.02	0.000083	0.00002	0.000119
Geometric Mean	7.49	404	2.1	2.86	24.6	2.2	0.55	0.34	29.9	0.053	0.0012	0.001	0.0055	0.0044	0.00221	0.000031	0.0000025	0.000055	0.93	0.0000099	0.00002	0.00033
Count <DL	0	0	0	0	0	0	2	0	0	0	5	6	0	0	0	2	6	3	0	3	6	1
Standard Deviation	0.08	6	1.1	1.95	18.6	45.7	0.33	0.01	1.5	0.011	0.0008	0	0.0348	0.0064	0.00473	0.000091	0	0.000057	1.179	0.0000403	0	0.00043
1st Quartile	7.49	400	2.2	1.97	15.3	-52.8	0.36	0.33	29.9	0.046	0.001	0.001	0.0026	0.003	0.00094	0.000013	0.0000025	0.000025	0.549	0.0000025	0.00002	0.00023
Median	7.5	402	2.4	3.65	40	-46.6	0.71	0.34	30.2	0.051	0.001	0.001	0.0037	0.0039	0.00163	0.000028	0.0000025	0.000057	0.573	0.0000058	0.00002	0.00037
3rd Quartile	7.53	404	3	4.67	42	-36.5	0.76	0.34	30.3	0.057	0.001	0.001	0.0042	0.0044	0.00564	0.000047	0.0000025	0.000118	2.089	0.000063	0.00002	0.00076
Count Over Guideline	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Over Guideline	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Station Name	pH (field)	Specific Conductance (lab)	Temperature (field)	Dissolved Oxygen (field)	Dissolved Oxygen (field)	ORP (field)	Chloride	Fluoride	Sulfate, dissolved	Ammonia (N)	Nitrite (N)	Nitrate (N)	Phosphorus, total-colourimetric	Phosphorus, Total Dissolved	Aluminum (Al), dissolved	Arsenic (As), dissolved	Calcium (Ca), dissolved	Copper (Cu), dissolved	Iron (Fe), total	Lead (Pb), dissolved	Selenium (Se), dissolved	Zinc (Zn), dissolved	
	pH units	µS/cm	C	mg/L	%	mV	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
MW15-07S																							
Average	7.53	386	2.45	3.69	41.6	-39.4	0.73	0.29	32.4	0.054	0.0017	0.0017	0.6196	0.0102	0.00405	0.0023	0.0000066	0.000117	21.928	0.0000123	0.000123	0.00102	
Count	9	9	8	9	6	7	9	9	9	9	9	9	8	9	9	9	9	9	9	9	9	9	9
Minimum	7.23	376	0	0.48	10	-66.8	0.25	0.28	31	0.026	0.001	0.001	0.0028	0.002	0.00025	0.00113	0.0000025	0.000025	0.476	0.0000025	0.00002	0.00005	
Maximum	7.68	393	5.9	10.7	95	-17	1	0.31	33.2	0.13	0.0064	0.0048	2.5	0.0326	0.0239	0.00507	0.000019	0.000248	71.5	0.000057	0.000845	0.00438	
Geometric Mean	7.53	386	2.02	2.37	28.1	1	0.68	0.29	32.4	0.047	0.0013	0.0014	0.0556	0.0066	0.00169	0.00202	0.0000045	0.000088	5.478	0.0000066	0.000037	0.00044	
Count <DL	0	0	0	0	0	0	1	0	0	0	7	6	0	0	1	0	6	2	0	4	7	2	
Standard Deviation	0.14	5	1.89	3.75	37.8	15.9	0.22	0.01	0.8	0.032	0.0018	0.0013	0.9835	0.0106	0.00075	0.00132	0.0000065	0.000083	26.793	0.0000175	0.000273	0.00136	
1st Quartile	7.53	383	1.53	1.2	12.4	-46.5	0.63	0.29	32.5	0.032	0.001	0.001	0.0103	0.0032	0.00075	0.00133	0.0000025	0.000053	6.624	0.0000025	0.00002	0.00028	
Median	7.57	387	2.15	2	25.9	-37.1	0.8	0.3	32.6	0.051	0.001	0.001	0.0157	0.0053	0.00176	0.00174	0.0000025	0.000093	9.43	0.000005	0.00002	0.00044	
3rd Quartile	7.62	389	3.48	3.7	70.2	-31.1	0.84	0.3	32.7	0.062	0.001	0.002	1.03	0.0141	0.00258	0.00264	0.00001	0.000191	30.9	0.000013	0.00002	0.00128	
Count Over Guideline	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	1	0	0	0	0	0	0	
% Over Guideline	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	11.1	0	0	0	0	0	0	
MW15-08D																							
Average	7.25	540	3.3	5.68			1.13	0.57	44.5	0.12	0.001	0.0029	0.0421	0.0423	0.00358	0.00379	0.000025	0.000056	9.03	0.000016	0.000146	0.00235	
Count	2	2	1	2			2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Minimum	7.22	539	3.3	5.27			0.96	0.54	43.9	0.12	0.001	0.001	0.0048	0.005	0.00356	0.00262	0.000018	0.000025	7.05	0.000012	0.00002	0.00161	
Maximum	7.28	540	3.3	6.1			1.3	0.61	45	0.13	0.001	0.0047	0.0795	0.0796	0.00361	0.00496	0.000032	0.000087	11	0.000019	0.000272	0.00309	
Geometric Mean	7.25	539	3.3	5.67			1.12	0.57	44.4	0.12	0.001	0.0022	0.0195	0.0199	0.00358	0.0036	0.000024	0.000047	8.81	0.000015	0.000074	0.00223	
Count <DL	0	0	0	0			0	0	0	0	2	1	0	0	0	0	0	0	1	0	1	0	
Standard Deviation	0.04	1	0	0.59			0.24	0.05	0.8	0.01	0	0.0026	0.0528	0.0528	0.00004	0.00165	0.00001	0.000044	2.79	0.000005	0.000178	0.00105	
1st Quartile	7.23	539	3.3	5.48			1.04	0.56	44.2	0.12	0.001	0.0019	0.0235	0.0237	0.00357	0.0032	0.000022	0.000041	8.04	0.000014	0.000083	0.00198	
Median	7.25	540	3.3	5.68			1.13	0.57	44.5	0.12	0.001	0.0029	0.0421	0.0423	0.00358	0.00379	0.000025	0.000056	9.03	0.000016	0.000146	0.00235	
3rd Quartile	7.27	540	3.3	5.89			1.22	0.59	44.7	0.13	0.001	0.0038	0.0608	0.061	0.0036	0.00438	0.000028	0.000072	10.01	0.000017	0.000209	0.00272	
Count Over Guideline	0	0	0	0			0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Over Guideline	0	0	0	0			0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
MW15-08S																							
Average	7.51	378	2.1	8.98	74	107.6	0.94	0.088	25.8	0.117	0.0019	0.257	0.1635	0.1129	0.00247	0.000354	0.000083	0.000637	45.3314	0.000094	0.00178	0.00201	
Count	6	6	6	6	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	
Minimum	7.35	366	1.1	8.2	70	57.3	0.57	0.084	23.9	0.011	0.001	0.215	0.0026	0.001	0.00059	0.000252	0.000013	0.000106	0.0272	0.000007	0.00148	0.00029	
Maximum	7.68	385	4.7	10.58	79	147.2	1.5	0.093	28.2	0.41	0.0048	0.276	0.505	0.518	0.00408	0.000454	0.000124	0.00091	136	0.00024	0.00217	0.00412	
Geometric Mean	7.51	378	1.9	8.95	74	99.6	0.89	0.088	25.8	0.063	0.0015	0.256	0.0471	0.0246	0.00205	0.000346	0.000068	0.000534	4.2082	0.000053	0.00176	0.00154	
Count <DL	0	0	0	0	0	0	0	0	0	0	4	0	0	1	0	0	0	0	0	0	0	0	
Standard Deviation	0.15	8	1.3	0.87	4	43.3	0.33	0.003	1.6	0.148	0.0015	0.022	0.2043	0.2017	0.00141	0.000083	0.000042	0.000276	55.0052	0.000085	0.00024	0.00136	
1st Quartile	7.38	374	1.4	8.45	72	63.9	0.77	0.086	24.6	0.037	0.001	0.256	0.013	0.01	0.00152	0.000292	0.000065	0.000655	1.9909	0.000032	0.00164	0.00143	
Median	7.51	381	1.6	8.7	73	132.1	0.84	0.088	25.8	0.08	0.001	0.266	0.0769	0.0245	0.00244	0.000356	0.000093	0.000705	26.605	0.000094	0.00173	0.0016	
3rd Quartile	7.64	384	2.2	9.18	78	137.4	1.04	0.09	26.7	0.093	0.0021	0.268	0.2652	0.0844	0.00367	0.000418	0.000113	0.000747	73.375	0.000112	0.00189	0.00274	
Count Over Guideline	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	6	0	
% Over Guideline	0	0	0	0	0	0	0	0	0	16.7	0	0	0	0	0	0	0	0	0	0	100	0	



	pH (field)	Specific Conductance (lab)	Temperature (field)	Dissolved Oxygen (field)	Dissolved Oxygen (field)	ORP (field)	Chloride	Fluoride	Sulphate, dissolved	Ammonia (N)	Nitrite (N)	Nitrate (N)	Phosphorus, total-colourimetric	Phosphorus, Total Dissolved	Aluminum (Al), dissolved	Arsenic (As), dissolved	Calcium (Ca), dissolved	Copper (Cu), dissolved	Iron (Fe), total	Lead (Pb), dissolved	Selenium (Se), dissolved	Zinc (Zn), dissolved	
Station Name	pH units	µS/cm	C	mg/L	%	mV	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
MW15-09D																							
Average	5.68	813	0.6	4.23			1.1	0.73	15.3	0.1	0.001	0.0021	1.16	0.0054	0.17	0.00848	0.000008	0.000416	27.9	0.000121	0.000062	0.00568	
Count	1	1	1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Minimum	5.68	813	0.6	4.23			1.1	0.73	15.3	0.1	0.001	0.0021	1.16	0.0054	0.17	0.00848	0.000008	0.000416	27.9	0.000121	0.000062	0.00568	
Maximum	5.68	813	0.6	4.23			1.1	0.73	15.3	0.1	0.001	0.0021	1.16	0.0054	0.17	0.00848	0.000008	0.000416	27.9	0.000121	0.000062	0.00568	
Geometric Mean	5.68	813	0.6	4.23			1.1	0.73	15.3	0.1	0.001	0.0021	1.16	0.0054	0.17	0.00848	0.000008	0.000416	27.9	0.000121	0.000062	0.00568	
Count <DL	0	0	0	0			0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Standard Deviation	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1st Quartile	5.68	813	0.6	4.23			1.1	0.73	15.3	0.1	0.001	0.0021	1.16	0.0054	0.17	0.00848	0.000008	0.000416	27.9	0.000121	0.000062	0.00568	
Median	5.68	813	0.6	4.23			1.1	0.73	15.3	0.1	0.001	0.0021	1.16	0.0054	0.17	0.00848	0.000008	0.000416	27.9	0.000121	0.000062	0.00568	
3rd Quartile	5.68	813	0.6	4.23			1.1	0.73	15.3	0.1	0.001	0.0021	1.16	0.0054	0.17	0.00848	0.000008	0.000416	27.9	0.000121	0.000062	0.00568	
Count Over Guideline	1	0	0	0			0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0
% Over Guideline	100	0	0	0			0	100	0	0	0	0	0	0	100	100	0	0	0	0	0	0	0
MW15-09S																							
Average	7.48	413	2	1.44	13.9	-57	0.82	0.25	18.5	0.042	0.005	0.0579	0.0424	0.0316	0.2166	0.000725	0.0001046	0.003025	4.83	0.002533	0.000817	0.0049	
Count	7	7	7	7	6	6	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
Minimum	7.28	402	-0.3	0.4	6	-89.6	0.59	0.22	17.2	0.019	0.002	0.036	0.005	0.006	0.00025	0.000438	0.0000025	0.000025	1.7	0.0000025	0.000625	0.00005	
Maximum	7.74	420	3.5	2.2	19.3	-29.5	1.2	0.29	20.9	0.094	0.0072	0.0873	0.181	0.142	1.51	0.00177	0.000544	0.0207	8.8	0.0177	0.000971	0.0284	
Geometric Mean	7.48	413	2.1	1.19	12.6	1	0.79	0.24	18.5	0.037	0.0046	0.0559	0.0205	0.0156	0.00219	0.00064	0.000034	0.000148	4.06	0.0000134	0.000808	0.00108	
Count <DL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	2	0	4	0	1	
Standard Deviation	0.15	7	1.2	0.8	5.9	21.7	0.24	0.02	1.2	0.026	0.0018	0.0167	0.0627	0.0496	0.57034	0.000475	0.0001947	0.007794	2.9	0.006688	0.000123	0.01038	
1st Quartile	7.39	410	1.9	0.7	9	-67.5	0.66	0.23	17.9	0.024	0.0042	0.0474	0.0081	0.0069	0.00042	0.000499	0.0000205	0.000051	2.51	0.0000025	0.000741	0.00066	
Median	7.45	413	2.3	1.8	16.5	-57.5	0.75	0.24	18.4	0.039	0.0054	0.0571	0.0194	0.0097	0.00105	0.000535	0.000042	0.000106	3.72	0.0000025	0.000843	0.00138	
3rd Quartile	7.54	418	2.4	2.13	18	-42.3	0.93	0.25	18.8	0.048	0.0059	0.065	0.0375	0.025	0.00203	0.000669	0.0000515	0.000122	7.29	0.0000105	0.000897	0.00159	
Count Over Guideline	0	0	0	0	0	0	0	7	0	0	0	0	0	0	1	0	1	1	0	1	0	0	
% Over Guideline	0	0	0	0	0	0	0	100	0	0	0	0	0	0	14.3	0	14.3	14.3	0	14.3	0	0	
MW15-10D																							
Average	6.04	2952	1.7	4.61	46.3	30.3	3.5	1.3	6.41	0.25	0.002	0.0041	0.1422	0.0243	0.14521	0.000566	0.000074	0.000503	31.4	0.000378	0.000045	0.00636	
Count	9	9	8	9	6	7	9	9	9	9	9	9	9	8	9	9	9	9	9	9	9	9	9
Minimum	5.82	2780	1	2.12	26.6	-7	2.8	1.2	1.01	0.22	0.001	0.001	0.0122	0.0058	0.00948	0.00011	0.000017	0.000025	27.1	0.000008	0.00002	0.00197	
Maximum	6.24	3090	2.3	9.9	86	126	4	1.4	12	0.3	0.01	0.01	0.483	0.063	0.438	0.00167	0.000172	0.00216	39.2	0.00136	0.0001	0.0217	
Geometric Mean	6.04	2951	1.7	4.21	43	11.2	3.5	1.3	4.55	0.25	0.0013	0.0031	0.0772	0.0176	0.06871	0.000379	0.000053	0.000213	31.2	0.000103	0.000036	0.00437	
Count <DL	0	0	0	0	0	0	0	0	0	0	9	3	0	0	0	0	0	1	0	0	7	0	
Standard Deviation	0.15	91	0.4	2.28	21.1	45.2	0.4	0	4.24	0.03	0.003	0.003	0.157	0.0214	0.15512	0.000534	0.000061	0.000693	4.5	0.000534	0.000035	0.00661	
1st Quartile	5.9	2920	1.6	3.27	33.8	5.6	3.3	1.3	1.76	0.23	0.001	0.002	0.0508	0.0117	0.0298	0.0002	0.000032	0.000053	28.5	0.000029	0.00002	0.00228	
Median	6.03	2970	1.7	3.8	42	13.4	3.4	1.3	8.26	0.24	0.001	0.0035	0.0749	0.0132	0.0481	0.000234	0.000045	0.000262	29.7	0.00014	0.00002	0.00293	
3rd Quartile	6.16	3000	1.9	5.3	48	34.3	3.8	1.3	9.31	0.27	0.001	0.0051	0.252	0.0325	0.243	0.000782	0.000135	0.00052	32.1	0.000346	0.000066	0.00957	
Count Over Guideline	9	0	0	0	0	0	0	9	0	1	0	0	0	0	9	0	0	0	0	0	0	0	
% Over Guideline	100	0	0	0	0	0	0	100	0	11.1	0	0	0	0	100	0	0	0	0	0	0	0	

Station Name	pH (field)	Specific Conductance (lab)	Temperature (field)	Dissolved Oxygen (field)	Dissolved Oxygen (field)	ORP (field)	Chloride	Fluoride	Sulfate, dissolved	Ammonia (N)	Nitrite (N)	Nitrate (N)	Phosphorus, total-colourimetric	Phosphorus, Total Dissolved	Aluminum (Al), dissolved	Arsenic (As), dissolved	Calcium (Ca), dissolved	Copper (Cu), dissolved	Iron (Fe), total	Lead (Pb), dissolved	Selenium (Se), dissolved	Zinc (Zn), dissolved
	pH units	µS/cm	C	mg/L	%	mV	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MW15-10S																						
Average	6	697	2.8	3.11	26.1	80.9	1.26	0.19	32.8	0.404	0.0073	0.108	2.2818	0.024	0.00409	0.006502	0.000795	0.006839	91.36	0.0000872	0.00208	0.0126
Count	6	6	6	6	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Minimum	5.8	503	-0.1	2.1	19	59.3	0.89	0.16	28.1	0.033	0.001	0.0435	0.0148	0.0054	0.00134	0.000799	0.000154	0.000182	1.65	0.0000025	0.00172	0.00493
Maximum	6.17	853	3.7	4.1	36	114.4	2.5	0.22	47.8	0.67	0.0142	0.184	13.4	0.0839	0.00818	0.0117	0.00139	0.0358	170	0.000187	0.00242	0.0191
Geometric Mean	6	686	2.7	3.02	25.4	79	1.17	0.19	32.2	0.284	0.0057	0.0966	0.1143	0.0158	0.00345	0.004854	0.000583	0.001335	50.97	0.0000362	0.00206	0.01141
Count <DL	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0
Standard Deviation	0.15	136	1.4	0.82	7	20.6	0.62	0.02	7.5	0.26	0.0044	0.0529	5.4469	0.0296	0.00253	0.004121	0.000535	0.01422	59.42	0.0000848	0.00027	0.00537
1st Quartile	5.9	632	2.9	2.47	20	72.3	0.96	0.18	28.6	0.25	0.0055	0.0732	0.0297	0.0112	0.00239	0.003853	0.000342	0.000486	59.48	0.000013	0.00189	0.00901
Median	6	677	3.4	3.1	26.4	75.3	1	0.2	30.5	0.405	0.0072	0.1009	0.0688	0.0145	0.00354	0.00667	0.000855	0.00087	99.65	0.000085	0.00209	0.01395
3rd Quartile	6.12	811	3.4	3.77	29	83.3	1.15	0.21	31.7	0.635	0.0086	0.1415	0.1088	0.0156	0.00535	0.00936	0.001225	0.002433	123.25	0.0001525	0.00227	0.0157
Count Over Guideline	6	0	0	0	0	0	0	0	0	3	0	0	0	0	2	3	4	1	0	0	6	0
% Over Guideline	100	0	0	0	0	0	0	0	100	0	50	0	0	0	33.3	50	66.7	16.7	0	0	100	0
MW16-13	Well is Frozen																					
MW16-14D																						
Average	7.55	463	2.1	1.2	11	14.9	0.87	0.23	85.2	0.049	0.001	0.001	0.046	0.0158	0.0022	0.00369	0.0000065	0.000037	1.896	0.0000053	0.00002	0.01681
Count	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Minimum	7.43	452	1.7	0.9	8	8	0.78	0.23	81.7	0.031	0.001	0.001	0.023	0.0112	0.00099	0.00312	0.0000025	0.000025	0.887	0.0000025	0.00002	0.00037
Maximum	7.67	472	2.4	1.9	16	28.2	0.96	0.23	87.7	0.059	0.001	0.001	0.0875	0.0227	0.00312	0.0041	0.000012	0.00006	3.33	0.000011	0.00002	0.0496
Geometric Mean	7.55	463	2	1.2	10	12.5	0.87	0.23	85.2	0.047	0.001	0.001	0.0381	0.0151	0.00197	0.00367	0.0000053	0.000033	1.631	0.0000041	0.00002	0.00205
Count <DL	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0	0	1	2	0	2	3	0
Standard Deviation	0.12	10	0.4	0.6	5	11.5	0.09	0	3.1	0.016	0	0	0.036	0.0061	0.00109	0.00051	0.0000049	0.00002	1.276	0.0000049	0	0.02839
1st Quartile	7.49	459	1.9	0.9	8	8.3	0.83	0.23	84	0.044	0.001	0.001	0.0252	0.0123	0.00173	0.00349	0.0000038	0.000025	1.179	0.0000025	0.00002	0.00042
Median	7.56	466	2.1	0.9	8	8.6	0.88	0.23	86.3	0.058	0.001	0.001	0.0274	0.0135	0.00248	0.00386	0.000005	0.000025	1.47	0.0000025	0.00002	0.00047
3rd Quartile	7.62	469	2.2	1.4	12	18.4	0.92	0.23	87	0.058	0.001	0.001	0.0575	0.0181	0.0028	0.00398	0.0000085	0.000043	2.4	0.0000067	0.00002	0.02503
Count Over Guideline	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Over Guideline	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	33.3
MW16-17																						
Average	7.75	363	1.9	0.99	8.6	-14.4	0.64	0.54	32.7	0.05	0.001	0.002	0.474	0.2407	0.00897	0.000728	0.0000025	0.000125	45.53	0.0000033	0.000139	0.00073
Count	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3	4	3	3	3
Minimum	7.65	361	1.4	0.76	6.5	-63.2	0.25	0.49	31.3	0.036	0.001	0.001	0.273	0.0294	0.00626	0.000383	0.0000025	0.000099	3.14	0.0000025	0.000105	0.00038
Maximum	7.88	365	2.5	1.4	12	78.9	0.95	0.57	34.3	0.06	0.001	0.0037	0.71	0.632	0.0114	0.000901	0.0000025	0.000169	111	0.000005	0.000201	0.00094
Geometric Mean	7.74	363	1.8	0.96	8.4	3	0.57	0.54	32.7	0.049	0.001	0.0017	0.444	0.1041	0.0087	0.000677	0.0000025	0.000122	24.62	0.0000031	0.000133	0.00068
Count <DL	0	0	0	0	0	0	1	0	0	0	4	2	0	0	0	0	3	0	0	2	0	0
Standard Deviation	0.1	2	0.5	0.29	2.5	63.8	0.31	0.03	1.3	0.01	0	0.0013	0.191	0.3392	0.00258	0.000298	0	0.000038	46.74	0.0000014	0.000054	0.00031
1st Quartile	7.7	362	1.6	0.79	6.9	-49.5	0.47	0.54	32	0.046	0.001	0.001	0.35	0.045	0.00775	0.000641	0.0000025	0.000103	18.71	0.0000025	0.000109	0.00063
Median	7.72	363	1.8	0.9	8	-36.6	0.68	0.55	32.6	0.051	0.001	0.0018	0.456	0.0607	0.00924	0.000899	0.0000025	0.000108	34	0.0000025	0.000112	0.00088
3rd Quartile	7.77	364	2.1	1.1	9.8	-1.4	0.84	0.56	33.3	0.055	0.001	0.0028	0.58	0.3463	0.01032	0.0009	0.0000025	0.000139	60.83	0.0000038	0.000157	0.00091
Count Over Guideline	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Over Guideline	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AREA B GROUNDWATER QUALITY SUMMARY STATISTICS

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Station Name	pH (field)	Specific Conductance (lab)	Temperature (field)	Dissolved Oxygen (field)	Dissolved Oxygen (field)	ORP (field)	Chloride	Fluoride	Sulphate, dissolved	Ammonia (N)	Nitrite (N)	Nitrate (N)	Phosphorus, total-colourimetric	Phosphorus, Total Dissolved	Aluminum (Al), dissolved	Arsenic (As), dissolved	Calcium (Ca), dissolved	Copper (Cu), dissolved	Iron (Fe), total	Lead (Pb), dissolved	Selenium (Se), dissolved	Zinc (Zn), dissolved
FIGWQG-Industrial-Tier1	6.5-9						120	0.12	100	0.282	0.06	3		*	0.005	*	*		*	0.001	0.03	
BH95G-32																						
Average	7.47	395	1.92	1.95	19.8	52.8	0.62	0.038	34.5	0.092	0.0015	0.0514	0.7647	0.0137	0.00381	0.000254	0.000063	0.000232	37.505	0.0000473	0.000623	0.00138
Count	11	11	10	11	7	8	11	11	11	11	11	11	11	10	11	11	11	11	11	11	11	11
Minimum	6.59	375	0.3	0	10.5	-23	0.25	0.032	32	0.015	0.001	0.027	0.001	0.001	0.00129	0.000162	0.00002	0.00009	0.888	0.0000025	0.000326	0.00005
Maximum	7.77	409	3.8	4.27	38.4	320.2	0.92	0.041	36.5	0.29	0.0058	0.0755	4.34	0.0627	0.0142	0.000376	0.00013	0.000599	203	0.000141	0.000835	0.00346
Geometric Mean	7.46	395	1.53	1.83	18	18.8	0.56	0.038	34.5	0.052	0.0013	0.0501	0.1409	0.0072	0.0029	0.000246	0.000055	0.000205	10.793	0.000169	0.000596	0.00086
Count <DL	0	0	0	0	0	0	3	0	0	0	9	0	1	1	0	0	0	0	0	3	0	1
Standard Deviation	0.37	12	1.1	1.18	10	109.4	0.27	0.003	1.2	0.1	0.0015	0.0117	1.3414	0.0184	0.00374	0.000068	0.000035	0.000137	65.29	0.0000571	0.000174	0.00116
1st Quartile	7.53	388	1.2	1.27	12.5	11.6	0.4	0.036	34.1	0.022	0.001	0.047	0.064	0.0028	0.00188	0.000211	0.000046	0.000161	3.925	0.0000038	0.000555	0.00052
Median	7.54	400	2.05	1.5	17	22.9	0.75	0.039	34.4	0.034	0.001	0.0515	0.139	0.0095	0.00269	0.000256	0.000051	0.000213	7.58	0.000012	0.000649	0.00131
3rd Quartile	7.68	402	2.55	2.7	24	28.5	0.84	0.04	35	0.13	0.001	0.0549	0.657	0.0117	0.00356	0.000275	0.000074	0.000249	26.3	0.0000865	0.000762	0.00181
Count Over Guideline	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
% Over Guideline	0	0	0	0	0	0	0	0	0	9.1	0	0	0	0	0	0	0	0	0	0	0	0
BH95G-33D																						
Average	7.56	452	2.37	5.31	39.9	113	0.57	0.054	67.8	0.0372	0.0022	0.19	0.8078	0.0708	0.00152	0.000299	0.0000042	0.00022	32.91	0.0000052	0.00555	0.0006
Count	11	11	10	11	7	8	11	11	11	11	11	11	11	10	11	11	11	11	11	11	11	11
Minimum	7.39	408	-0.2	3.56	3.9	17	0.25	0.045	62.3	0.0086	0.001	0.164	0.0068	0.001	0.00059	0.000137	0.0000025	0.000068	3.14	0.0000025	0.00383	0.00005
Maximum	7.8	480	4.7	7.21	61	325.1	0.95	0.062	77	0.12	0.0041	0.213	3.48	0.243	0.00506	0.000758	0.00001	0.000899	150	0.000016	0.00791	0.00182
Geometric Mean	7.56	452	2.25	5.18	31.7	86.2	0.5	0.054	67.6	0.0277	0.0019	0.189	0.2144	0.0193	0.00128	0.000258	0.0000035	0.000158	18.75	0.000004	0.00537	0.00038
Count <DL	0	0	0	0	0	0	4	0	0	0	5	0	0	1	0	0	8	0	0	7	0	1
Standard Deviation	0.14	19	1.35	1.24	18.3	92.5	0.28	0.005	5	0.0327	0.0013	0.017	1.1839	0.09	0.00123	0.000187	0.0000031	0.000241	41.75	0.0000045	0.0015	0.00056
1st Quartile	7.44	446	1.6	4.3	37	66.5	0.25	0.051	64.1	0.016	0.001	0.178	0.093	0.0065	0.00095	0.000178	0.0000025	0.000092	10.7	0.0000025	0.00419	0.00019
Median	7.53	447	2.35	5.26	38.1	95.2	0.64	0.054	68.4	0.024	0.0022	0.191	0.209	0.0092	0.0012	0.000215	0.0000025	0.000132	17.4	0.0000025	0.00514	0.0004
3rd Quartile	7.69	463	3.15	6.2	51	115.3	0.8	0.056	69.4	0.0495	0.0033	0.205	0.941	0.1397	0.0014	0.000369	0.0000042	0.000213	36.5	0.0000061	0.0066	0.00092
Count Over Guideline	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0
% Over Guideline	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0
BH95G-33S	Well is dry																					
MW15-01																						
Average	7.79	408	0.9	8.51	83	114.5	0.73	0.095	71.2	0.0433	0.0029	0.357	0.8109	0.0266	0.0054	0.000204	0.0000126	0.000461	24.4828	0.0000072	0.000589	0.00139
Count	10	10	9	9	7	8	10	10	10	10	10	10	10	9	10	10	10	10	10	10	10	10
Minimum	7.48	316	-0.1	2.7	46.3	11	0.25	0.086	36.2	0.0068	0.001	0.189	0.0029	0.0021	0.00204	0.000075	0.0000025	0.000072	0.0381	0.0000025	0.00026	0.00005
Maximum	8.5	551	2.1	11.8	108	339.9	1.4	0.12	138	0.13	0.0056	0.464	7.34	0.0946	0.00921	0.00088	0.000025	0.000744	200	0.000025	0.0015	0.00503
Geometric Mean	7.79	401	0.8	7.84	80.2	81.7	0.62	0.095	64.4	0.0226	0.0023	0.342	0.0687	0.0121	0.00481	0.000152	0.0000107	0.000403	3.8991	0.0000045	0.000514	0.00079
Count <DL	0	0	0	0	0	0	3	0	0	0	4	0	0	0	0	0	1	0	0	7	0	1
Standard Deviation	0.28	85	0.7	3.07	21.6	99.2	0.38	0.01	35	0.0477	0.0018	0.099	2.296	0.0346	0.00256	0.00024	0.0000067	0.000185	61.7987	0.000008	0.000364	0.00148
1st Quartile	7.63	341	0.3	7.2	72	71	0.39	0.09	45.3	0.0074	0.001	0.276	0.0207	0.0041	0.00312	0.000112	0.0000083	0.000362	1.7075	0.0000025	0.000361	0.00048
Median	7.78	392	0.9	9.5	86	83.8	0.81	0.094	59.8	0.0169	0.003	0.393	0.059	0.0128	0.0053	0.000133	0.0000115	0.000494	5.325	0.0000025	0.000539	0.00087
3rd Quartile	7.84	452	1.3	11.2	98.3	129.3	0.92	0.096	89	0.0755	0.0046	0.427	0.1874	0.0194	0.00715	0.000158	0.0000164	0.000566	8.3325	0.0000111	0.000641	0.00189
Count Over Guideline	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0
% Over Guideline	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	10	0

Station Name	pH (field)	Specific Conductance (lab)	Temperature (field)	Dissolved Oxygen (field)	Dissolved Oxygen (field)	ORP (field)	Chloride	Fluoride	Sulphate, dissolved	Ammonia (N)	Nitrite (N)	Nitrate (N)	Phosphorus, total-colourimetric	Phosphorus, Total Dissolved	Aluminum (Al), dissolved	Arsenic (As), dissolved	Calcium (Ca), dissolved	Copper (Cu), dissolved	Iron (Fe), total	Lead (Pb), dissolved	Selenium (Se), dissolved	Zinc (Zn), dissolved
	pH units	µS/cm	C	mg/L	%	mV	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
FIGWQG-Industrial-Tier1	6.5-9						120	0.12	100	0.282	0.06	3		*	0.005	*	*		*		0.001	0.03
MW15-02																						
Average	7.63	431	1.8	5.87	51	116.7	0.71	0.089	55.6	0.0129	0.001	0.256	0.124	0.0018	0.00209	0.000718	0.0000034	0.000178	3.443	0.0000184	0.001566	0.00041
Count	5	5	4	5	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Minimum	7.37	323	1.2	4.9	42	87.9	0.53	0.088	37.4	0.0079	0.001	0.212	0.001	0.00069	0.000114	0.0000025	0.000058	0.0005	0.0000025	0.000371	0.00005	
Maximum	7.81	463	2.6	7.3	63	154.8	0.88	0.092	65.6	0.019	0.001	0.399	0.612	0.0048	0.00599	0.000891	0.000007	0.000613	17.2	0.000082	0.00196	0.00071
Geometric Mean	7.62	427	1.7	5.82	50	114.2	0.7	0.089	54.6	0.0121	0.001	0.248	0.0056	0.00142	0.000579	0.0000031	0.000106	0.0152	0.000005	0.001349	0.0003	
Count <DL	0	0	0	0	0	0	0	0	0	0	5	0	2	4	0	0	0	2	4	0	0	1
Standard Deviation	0.19	61	0.6	0.92	9	28.3	0.13	0.002	10.7	0.0052	0	0.08	0.2728	0.0017	0.000226	0.000339	0.000002	0.000244	7.6904	0.0000356	0.000675	0.00027
1st Quartile	7.49	452	1.5	5.3	46	101.2	0.68	0.089	57.8	0.0097	0.001	0.218	0.001	0.00075	0.00082	0.0000025	0.000065	0.0025	0.0000025	0.00171	0.00024	
Median	7.68	457	1.7	5.77	50	112	0.72	0.089	58.4	0.01	0.001	0.224	0.0026	0.001	0.00089	0.000875	0.0000025	0.000067	0.0061	0.0000025	0.00188	0.00048
3rd Quartile	7.78	461	2	6.1	55	127.6	0.74	0.089	58.8	0.018	0.001	0.228	0.0034	0.001	0.00211	0.00089	0.0000025	0.000085	0.0061	0.0000025	0.00191	0.00059
Count Over Guideline	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0
% Over Guideline	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	80	0	0
MW16-12D																						
Average	6.42	1543	2.6	3.7	23	38.1	2	1.1	0.25	0.32	0.0014	0.001	0.176	0.184	0.00529	0.000027	0.000007	0.000058	8.65	0.000015	0.00002	0.08203
Count	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Minimum	6.27	1510	2.5	2.4	21	23	1.9	1.1	0.25	0.27	0.001	0.001	0.138	0.125	0.00169	0.00001	0.000006	0.000025	7.67	0.0000025	0.00002	0.00192
Maximum	6.53	1610	2.8	6.2	28	45.7	2.2	1.1	0.25	0.4	0.0023	0.001	0.223	0.252	0.0116	0.00006	0.000007	0.000124	10.4	0.00004	0.00002	0.242
Geometric Mean	6.42	1543	2.6	3.3	23	36.3	2	1.1	0.25	0.31	0.0013	0.001	0.172	0.177	0.0037	0.000018	0.000007	0.000043	8.57	0.0000063	0.00002	0.01003
Count <DL	0	0	0	0	0	0	0	0	3	0	2	3	0	0	2	0	2	0	2	3	0	0
Standard Deviation	0.13	58	0.2	2.2	4	13.1	0.2	0	0	0.07	0.0008	0	0.043	0.064	0.00548	0.000029	0.000001	0.000057	1.52	0.0000217	0	0.13854
1st Quartile	6.37	1510	2.5	2.4	21	34.3	1.9	1.1	0.25	0.28	0.001	0.001	0.152	0.15	0.00213	0.00001	0.000007	0.000025	7.78	0.0000025	0.00002	0.00204
Median	6.46	1510	2.6	2.4	21	45.6	2	1.1	0.25	0.28	0.001	0.001	0.166	0.175	0.00258	0.00001	0.000007	0.000025	7.88	0.0000025	0.00002	0.00217
3rd Quartile	6.5	1560	2.7	4.3	24	45.7	2.1	1.1	0.25	0.34	0.0016	0.001	0.195	0.213	0.00709	0.000035	0.000007	0.000075	9.14	0.0000213	0.00002	0.12208
Count Over Guideline	2	0	0	0	0	0	0	3	0	1	0	0	0	0	1	0	0	0	0	0	0	1
% Over Guideline	66.7	0	0	0	0	0	0	100	0	33.3	0	0	0	0	33.3	0	0	0	0	0	0	33.3
MW16-12S																						
Average	6.58	1567	2.9	5.2	45	-65.2	2.3	0.82	5.29	0.175	0.0057	0.0049	0.405	0.2797	0.00078	0.001252	0.000022	0.000025	145	0.0000025	0.00002	0.0742
Count	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Minimum	6.53	1500	2.2	4.8	43	-115	2	0.72	0.25	0.085	0.0024	0.001	0.308	0.0682	0.00025	0.000187	0.000012	0.000025	138	0.0000025	0.00002	0.0325
Maximum	6.66	1610	3.8	5.4	47	-26.3	2.7	0.88	11.9	0.26	0.01	0.01	0.465	0.473	0.00118	0.00036	0.000038	0.000025	159	0.0000025	0.00002	0.0994
Geometric Mean	6.58	1566	2.8	5.2	45	1	2.3	0.81	2.23	0.158	0.0048	0.0033	0.399	0.2126	0.00065	0.000508	0.000019	0.000025	145	0.0000025	0.00002	0.0664
Count <DL	0	0	0	0	0	0	0	0	1	0	1	2	0	0	1	0	0	3	0	3	3	0
Standard Deviation	0.07	59	0.8	0.3	2	45.3	0.4	0.09	5.98	0.088	0.0039	0.0046	0.085	0.203	0.00048	0.001826	0.000014	0	12	0	0	0.0364
1st Quartile	6.54	1545	2.5	5	44	-84.7	2.1	0.78	1.99	0.133	0.0035	0.0024	0.375	0.1831	0.00059	0.000198	0.000014	0.000025	138	0.0000025	0.00002	0.0617
Median	6.54	1590	2.7	5.3	46	-54.3	2.2	0.85	3.72	0.18	0.0046	0.0037	0.442	0.298	0.00092	0.000209	0.000016	0.000025	139	0.0000025	0.00002	0.0908
3rd Quartile	6.6	1600	3.2	5.3	46	-40.3	2.5	0.86	7.81	0.22	0.0073	0.0069	0.454	0.3855	0.00105	0.001785	0.000027	0.000025	149	0.0000025	0.00002	0.0951
Count Over Guideline	0	0	0	0	0	0	0	3	0	1	0	0	0	0	0	0	0	0	0	0	0	3
% Over Guideline	0	0	0	0	0	0	0	100	0	33.3	0	0	0	0	0	0	0	0	0	0	0	100

AREA C GROUNDWATER QUALITY SUMMARY STATISTICS

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	pH (field)	Specific Conductance (lab)	Temperature (field)	Dissolved Oxygen (field)	Dissolved Oxygen (field)	ORP (field)	Chloride	Fluoride	Sulphate, dissolved	Ammonia (N)	Nitrite (N)	Nitrate (N)	Phosphorus, total-colourimetric	Phosphorus, Total Dissolved	Aluminum (Al), dissolved	Arsenic (As), dissolved	Calcium (Ca), dissolved	Copper (Cu), dissolved	Iron (Fe), total	Lead (Pb), dissolved	Selenium (Se), dissolved	Zinc (Zn), dissolved
Station Name	pH units	µS/cm	C	mg/L	%	mV	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
FIGWQG-Industrial-Tier1	6.5-9						120	0.12	100	0.282	0.06	3		*	0.005	*	*		*		0.001	0.03
BH95G-30																						
Average	7.61	385	5.9	8.35	73.7	103.1	0.7	0.14	24.6	0.026	0.0041	0.317	0.0562	0.0143	0.00319	0.000052	0.000132	0.00047	0.589	0.000031	0.00248	0.00788
Count	6	6	5	5	4	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Minimum	7.23	371	3.2	5.8	52	64.8	0.25	0.13	22.4	0.015	0.001	0.279	0.0043	0.003	0.0005	0.000028	0.000095	0.000262	0.126	0.000006	0.00211	0.00697
Maximum	7.85	392	9.6	10.94	101.8	161	0.93	0.14	26.4	0.047	0.013	0.351	0.228	0.0438	0.0129	0.000085	0.000186	0.000623	1.32	0.000084	0.00277	0.00926
Geometric Mean	7.6	385	5.5	8.12	71.6	98.1	0.65	0.14	24.6	0.024	0.0025	0.316	0.026	0.0095	0.00157	0.000048	0.000127	0.000451	0.433	0.000022	0.00247	0.00785
Count <DL	0	0	0	0	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
Standard Deviation	0.23	8	2.4	2.22	20.7	37.1	0.24	0.01	1.5	0.013	0.0047	0.028	0.0851	0.0154	0.00484	0.000023	0.000038	0.00014	0.459	0.000029	0.00023	0.00076
1st Quartile	7.5	384	4.6	7.2	65.5	78.1	0.68	0.13	23.7	0.016	0.001	0.296	0.0141	0.0051	0.00081	0.000033	0.000099	0.000386	0.234	0.000015	0.00238	0.0076
Median	7.64	386	5.6	7.4	70.5	100.8	0.74	0.14	24.8	0.021	0.0023	0.32	0.0269	0.0083	0.00101	0.000051	0.000129	0.000487	0.53	0.000018	0.00254	0.00771
3rd Quartile	7.77	391	6.5	10.43	78.7	110.9	0.84	0.14	25.8	0.034	0.0048	0.338	0.0379	0.016	0.00248	0.000066	0.000155	0.000581	0.803	0.000038	0.00259	0.00797
Count Over Guideline	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	6	0
% Over Guideline	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	100	0
BH95G-31																						
Average	7.9	293	1.7	9.29	79.6	150.3	0.6	0.095	22.7	0.095	0.0029	0.197	1.0418	0.0841	0.01661	0.000147	0.000021	0.000655	69.15	0.000062	0.00154	0.0009
Count	6	6	6	6	4	4	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Minimum	7.71	286	-0.2	7.8	67.9	62.6	0.25	0.09	20	0.028	0.001	0.161	0.0129	0.0028	0.00182	0.00006	0.000018	0.000433	3.01	0.000012	0.00136	0.00005
Maximum	8.1	300	3.1	11.24	96.4	322.5	0.81	0.1	25.4	0.22	0.0075	0.211	4.67	0.239	0.0852	0.000248	0.000023	0.00132	228	0.000259	0.00166	0.0026
Geometric Mean	7.9	293	1.8	9.18	78.8	123.6	0.57	0.095	22.6	0.066	0.0022	0.196	0.2055	0.0223	0.00497	0.000132	0.000021	0.000598	33.88	0.000032	0.00153	0.00054
Count <DL	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1
Standard Deviation	0.13	5	1.2	1.59	13.3	117.1	0.2	0.005	2.2	0.089	0.0024	0.019	1.8215	0.1152	0.03361	0.00007	0.000002	0.000346	82.55	0.000097	0.00013	0.00089
1st Quartile	7.87	290	1.2	7.93	69.5	88.6	0.56	0.091	20.8	0.038	0.0013	0.194	0.0713	0.0058	0.00285	0.000106	0.00002	0.000441	21.07	0.000017	0.00143	0.00045
Median	7.9	294	1.8	8.95	77	108	0.65	0.097	23	0.042	0.0022	0.203	0.228	0.017	0.00302	0.000131	0.000022	0.0005	44.25	0.000025	0.00159	0.00075
3rd Quartile	7.94	296	2.5	10.65	87.1	169.7	0.71	0.1	24.1	0.161	0.003	0.209	0.8768	0.1744	0.0036	0.000192	0.000023	0.000691	72.6	0.000031	0.00164	0.00086
Count Over Guideline	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0
% Over Guideline	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0
MW15-03D																						
Average	7.41	391	2.06	1.67	16.1	-48.9	0.83	0.16	22.7	0.127	0.001	0.0015	0.0058	0.0042	0.00352	0.00156	0.0000039	0.000227	1.261	0.000083	0.000044	0.00068
Count	10	10	10	10	7	8	10	10	10	10	10	10	10	9	10	10	10	10	10	10	10	10
Minimum	6.66	386	0	0.52	6	-85	0.25	0.15	21.1	0.072	0.001	0.001	0.0027	0.0021	0.00057	0.00106	0.0000025	0.000025	0.433	0.0000025	0.00002	0.00011
Maximum	7.67	395	3.3	3	26	111.2	1.7	0.17	25.3	0.3	0.001	0.0027	0.0123	0.0091	0.0144	0.00229	0.00001	0.00162	3.32	0.000044	0.000256	0.00238
Geometric Mean	7.4	391	1.98	1.43	14.2	1.8	0.72	0.16	22.7	0.11	0.001	0.0013	0.0051	0.0038	0.00205	0.0015	0.0000033	0.000069	1.09	0.0000045	0.000026	0.00047
Count <DL	0	0	0	0	0	0	2	0	0	0	10	7	0	0	0	0	8	5	0	6	9	0
Standard Deviation	0.31	4	1.07	0.89	8.1	65.2	0.42	0.01	1.3	0.081	0	0.0007	0.0031	0.0021	0.00441	0.00047	0.000003	0.000494	0.816	0.000013	0.000075	0.00068
1st Quartile	7.28	388	1.46	1	9.9	-75.6	0.66	0.15	21.8	0.076	0.001	0.001	0.0035	0.0031	0.00102	0.00122	0.0000025	0.000025	0.864	0.0000025	0.00002	0.00027
Median	7.51	390	2.15	1.49	14	-70	0.85	0.16	22.5	0.087	0.001	0.001	0.0049	0.0035	0.00142	0.00134	0.0000025	0.000038	0.923	0.0000025	0.00002	0.00047
3rd Quartile	7.64	394	3.03	2.38	23.4	-62.3	0.99	0.16	23.6	0.145	0.001	0.0019	0.0069	0.0046	0.00347	0.00201	0.0000025	0.000155	1.478	0.000005	0.00002	0.00077
Count Over Guideline	0	0	0	0	0	0	0	10	0	1	0	0	0	0	0	0	0	0	0	0	0	0
% Over Guideline	0	0	0	0	0	0	0	100	0	10	0	0	0	0	0	0	0	0	0	0	0	0

	pH (field)	Specific Conductance (lab)	Temperature (field)	Dissolved Oxygen (field)	Dissolved Oxygen (field)	ORP (field)	Chloride	Fluoride	Sulphate, dissolved	Ammonia (N)	Nitrite (N)	Nitrate (N)	Phosphorus, total-colourimetric	Phosphorus, Total Dissolved	Aluminum (Al), dissolved	Arsenic (As), dissolved	Calcium (Ca), dissolved	Copper (Cu), dissolved	Iron (Fe), total	Lead (Pb), dissolved	Selenium (Se), dissolved	Zinc (Zn), dissolved
Station Name	pH units	µS/cm	C	mg/L	%	mV	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
FIGWQG-Industrial-Tier1	6.5-9						120	0.12	100	0.282	0.06	3		*	0.005	*	*		*	0.001	0.03	
MW15-03S																						
Average	7.5	274	2.26	7.15	73.9	77.3	0.88	0.075	14.31	0.045	0.0034	0.0968	1.1199	0.187	0.00682	0.000192	0.000017	0.000517	47.37	0.000267	0.000236	0.00152
Count	10	10	10	10	7	8	10	10	10	10	10	10	10	9	10	10	10	10	10	10	10	10
Minimum	6.06	255	0.5	2.9	50.3	19.5	0.53	0.057	9.77	0.011	0.001	0.0454	0.0144	0.0027	0.00182	0.000137	0.000005	0.000142	7.41	0.000025	0.000188	0.00005
Maximum	8.04	300	3.9	9.6	85	277	1.7	0.12	33.3	0.15	0.0093	0.134	3.71	0.853	0.0266	0.00027	0.000033	0.00202	134	0.000127	0.000297	0.0106
Geometric Mean	7.47	273	1.8	6.82	73	55.5	0.83	0.073	13.32	0.035	0.0021	0.0911	0.4734	0.0306	0.00471	0.0000187	0.000015	0.000379	28.48	0.000085	0.000234	0.00046
Count <DL	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	5	0	1
Standard Deviation	0.58	12	1.37	2.02	11.6	82.9	0.35	0.02	7	0.039	0.0032	0.0328	1.2007	0.2964	0.00753	0.000046	0.000009	0.000556	44.12	0.0000416	0.000038	0.00322
1st Quartile	7.32	266	0.93	6.12	72	40.5	0.62	0.064	11.3	0.027	0.001	0.0737	0.2023	0.0035	0.00245	0.000159	0.000012	0.000249	10.9	0.000025	0.000208	0.00019
Median	7.67	272	2.35	7.36	76	56.3	0.88	0.067	11.6	0.037	0.001	0.0997	0.6905	0.0159	0.00436	0.000188	0.000013	0.000353	32.75	0.000048	0.000237	0.00036
3rd Quartile	7.75	280	3.55	8.65	81	67.8	1	0.078	14.07	0.045	0.0058	0.1265	1.7725	0.335	0.00616	0.000214	0.000022	0.000388	79.42	0.000043	0.000264	0.00089
Count Over Guideline	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
% Over Guideline	10	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0
MW15-04D																						
Average	7.66	297	2.34	29.94	18	-9.1	0.95	0.21	21	0.044	0.0016	0.0096	1.8221	0.0215	0.00219	0.00153	0.0000172	0.000184	49.577	0.0000178	0.000062	0.00154
Count	10	10	9	10	7	8	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Minimum	7.41	287	0.9	1.12	9.6	-56.9	0.25	0.2	17.8	0.026	0.001	0.001	0.0059	0.0026	0.00091	0.00116	0.0000025	0.000025	0.0005	0.000025	0.00002	0.00016
Maximum	7.92	344	3.8	280	30	226.7	2.6	0.24	34.8	0.11	0.0037	0.0256	9.09	0.0848	0.00369	0.00184	0.00004	0.000885	264	0.000096	0.000132	0.00956
Geometric Mean	7.66	296	2.16	3.34	16.9	2	0.81	0.21	20.6	0.04	0.0014	0.0071	0.1498	0.0114	0.00199	0.00151	0.0000128	0.000093	3.6406	0.000079	0.000048	0.00064
Count <DL	0	0	0	0	0	0	1	0	0	0	7	1	0	0	0	0	1	3	1	4	4	0
Standard Deviation	0.14	17	0.9	87.86	6.9	95.7	0.64	0.01	4.9	0.024	0.001	0.0072	3.6134	0.0278	0.00097	0.00025	0.0000121	0.000267	95.2487	0.000292	0.00004	0.00286
1st Quartile	7.57	291	1.73	1.7	13	-49.1	0.59	0.21	18.9	0.031	0.001	0.0047	0.0393	0.0063	0.00151	0.0013	0.0000078	0.000037	1.635	0.000025	0.00002	0.00029
Median	7.69	292	2.4	2.2	18	-37.7	0.82	0.21	19.9	0.039	0.001	0.0077	0.134	0.0095	0.00205	0.00163	0.000015	0.00009	5.785	0.000008	0.000068	0.00052
3rd Quartile	7.74	294	2.9	3	21.1	-34.8	1.07	0.22	20.3	0.047	0.0019	0.0129	0.2933	0.0198	0.00286	0.0017	0.0000257	0.000125	14.48	0.0000113	0.000086	0.00125
Count Over Guideline	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Over Guideline	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MW15-04S																						
Average	7.77	238	2.36	9.01	81.1	103.2	0.72	0.085	9.84	0.051	0.0033	0.206	0.9835	0.0427	0.00409	0.000225	0.0000062	0.000422	59.49	0.000004	0.000772	0.00079
Count	10	10	9	9	7	8	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Minimum	7.49	231	0.3	7.12	61.4	62	0.25	0.078	8.81	0.021	0.001	0.155	0.0188	0.0023	0.00199	0.000155	0.0000025	0.000025	4.72	0.000025	0.000703	0.00005
Maximum	7.92	245	4.2	11	101	278.7	1.1	0.1	10.5	0.09	0.013	0.236	2.66	0.138	0.00702	0.000339	0.000015	0.00117	130	0.00001	0.000848	0.00255
Geometric Mean	7.77	238	1.91	8.94	80.2	90.6	0.64	0.085	9.82	0.044	0.0019	0.204	0.3555	0.0181	0.00379	0.000218	0.0000046	0.000289	44.86	0.0000034	0.000771	0.00041
Count <DL	0	0	0	0	0	0	2	0	0	0	7	0	0	0	0	6	1	0	7	0	0	2
Standard Deviation	0.14	4	1.28	1.25	12.7	71.9	0.31	0.006	0.56	0.026	0.0041	0.025	1.0805	0.0485	0.00165	0.000059	0.0000052	0.000329	36.43	0.000026	0.000041	0.00083
1st Quartile	7.71	234	1.38	8.1	76	68.2	0.55	0.081	9.66	0.026	0.001	0.198	0.1317	0.0038	0.00288	0.000186	0.0000025	0.000262	46.4	0.000025	0.000753	0.00022
Median	7.81	238	2.3	8.8	81	82.6	0.75	0.084	10.05	0.052	0.001	0.207	0.5135	0.0193	0.00377	0.000202	0.0000025	0.000334	53.45	0.000025	0.000771	0.00052
3rd Quartile	7.86	241	3.5	9.6	86.2	90.9	0.93	0.087	10.1	0.067	0.0045	0.224	1.972	0.0838	0.00537	0.000265	0.00001	0.000513	77.28	0.000044	0.000776	0.00126
Count Over Guideline	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Over Guideline	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Station Name	pH (field)	Specific Conductance (lab)	Temperature (field)	Dissolved Oxygen (field)	Dissolved Oxygen (field)	ORP (field)	Chloride	Fluoride	Sulfate, dissolved	Ammonia (N)	Nitrite (N)	Nitrate (N)	Phosphorus, total-colourimetric	Phosphorus, Total Dissolved	Aluminum (Al), dissolved	Arsenic (As), dissolved	Calcium (Ca), dissolved	Copper (Cu), dissolved	Iron (Fe), total	Lead (Pb), dissolved	Selenium (Se), dissolved	Zinc (Zn), dissolved
	pH units	µS/cm	C	mg/L	%	mV	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
FIGWQG-Industrial-Tier1	6.5-9						120	0.12	100	0.282	0.06	3		*	0.005	*	*		*		0.001	0.03
MW15-05D																						
Average	7.59	390	1.78	7.18	63.8	122.8	0.76	0.13	31.7	0.0271	0.0036	0.219	0.1189	0.0133	0.00316	0.000125	0.000068	0.000422	6.741	0.000104	0.00167	0.0033
Count	10	10	9	10	7	8	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Minimum	7.35	377	0.1	4.29	36	47.4	0.25	0.11	29	0.0025	0.001	0.122	0.0032	0.001	0.00082	0.00004	0.000027	0.000079	0.451	0.000008	0.00149	0.00053
Maximum	7.79	437	4.6	9.32	92.8	335.4	1.8	0.18	42.2	0.056	0.0161	0.256	0.327	0.0353	0.0075	0.00022	0.000197	0.00166	16.5	0.000215	0.00182	0.0112
Geometric Mean	7.59	390	0.97	6.99	61.1	104.7	0.59	0.13	31.5	0.0218	0.0024	0.215	0.0581	0.0074	0.00244	0.000109	0.000058	0.000277	3.992	0.000069	0.00167	0.00252
Count <DL	0	0	0	0	0	0	4	0	0	1	3	0	0	2	0	0	0	0	0	0	0	0
Standard Deviation	0.13	18	1.53	1.65	19.4	89.1	0.52	0.02	4	0.0146	0.0045	0.038	0.1101	0.0121	0.00236	0.000063	0.000049	0.000473	6.104	0.000079	0.00011	0.00295
1st Quartile	7.51	380	0.4	5.72	50	89.4	0.25	0.12	29.2	0.0203	0.0013	0.209	0.0293	0.0044	0.00141	0.000074	0.000047	0.000138	2.042	0.000056	0.00162	0.00192
Median	7.6	386	2.1	7.95	69	103.3	0.78	0.13	30.4	0.026	0.0025	0.226	0.1205	0.0081	0.00213	0.000107	0.000056	0.00025	3.88	0.00009	0.00168	0.00264
3rd Quartile	7.65	389	2.1	8.3	74.5	113.5	1.05	0.13	32.3	0.035	0.0033	0.243	0.1373	0.0218	0.0049	0.000182	0.000072	0.000525	10.453	0.000179	0.00175	0.00333
Count Over Guideline	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0
% Over Guideline	0	0	0	0	0	0	70	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0
MW15-055	Well is dry																					
MW15-06																						
Average	7.43	373	1.7	8.39	71	90.7	0.96	0.11	22.7	0.0435	0.0029	0.333	0.069	0.0305	0.00179	0.000059	0.000153	0.000429	17.4184	0.0000108	0.00262	0.00283
Count	6	6	5	6	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Minimum	7.28	366	0.7	7.2	62	78.3	0.67	0.11	21.8	0.0051	0.001	0.307	0.0049	0.0025	0.00098	0.000037	0.000135	0.000341	0.0005	0.0000025	0.00238	0.00143
Maximum	7.63	382	2.6	8.86	75	117.2	1.3	0.12	23.1	0.1	0.0072	0.356	0.173	0.105	0.00255	0.000102	0.000175	0.000593	69.1	0.000017	0.00285	0.00403
Geometric Mean	7.43	373	1.5	8.37	71	89.8	0.94	0.11	22.6	0.0298	0.0019	0.333	0.0428	0.0138	0.00171	0.000055	0.000152	0.000421	1.4081	0.000094	0.00262	0.00264
Count <DL	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	1	1	0	0
Standard Deviation	0.14	7	0.7	0.63	5	15.3	0.25	0.01	0.5	0.0363	0.003	0.021	0.0613	0.0393	0.00057	0.000025	0.000016	0.000095	27.6449	0.0000048	0.00018	0.00109
1st Quartile	7.34	366	1.3	8.3	72	84.2	0.8	0.11	22.4	0.022	0.001	0.318	0.03	0.005	0.00145	0.00004	0.000141	0.000374	1.5925	0.0000103	0.00252	0.00197
Median	7.37	372	1.7	8.65	73	85.6	0.91	0.11	22.9	0.031	0.001	0.335	0.0529	0.0152	0.00195	0.000053	0.00015	0.000389	2.315	0.000011	0.0026	0.00292
3rd Quartile	7.53	378	2.2	8.78	74	88.1	1.15	0.12	23	0.064	0.0049	0.351	0.094	0.0364	0.00202	0.000067	0.000163	0.000467	22.65	0.0000125	0.00275	0.00375
Count Over Guideline	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0
% Over Guideline	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0
MW16-16D																						
Average	7.55	440	1.8	1.1	9.1	36.1	0.52	0.115	37.4	0.031	0.0026	0.0014	0.0454	0.0347	0.00407	0.00036	0.0000043	0.000056	8.87	0.0000068	0.00005	0.00224
Count	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Minimum	7.47	438	1.5	1	8	-57.7	0.25	0.005	36.3	0.019	0.001	0.001	0.0241	0.0177	0.00366	0.000135	0.0000025	0.000025	1.82	0.0000025	0.00002	0.00034
Maximum	7.61	443	2.2	1.2	10	202.8	0.67	0.18	38.6	0.051	0.0058	0.0023	0.0668	0.0625	0.00467	0.000538	0.000008	0.00009	20.9	0.000012	0.000111	0.00581
Geometric Mean	7.55	440	1.7	1.1	9	5.9	0.48	0.052	37.4	0.028	0.0018	0.0013	0.0417	0.0298	0.00405	0.000309	0.0000037	0.000049	5.29	0.0000056	0.000035	0.00103
Count <DL	0	0	0	0	0	0	1	1	0	0	2	2	0	0	0	0	2	1	0	1	2	0
Standard Deviation	0.07	3	0.4	0.1	1	144.7	0.23	0.096	1.2	0.017	0.0028	0.0008	0.0214	0.0243	0.00053	0.000206	0.0000032	0.000033	10.47	0.0000048	0.000053	0.0031
1st Quartile	7.52	439	1.6	1.1	8.6	-47.2	0.45	0.083	36.8	0.021	0.001	0.001	0.0347	0.0209	0.00377	0.000271	0.0000025	0.000039	2.86	0.0000042	0.00002	0.00045
Median	7.57	440	1.6	1.1	9.2	-36.7	0.64	0.16	37.2	0.023	0.001	0.001	0.0452	0.024	0.00388	0.000407	0.0000025	0.000053	3.9	0.000006	0.00002	0.00056
3rd Quartile	7.59	442	1.9	1.1	9.6	83.1	0.66	0.17	37.9	0.037	0.0034	0.0016	0.056	0.0432	0.00428	0.000472	0.0000052	0.000072	12.4	0.000009	0.000066	0.00318
Count Over Guideline	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Over Guideline	0	0	0	0	0	0	66.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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APPENDIX E  
GROUNDWATER QUALITY DATA 2015-2016

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APPENDIX F  
LABORATORY CERTIFICATES OF ANALYSIS

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Your Project #: BMC-16-01  
 Site Location: KUDZ ZE KAYAH  
 Your C.O.C. #: 08421153, 08421154

**Attention: KAI WOLOSHYN**

ALEXCO ENVIRONMENTAL GROUP INC.  
 Unit 3 Calcite Business Centre  
 151 Industrial Road  
 WHITEHORSE, YT  
 Canada Y1A 2V3

**Report Date: 2016/06/20**  
 Report #: R2202342  
 Version: 3 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**MAXXAM JOB #: B638464**

**Received: 2016/05/17, 13:00**

Sample Matrix: Water  
 # Samples Received: 19

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Acidity pH 4.5 & pH 8.3 (as CaCO3)	19	N/A	2016/05/19	BBY6SOP-00037	SM 22 2310 B m
Alkalinity - Water	19	2016/05/19	2016/05/19	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry	19	N/A	2016/05/19	BBY6SOP-00011	SM 22 4500-Cl- E m
Carbon (DOC) - field filtered/preserved (1)	19	N/A	2016/05/20	BBY6SOP-00003	SM 22 5310 C m
Conductance - water	19	N/A	2016/05/19	BBY6SOP-00026	SM 22 2510 B m
Fluoride	19	N/A	2016/05/19	BBY6SOP-00048	SM 22 4500-F C m
Hardness Total (calculated as CaCO3)	19	N/A	2016/05/24	BBY WI-00033	Auto Calc
Hardness (calculated as CaCO3)	19	N/A	2016/05/24	BBY WI-00033	Auto Calc
Mercury (Dissolved-LowLevel) by CVAf	19	N/A	2016/05/20	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total-LowLevel) by CVAf	19	2016/05/20	2016/05/20	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Ion Balance	16	N/A	2016/05/25	BBY WI-00033	SM 22 1030E
Ion Balance	1	N/A	2016/05/26	BBY WI-00033	SM 22 1030E
Ion Balance	1	N/A	2016/06/08	BBY WI-00033	SM 22 1030E
Ion Balance	1	N/A	2016/06/09	BBY WI-00033	SM 22 1030E
Sum of cations, anions	19	N/A	2016/05/25	Calc	
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	18	N/A	2016/05/24	BBY7SOP-00002	EPA 6020B R2 m
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	1	N/A	2016/05/26	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Low Level (dissolved)	10	N/A	2016/05/20	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Low Level (dissolved)	8	N/A	2016/05/21	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Low Level (dissolved)	1	N/A	2016/05/24	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Digested LL (total)	17	2016/05/19	2016/05/20	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Na, K, Ca, Mg, S by CRC ICPMS (total)	19	N/A	2016/05/24	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Elements by ICPMS Low Level (total)	2	N/A	2016/05/21	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Ammonia-N (Preserved)	19	N/A	2016/05/20	BBY6SOP-00009	SM 22 4500-NH3- G m
Nitrate+Nitrite (N) (low level)	19	N/A	2016/05/19	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) (low level)	19	N/A	2016/05/19	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N)	19	N/A	2016/05/24	BBY6SOP-00010	SM 22 4500-NO3- I m
Filter and HNO3 Preserve for Metals	18	N/A	2016/05/19	BBY7 WI-00004	BCMOE Reqs 08/14
Filter and HNO3 Preserve for Metals	1	N/A	2016/05/24	BBY7 WI-00004	BCMOE Reqs 08/14

Your Project #: BMC-16-01  
 Site Location: KUDZ ZE KAYAH  
 Your C.O.C. #: 08421153, 08421154

**Attention: KAI WOLOSHYN**

ALEXCO ENVIRONMENTAL GROUP INC.  
 Unit 3 Calcite Business Centre  
 151 Industrial Road  
 WHITEHORSE, YT  
 Canada Y1A 2V3

**Report Date: 2016/06/20**  
 Report #: R2202342  
 Version: 3 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**MAXXAM JOB #: B638464**

**Received: 2016/05/17, 13:00**

Sample Matrix: Water  
 # Samples Received: 19

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
pH Water (2)	19	N/A	2016/05/19	BBY6SOP-00026	SM 22 4500-H+ B m
Sulphate by Automated Colourimetry	17	N/A	2016/05/19	BBY6SOP-00017	SM 22 4500-SO42- E m
Sulphate by Automated Colourimetry	2	N/A	2016/05/20	BBY6SOP-00017	SM 22 4500-SO42- E m
Phosphorus-P (LL Tot, dissolved) - UF/UP	16	2016/05/19	2016/05/19	BBY6SOP-00013	SM 22 4500-P E m
Phosphorus-P (LL Tot, dissolved) - UF/UP	2	2016/05/26	2016/05/26	BBY6SOP-00013	SM 22 4500-P E m
Phosphorus-P (LL Tot, dissolved) - UF/UP	1	2016/06/11	2016/06/11	BBY6SOP-00013	SM 22 4500-P E m
Total Phosphorus - unpreserved	17	N/A	2016/05/19	BBY6SOP-00013	SM 22 4500-P E m
Total Phosphorus - unpreserved	2	N/A	2016/05/26	BBY6SOP-00013	SM 22 4500-P E m
Total Suspended Solids-Low Level	19	2016/05/19	2016/05/20	BBY6SOP-00034	SM 22 2540 D

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) DOC present in the sample should be considered as non-purgeable DOC.

(2) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

**Encryption Key**

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Morgan Melnychuk, Burnaby Project Manager

Email: MMelnychuk@maxxam.ca

Phone# (604)638-8034 Ext:8034

=====  
 Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		OQ7295		OQ7296		OQ7296		OQ7296		
Sampling Date		2016/05/16 17:40		2016/05/15 10:00		2016/05/15 10:00		2016/05/15 10:00		
COC Number		08421153		08421153		08421153		08421153		
	UNITS	MW15-01	QC Batch	MW15-03S	QC Batch	MW15-03S REPEAT	QC Batch	MW15-03S REPEAT	RDL	QC Batch

Calculated Parameters										
Anion Sum	meq/L	3.4	8273224	3.2	8273224		8273224		N/A	8273224
Cation Sum	meq/L	3.8	8273224	3.0	8273224		8273224		N/A	8273224
Filter and HNO3 Preservation	N/A	LAB	8274227	LAB	8274227		8274227		N/A	8274227
Ion Balance	N/A	1.1	8273223	0.94	8273223		8273223		0.010	8273223
Nitrate (N)	mg/L	0.428	8273090	0.0780	8273090		8273090		0.0020	8273090

Misc. Inorganics										
Fluoride (F)	mg/L	0.097	8275672	0.081	8275672		8275672		0.010	8275672
Dissolved Organic Carbon (C)	mg/L	1.31	8276146	1.35	8276144		8276144		0.50	8276144
Acidity (pH 4.5)	mg/L	<0.50	8274249	<0.50	8274249		8274249		0.50	8274249
Alkalinity (Total as CaCO3)	mg/L	113	8274266	139	8274266		8274266		0.50	8274266
Acidity (pH 8.3)	mg/L	<0.50	8274249	<0.50	8274249		8274249		0.50	8274249
Alkalinity (PP as CaCO3)	mg/L	<0.50	8274266	<0.50	8274266		8274266		0.50	8274266
Bicarbonate (HCO3)	mg/L	138	8274266	169	8274266		8274266		0.50	8274266
Carbonate (CO3)	mg/L	<0.50	8274266	<0.50	8274266		8274266		0.50	8274266
Hydroxide (OH)	mg/L	<0.50	8274266	<0.50	8274266		8274266		0.50	8274266

Anions										
Dissolved Sulphate (SO4)	mg/L	50.0	8274739	16.9	8274739		8274739		0.50	8274739
Dissolved Chloride (Cl)	mg/L	0.81	8274727	1.0	8274727		8274727		0.50	8274727

Nutrients										
Dissolved Phosphorus (P)	mg/L	0.0128	8274691	0.0032 (1)	8296648		8296648		0.0020	8296648
Total Ammonia (N)	mg/L	0.0071	8275822	0.031	8275822		8275822		0.0050	8275822
Nitrate plus Nitrite (N)	mg/L	0.433	8274905	0.0839 (2)	8274909		8274909		0.0020	8274909
Nitrite (N)	mg/L	0.0056	8274907	0.0059 (2)	8274911		8274911		0.0020	8274911
Total Phosphorus (P)	mg/L	0.0128 (3)	8274697	0.101 (4)	8274697	0.0508 (4)	8296650	0.169 (4)	0.0020	8300715

RDL = Reportable Detection Limit

(1) Sample arrived to laboratory past recommended hold time.  
This test was repeated two more times with results 0.0065 mg/L and 0.0023 mg/L.

(2) Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis.

(3) Sample analysed past recommended hold time.

(4) Sample arrived to laboratory past recommended hold time.  
The sample contains a lot of particulate (TSS = 996 mg/L). The variation of the results with 3 runs for total phosphorus was due to heterogeneity of the sample.

Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		OQ7295		OQ7296		OQ7296		OQ7296		
Sampling Date		2016/05/16 17:40		2016/05/15 10:00		2016/05/15 10:00		2016/05/15 10:00		
COC Number		08421153		08421153		08421153		08421153		
	UNITS	MW15-01	QC Batch	MW15-03S	QC Batch	MW15-03S REPEAT	QC Batch	MW15-03S REPEAT	RDL	QC Batch
<b>Physical Properties</b>										
Conductivity	uS/cm	316	8274267	282	8274267				1.0	
pH	pH	8.11	8274268	8.16	8274268					
<b>Physical Properties</b>										
Total Suspended Solids	mg/L	427	8274843	996	8273554				1.0	
RDL = Reportable Detection Limit										

Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		OQ7297		OQ7298		OQ7299		OQ7300		
Sampling Date		2016/05/15 09:36		2016/05/15 12:10		2016/05/15 11:00		2016/05/15 11:38		
COC Number		08421153		08421153		08421153		08421153		
	UNITS	MW15-03D	QC Batch	MW15-04S	QC Batch	DUP 2	QC Batch	MW15-04D	RDL	QC Batch
<b>Calculated Parameters</b>										
Anion Sum	meq/L	4.4	8273224	2.7	8273224	3.2	8273224	3.2	N/A	8273224
Cation Sum	meq/L	4.3	8273224	2.8	8273224	3.2	8273224	3.5	N/A	8273224
Filter and HNO3 Preservation	N/A	LAB	8274227	LAB	8274227	LAB	8274227	LAB	N/A	8274227
Ion Balance	N/A	0.97	8273223	1.0	8273223	1.0	8273223	1.1	0.010	8273223
Nitrate (N)	mg/L	<0.0020	8273090	0.196	8273090	0.0889	8273090	0.0067	0.0020	8273090
<b>Misc. Inorganics</b>										
Fluoride (F)	mg/L	0.160	8275667	0.089	8275672	0.072	8275672	0.210	0.010	8275672
Dissolved Organic Carbon (C)	mg/L	0.64	8276146	1.34	8276146	2.10	8276144	<0.50	0.50	8276146
Acidity (pH 4.5)	mg/L	<0.50	8274249	<0.50	8274249	<0.50	8274249	<0.50	0.50	8274249
Alkalinity (Total as CaCO3)	mg/L	196	8274266	122	8274266	144	8274266	136	0.50	8274266
Acidity (pH 8.3)	mg/L	2.50	8274249	<0.50	8274249	<0.50	8274249	0.83	0.50	8274249
Alkalinity (PP as CaCO3)	mg/L	<0.50	8274266	<0.50	8274266	<0.50	8274266	<0.50	0.50	8274266
Bicarbonate (HCO3)	mg/L	239	8274266	148	8274266	175	8274266	166	0.50	8274266
Carbonate (CO3)	mg/L	<0.50	8274266	<0.50	8274266	<0.50	8274266	<0.50	0.50	8274266
Hydroxide (OH)	mg/L	<0.50	8274266	<0.50	8274266	<0.50	8274266	<0.50	0.50	8274266
<b>Anions</b>										
Dissolved Sulphate (SO4)	mg/L	22.7	8274739	10.1	8274739	15.7	8274739	20.4	0.50	8275948
Dissolved Chloride (Cl)	mg/L	0.64	8274727	0.86	8274727	<0.50	8274727	0.66	0.50	8274727
<b>Nutrients</b>										
Dissolved Phosphorus (P)	mg/L	0.0021 (1)	8280267	0.0193 (2)	8274691	0.0094 (2)	8274691	0.0075 (2)	0.0020	8274691
Total Ammonia (N)	mg/L	0.076	8275825	0.070	8275822	0.025	8275822	0.033	0.0050	8275822
Nitrate plus Nitrite (N)	mg/L	<0.0020 (2)	8274905	0.209 (2)	8274909	0.0941 (2)	8274909	0.0067 (2)	0.0020	8274905
Nitrite (N)	mg/L	<0.0020 (2)	8274907	0.0130 (2)	8274911	0.0052 (2)	8274911	<0.0020 (2)	0.0020	8274907
Total Phosphorus (P)	mg/L	0.0027 (1)	8280275	0.0192 (2)	8274697	0.0073 (2)	8274696	0.0059 (2)	0.0020	8274697
<b>Physical Properties</b>										
Conductivity	uS/cm	386	8274267	237	8274267	287	8274267	287	1.0	8274267
pH	pH	8.08	8274268	8.15	8274268	8.14	8274268	8.13		8274268
<b>Physical Properties</b>										
Total Suspended Solids	mg/L	22.3	8273554	25700	8273554	409	8273554	70.9	1.0	8273554
RDL = Reportable Detection Limit N/A = Not Applicable (1) Sample analysed past recommended hold time. (2) Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis.										

Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		QO7301		QO7302		QO7303		QO7304		
Sampling Date		2016/05/15 13:30		2016/05/15 14:10		2016/05/15 15:32		2016/05/16 11:18		
COC Number		08421153		08421153		08421153		08421154		
	UNITS	MW15-05D	QC Batch	MW15-07S	QC Batch	MW15-07D	QC Batch	MW15-09S	RDL	QC Batch
<b>Calculated Parameters</b>										
Anion Sum	meq/L	4.3	8273224	4.3	8273224	4.6	8273224	4.7	N/A	8273224
Cation Sum	meq/L	4.7	8273224	4.4	8273224	4.7	8273224	4.8	N/A	8273224
Filter and HNO3 Preservation	N/A	LAB	8274227	LAB	8274227	LAB	8274227	LAB	N/A	8274227
Ion Balance	N/A	1.1	8273223	1.0	8273223	1.0	8273223	1.0	0.010	8273223
Nitrate (N)	mg/L	0.256	8273090	<0.0020	8273090	<0.0020	8273090	0.0501	0.0020	8273090
<b>Misc. Inorganics</b>										
Fluoride (F)	mg/L	0.130	8275667	0.300	8275667	0.340	8275667	0.240	0.010	8275672
Dissolved Organic Carbon (C)	mg/L	2.00	8276146	<0.50	8276144	<0.50	8276146	<0.50	0.50	8276146
Acidity (pH 4.5)	mg/L	<0.50	8274249	<0.50	8274249	<0.50	8274249	<0.50	0.50	8274249
Alkalinity (Total as CaCO3)	mg/L	181	8274266	179	8274266	195	8274266	214	0.50	8274270
Acidity (pH 8.3)	mg/L	1.87	8274249	2.46	8274249	2.64	8274249	7.88	0.50	8274249
Alkalinity (PP as CaCO3)	mg/L	<0.50	8274266	<0.50	8274266	<0.50	8274266	<0.50	0.50	8274270
Bicarbonate (HCO3)	mg/L	220	8274266	218	8274266	237	8274266	261	0.50	8274270
Carbonate (CO3)	mg/L	<0.50	8274266	<0.50	8274266	<0.50	8274266	<0.50	0.50	8274270
Hydroxide (OH)	mg/L	<0.50	8274266	<0.50	8274266	<0.50	8274266	<0.50	0.50	8274270
<b>Anions</b>										
Dissolved Sulphate (SO4)	mg/L	30.5	8274739	32.6	8274739	30.4	8274739	18.2	0.50	8274739
Dissolved Chloride (Cl)	mg/L	0.89	8274727	0.80	8274727	0.68	8274727	0.69	0.50	8274727
<b>Nutrients</b>										
Dissolved Phosphorus (P)	mg/L	0.0044 (1)	8274691	0.0173 (1)	8274691	0.0036 (2)	8280267	0.0060	0.0020	8274691
Total Ammonia (N)	mg/L	0.056	8275825	0.13	8275822	0.048	8275825	0.044	0.0050	8275825
Nitrate plus Nitrite (N)	mg/L	0.259 (1)	8274905	0.0069 (1)	8274905	<0.0020 (1)	8274905	0.0533	0.0020	8274909
Nitrite (N)	mg/L	0.0024 (1)	8274907	0.0064 (1)	8274907	0.0029 (1)	8274907	0.0032	0.0020	8274911
Total Phosphorus (P)	mg/L	0.0054 (1)	8274697	0.0157 (1)	8274696	0.0022 (2)	8280275	0.0050	0.0020	8274696
<b>Physical Properties</b>										
Conductivity	uS/cm	378	8274267	383	8274267	399	8274267	420	1.0	8274271
pH	pH	8.13	8274268	8.07	8274268	8.08	8274268	7.85		8274273
<b>Physical Properties</b>										
Total Suspended Solids	mg/L	107	8273554	7230	8273554	173	8273554	678	1.0	8274843
RDL = Reportable Detection Limit N/A = Not Applicable (1) Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis. (2) Sample analysed past recommended hold time.										



Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		QO7305			QO7306		QO7307		
Sampling Date		2016/05/16 10:55			2016/05/16 12:05		2016/05/13 14:10		
COC Number		08421154			08421154		08421154		
	UNITS	MW15-10S	RDL	QC Batch	MW15-10D	QC Batch	BH95G-22	RDL	QC Batch
<b>Calculated Parameters</b>									
Anion Sum	meq/L	9.6	N/A	8273224	34	8273224	4.1	N/A	8273224
Cation Sum	meq/L	7.3	N/A	8273224	37	8293579	3.6	N/A	8273224
Filter and HNO3 Preservation	N/A	LAB	N/A	8274227	LAB	8274227	FIELD	N/A	ONSITE
Ion Balance	N/A	0.76 (1)	0.010	8273223	1.1	8293322	0.88	0.010	8292815
Nitrate (N)	mg/L	0.0720	0.0020	8273090	0.0045	8273090	0.126	0.0020	8273090
<b>Misc. Inorganics</b>									
Fluoride (F)	mg/L	0.220	0.010	8275672	1.30	8275672	0.067	0.010	8275667
Dissolved Organic Carbon (C)	mg/L	1.35	0.50	8276144	0.75	8276146	2.03	0.50	8276146
Acidity (pH 4.5)	mg/L	<0.50	0.50	8274249	<0.50	8274249	<0.50	0.50	8274249
Alkalinity (Total as CaCO3)	mg/L	444	0.50	8274270	1670	8274270	153	0.50	8274266
Acidity (pH 8.3)	mg/L	246	0.50	8274249	398	8274249	4.61	0.50	8274249
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8274270	<0.50	8274270	<0.50	0.50	8274266
Bicarbonate (HCO3)	mg/L	542	0.50	8274270	2040	8274270	186	0.50	8274266
Carbonate (CO3)	mg/L	<0.50	0.50	8274270	<0.50	8274270	<0.50	0.50	8274266
Hydroxide (OH)	mg/L	<0.50	0.50	8274270	<0.50	8274270	<0.50	0.50	8274266
<b>Anions</b>									
Dissolved Sulphate (SO4)	mg/L	31.3	0.50	8274739	1.08	8275948	48.4	0.50	8274724
Dissolved Chloride (Cl)	mg/L	0.95	0.50	8274727	3.5	8274727	0.99	0.50	8274714
<b>Nutrients</b>									
Dissolved Phosphorus (P)	mg/L	0.0144	0.0020	8274691	0.0132	8274691	0.0154 (2)	0.0020	8274691
Total Ammonia (N)	mg/L	0.53	0.0050	8275822	0.23	8275825	0.049	0.0050	8275822
Nitrate plus Nitrite (N)	mg/L	0.0810	0.0020	8274909	0.0045	8274909	0.126 (2)	0.0020	8274905
Nitrite (N)	mg/L	0.0090	0.0020	8274911	<0.0020	8274911	<0.0020 (2)	0.0020	8274907
Total Phosphorus (P)	mg/L	0.0148	0.0020	8274696	0.0122	8274696	0.0158 (2)	0.0020	8274697
<b>Physical Properties</b>									
Conductivity	uS/cm	852	1.0	8274271	2990	8274271	375	1.0	8274267
pH	pH	6.37		8274273	6.82	8274273	7.93		8274268
<b>Physical Properties</b>									
Total Suspended Solids	mg/L	12300 (3)	20	8274843	314	8274843	5790	1.0	8273554
RDL = Reportable Detection Limit N/A = Not Applicable (1) Anion - Cation balance exceeds normal acceptance limits, major ions reanalyzed, possible matrix interference (2) Sample arrived to laboratory past recommended hold time. (3) RDL raised due to high concentration of solids in the sample.									

Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		OQ7308			OQ7309			OQ7310		
<b>Sampling Date</b>		2016/05/14 19:15			2016/05/15 12:24			2016/05/14 15:00		
<b>COC Number</b>		08421154			08421154			08421154		
	<b>UNITS</b>	<b>BH95G-25S</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH95G-25D</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH95G-30</b>	<b>RDL</b>	<b>QC Batch</b>

**Calculated Parameters**

Anion Sum	meq/L	11	N/A	8273224	13	N/A	8273224	4.3	N/A	8273224
Cation Sum	meq/L	11	N/A	8273224	13	N/A	8273224	4.6	N/A	8273224
Filter and HNO3 Preservation	N/A	LAB	N/A	8274227	LAB	N/A	8274227	LAB	N/A	8274227
Ion Balance	N/A	1.0	0.010	8273223	1.0	0.010	8273223	1.1	0.010	8273223
Nitrate (N)	mg/L	0.0041	0.0020	8273090	0.0530	0.0020	8273090	0.351	0.0020	8273090

**Misc. Inorganics**

Fluoride (F)	mg/L	0.130	0.010	8275667	0.097	0.010	8275672	0.140	0.010	8275667
Dissolved Organic Carbon (C)	mg/L	3.27	0.50	8276144	2.47	0.50	8276144	1.17	0.50	8276144
Acidity (pH 4.5)	mg/L	<0.50	0.50	8274249	<0.50	0.50	8274249	<0.50	0.50	8274249
Alkalinity (Total as CaCO3)	mg/L	350	0.50	8274266	361	0.50	8274266	187	0.50	8274266
Acidity (pH 8.3)	mg/L	16.5	0.50	8274249	15.5	0.50	8274249	2.54	0.50	8274249
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8274266	<0.50	0.50	8274266	<0.50	0.50	8274266
Bicarbonate (HCO3)	mg/L	427	0.50	8274266	440	0.50	8274266	228	0.50	8274266
Carbonate (CO3)	mg/L	<0.50	0.50	8274266	<0.50	0.50	8274266	<0.50	0.50	8274266
Hydroxide (OH)	mg/L	<0.50	0.50	8274266	<0.50	0.50	8274266	<0.50	0.50	8274266

**Anions**

Dissolved Sulphate (SO4)	mg/L	182	0.50	8274739	254 (1)	5.0	8274739	26.0	0.50	8274739
Dissolved Chloride (Cl)	mg/L	1.1	0.50	8274727	2.0	0.50	8274727	0.71	0.50	8274727

**Nutrients**

Dissolved Phosphorus (P)	mg/L	0.0045 (2)	0.0020	8274691	0.0063 (3)	0.0020	8274691	0.0105 (2)	0.0020	8274691
Total Ammonia (N)	mg/L	0.28	0.0050	8275822	0.081	0.0050	8275822	0.015	0.0050	8275825
Nitrate plus Nitrite (N)	mg/L	0.0041 (2)	0.0020	8274905	0.0530 (3)	0.0020	8274905	0.354 (2)	0.0020	8274905
Nitrite (N)	mg/L	<0.0020 (2)	0.0020	8274907	<0.0020 (3)	0.0020	8274907	0.0036 (2)	0.0020	8274907
Total Phosphorus (P)	mg/L	0.0047 (2)	0.0020	8274696	0.0059 (3)	0.0020	8274697	0.0112 (2)	0.0020	8274697

**Physical Properties**

Conductivity	uS/cm	934	1.0	8274267	1060	1.0	8274267	384	1.0	8274267
pH	pH	7.88		8274268	7.94		8274268	8.08		8274268

RDL = Reportable Detection Limit  
 N/A = Not Applicable  
 (1) Detection limits raised due to dilution to bring analyte within the calibrated range.  
 (2) Sample arrived to laboratory past recommended hold time.  
 (3) Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis.

Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		OQ7308			OQ7309			OQ7310		
Sampling Date		2016/05/14 19:15			2016/05/15 12:24			2016/05/14 15:00		
COC Number		08421154			08421154			08421154		
	UNITS	BH95G-25S	RDL	QC Batch	BH95G-25D	RDL	QC Batch	BH95G-30	RDL	QC Batch
<b>Physical Properties</b>										
Total Suspended Solids	mg/L	201	1.0	8273554	142	1.0	8273554	30.3	1.0	8274843
RDL = Reportable Detection Limit										

Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		OQ7311			OQ7312			OQ7313		
Sampling Date		2016/05/14 13:20			2016/05/14 09:00			2016/05/14 09:15		
COC Number		08421154			08421154			08421154		
	UNITS	BH95G-33D	RDL	QC Batch	MW-FB	QC Batch	BH95G-GWD1	RDL	QC Batch	
<b>Calculated Parameters</b>										
Anion Sum	meq/L	4.9	N/A	8273224	0.012	8273224	5.0	N/A	8273224	
Cation Sum	meq/L	4.8	N/A	8273224	0.0010	8273224	5.3	N/A	8273224	
Filter and HNO3 Preservation	N/A	LAB	N/A	8274227	LAB	8274227	LAB	N/A	8274227	
Ion Balance	N/A	0.98	0.010	8273223	0.083	8273223	1.1	0.010	8273223	
Nitrate (N)	mg/L	0.206	0.0020	8273090	<0.0020	8273090	0.204	0.0020	8273090	
<b>Misc. Inorganics</b>										
Fluoride (F)	mg/L	0.057	0.010	8275672	0.010	8275672	0.054	0.010	8275672	
Dissolved Organic Carbon (C)	mg/L	0.87	0.50	8276146	<0.50	8276146	<0.50	0.50	8276146	
Acidity (pH 4.5)	mg/L	<0.50	0.50	8274249	<0.50	8274249	<0.50	0.50	8274249	
Alkalinity (Total as CaCO3)	mg/L	177	0.50	8274270	0.58	8274270	180	0.50	8274270	
Acidity (pH 8.3)	mg/L	3.60	0.50	8274249	<0.50	8274249	2.51	0.50	8274249	
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8274270	<0.50	8274270	<0.50	0.50	8274270	
Bicarbonate (HCO3)	mg/L	216	0.50	8274270	0.71	8274270	219	0.50	8274270	
Carbonate (CO3)	mg/L	<0.50	0.50	8274270	<0.50	8274270	<0.50	0.50	8274270	
Hydroxide (OH)	mg/L	<0.50	0.50	8274270	<0.50	8274270	<0.50	0.50	8274270	
<b>Anions</b>										
Dissolved Sulphate (SO4)	mg/L	63.6	0.50	8274739	<0.50	8274739	64.6	0.50	8274739	
Dissolved Chloride (Cl)	mg/L	0.64	0.50	8274727	<0.50	8274727	<0.50	0.50	8274727	
<b>Nutrients</b>										
Dissolved Phosphorus (P)	mg/L	0.0073 (1)	0.0020	8274691	<0.0020 (1)	8274691	0.0085 (1)	0.0020	8274691	
Total Ammonia (N)	mg/L	0.015	0.0050	8275825	<0.0050	8275825	0.025	0.0050	8275822	
Nitrate plus Nitrite (N)	mg/L	0.209 (1)	0.0020	8274909	<0.0020 (1)	8274909	0.208 (1)	0.0020	8274909	
Nitrite (N)	mg/L	0.0036 (1)	0.0020	8274911	<0.0020 (1)	8274911	0.0042 (1)	0.0020	8274911	
Total Phosphorus (P)	mg/L	0.0091 (1)	0.0020	8274696	<0.0020 (1)	8274697	0.0086 (1)	0.0020	8274696	
<b>Physical Properties</b>										
Conductivity	uS/cm	447	1.0	8274271	<1.0	8274271	451	1.0	8274271	
pH	pH	7.98		8274273	6.02	8274273	8.12		8274273	
<b>Physical Properties</b>										
Total Suspended Solids	mg/L	843 (2)	10	8274843	<1.0	8274843	918	1.0	8274843	
RDL = Reportable Detection Limit N/A = Not Applicable (1) Sample arrived to laboratory past recommended hold time. (2) RDL raised due to high concentration of solids in the sample.										

Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		OQ7295	OQ7296	OQ7297		OQ7298		
<b>Sampling Date</b>		2016/05/16 17:40	2016/05/15 10:00	2016/05/15 09:36		2016/05/15 12:10		
<b>COC Number</b>		08421153	08421153	08421153		08421153		
	<b>UNITS</b>	<b>MW15-01</b>	<b>MW15-03S</b>	<b>MW15-03D</b>	<b>QC Batch</b>	<b>MW15-04S</b>	<b>RDL</b>	<b>QC Batch</b>

**Misc. Inorganics**

Dissolved Hardness (CaCO3)	mg/L	189	137	206	8272442	135	0.50	8273585
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**Elements**

Dissolved Mercury (Hg)	mg/L	<0.000020	<0.000020	<0.000020	8275384	<0.000020	0.000020	8275384
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**Dissolved Metals by ICPMS**

Dissolved Aluminum (Al)	mg/L	0.00698	0.00596	0.00111	8275057	0.00702	0.00050	8275057
Dissolved Antimony (Sb)	mg/L	0.000023	0.000059	0.000103	8275057	<0.000020	0.000020	8275057
Dissolved Arsenic (As)	mg/L	0.000141	0.000270	0.00124	8275057	0.000285	0.000020	8275057
Dissolved Barium (Ba)	mg/L	0.0163	0.0475	0.0449	8275057	0.0884	0.000020	8275057
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	8275057	<0.000010	0.000010	8275057
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	8275057	<0.0000050	0.0000050	8275057
Dissolved Boron (B)	mg/L	<0.010	<0.010	<0.010	8275057	<0.010	0.010	8275057
Dissolved Cadmium (Cd)	mg/L	0.0000130	0.0000290	<0.0000050	8275057	0.0000070	0.0000050	8275057
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	<0.00010	8275057	0.00026	0.00010	8275057
Dissolved Cobalt (Co)	mg/L	0.0000290	0.000133	0.0000520	8275057	0.0000100	0.0000050	8275057
Dissolved Copper (Cu)	mg/L	0.000744	0.000780	0.000050	8275057	0.000517	0.000050	8275057
Dissolved Iron (Fe)	mg/L	0.0026	<0.0010	0.0028	8275057	0.0010	0.0010	8275057
Dissolved Lead (Pb)	mg/L	<0.0000050	0.000127	<0.0000050	8275057	0.0000070	0.0000050	8275057
Dissolved Lithium (Li)	mg/L	0.00124	0.00070	0.00613	8275057	0.00051	0.00050	8275057
Dissolved Manganese (Mn)	mg/L	0.000869	0.0780	0.0561	8275057	0.00260	0.000050	8275057
Dissolved Molybdenum (Mo)	mg/L	0.000740	0.0133 (1)	0.00310	8275057	0.00137 (1)	0.000050	8275057
Dissolved Nickel (Ni)	mg/L	0.000222	0.00165	0.000224	8275057	0.000336	0.000020	8275057
Dissolved Phosphorus (P)	mg/L	0.0031	0.0053	0.0053	8275057	0.0077	0.0020	8275057
Dissolved Selenium (Se)	mg/L	0.000389	0.000275	<0.000040	8275057	0.000769	0.000040	8275057
Dissolved Silicon (Si)	mg/L	1.71	2.17	4.76	8275057	3.49	0.050	8275057
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	<0.0000050	8275057	<0.0000050	0.0000050	8275057
Dissolved Strontium (Sr)	mg/L	0.163	0.151	0.250	8275057	0.162	0.000050	8275057
Dissolved Thallium (Tl)	mg/L	<0.0000020	0.0000130	<0.0000020	8275057	<0.0000020	0.0000020	8275057
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	8275057	<0.00020	0.00020	8275057
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	<0.00050	8275057	<0.00050	0.00050	8275057
Dissolved Uranium (U)	mg/L	0.00168	0.000724	0.00228	8275057	0.000648	0.0000020	8275057
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	8275057	<0.00020	0.00020	8275057

RDL = Reportable Detection Limit

(1) Dissolved greater than total. Reanalysis yields similar results.

Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		OQ7295	OQ7296	OQ7297		OQ7298		
Sampling Date		2016/05/16 17:40	2016/05/15 10:00	2016/05/15 09:36		2016/05/15 12:10		
COC Number		08421153	08421153	08421153		08421153		
	UNITS	MW15-01	MW15-03S	MW15-03D	QC Batch	MW15-04S	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	0.00068	0.00086	0.00022	8275057	0.00022	0.00010	8275057
Dissolved Zirconium (Zr)	mg/L	<0.00010	<0.00010	0.00010	8275057	<0.00010	0.00010	8275057
Dissolved Calcium (Ca)	mg/L	64.8	45.1	56.4	8272825	47.9	0.050	8272825
Dissolved Magnesium (Mg)	mg/L	6.64	5.98	15.9	8272825	3.66	0.050	8272825
Dissolved Potassium (K)	mg/L	0.552	2.14	2.53	8272825	1.48	0.050	8272825
Dissolved Sodium (Na)	mg/L	0.899	4.10	2.01	8272825	1.12	0.050	8272825
Dissolved Sulphur (S)	mg/L	18.8	6.5	7.4	8272825	3.5	3.0	8272825
RDL = Reportable Detection Limit								

Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		OQ7299	OQ7300	OQ7301	OQ7302	OQ7303		
Sampling Date		2016/05/15 11:00	2016/05/15 11:38	2016/05/15 13:30	2016/05/15 14:10	2016/05/15 15:32		
COC Number		08421153	08421153	08421153	08421153	08421153		
	UNITS	DUP 2	MW15-04D	MW15-05D	MW15-07S	MW15-07D	RDL	QC Batch

Misc. Inorganics								
Dissolved Hardness (CaCO3)	mg/L	150	166	228	209	223	0.50	8273585

Elements								
Dissolved Mercury (Hg)	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000020	8275384

Dissolved Metals by ICPMS								
Dissolved Aluminum (Al)	mg/L	0.00546	0.00148	0.00215	0.00176	0.00178	0.00050	8275057
Dissolved Antimony (Sb)	mg/L	0.000041	<0.000020	0.000046	0.000120	<0.000020	0.000020	8275057
Dissolved Arsenic (As)	mg/L	0.000249	0.00116	0.000103	0.00356	0.000052	0.000020	8275057
Dissolved Barium (Ba)	mg/L	0.0506	0.0527	0.0455	0.0409	0.0434	0.000020	8275057
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000010	8275057
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8275057
Dissolved Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	8275057
Dissolved Cadmium (Cd)	mg/L	0.0000250	0.0000110	0.000197	0.0000190	<0.0000050	0.0000050	8275057
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	8275057
Dissolved Cobalt (Co)	mg/L	0.000127	0.000219	0.0000380	0.00127	0.0000180	0.0000050	8275057
Dissolved Copper (Cu)	mg/L	0.000564	0.000125	0.00166	0.000248	<0.000050	0.000050	8275057
Dissolved Iron (Fe)	mg/L	<0.0010	<0.0010	<0.0010	0.0012	<0.0010	0.0010	8275057
Dissolved Lead (Pb)	mg/L	0.0000710	0.0000070	0.000208	0.0000050	0.0000090	0.0000050	8275057
Dissolved Lithium (Li)	mg/L	0.00078	0.00061	0.00146	0.00706	0.0121	0.00050	8275057
Dissolved Manganese (Mn)	mg/L	0.0777	0.164	0.00469	0.118	0.0519	0.000050	8275057
Dissolved Molybdenum (Mo)	mg/L	0.0111 (1)	0.00353 (1)	0.000923 (1)	0.00213 (1)	0.000074	0.000050	8275057
Dissolved Nickel (Ni)	mg/L	0.00159	0.000519	0.000395	0.00764	0.000072	0.000020	8275057
Dissolved Phosphorus (P)	mg/L	<0.0020	0.0073	<0.0020	0.0045	0.0034	0.0020	8275057
Dissolved Selenium (Se)	mg/L	0.000299	0.000057	0.00169 (1)	0.000845	<0.000040	0.000040	8275057
Dissolved Silicon (Si)	mg/L	2.32	2.98	2.77	6.61	8.44	0.050	8275057
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8275057
Dissolved Strontium (Sr)	mg/L	0.163	0.207	0.273 (1)	0.271	0.319	0.000050	8275057
Dissolved Thallium (Tl)	mg/L	0.0000130	0.0000020	0.0000020	0.0000030	<0.0000020	0.0000020	8275057
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8275057
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	8275057
Dissolved Uranium (U)	mg/L	0.000739	0.00106	0.00190	0.00351	0.000950	0.0000020	8275057
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8275057

RDL = Reportable Detection Limit  
(1) Dissolved greater than total. Reanalysis yields similar results.

Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		OQ7299	OQ7300	OQ7301	OQ7302	OQ7303		
Sampling Date		2016/05/15 11:00	2016/05/15 11:38	2016/05/15 13:30	2016/05/15 14:10	2016/05/15 15:32		
COC Number		08421153	08421153	08421153	08421153	08421153		
	UNITS	DUP 2	MW15-04D	MW15-05D	MW15-07S	MW15-07D	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	0.00057	0.00030	0.0112	0.00028	0.00031	0.00010	8275057
Dissolved Zirconium (Zr)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	8275057
Dissolved Calcium (Ca)	mg/L	50.3	57.7	79.9 (1)	66.6	67.0	0.050	8272825
Dissolved Magnesium (Mg)	mg/L	6.04	5.39	6.92	10.4	13.6	0.050	8272825
Dissolved Potassium (K)	mg/L	1.99	2.53	1.89 (1)	1.63	1.62	0.050	8272825
Dissolved Sodium (Na)	mg/L	3.62	2.04	2.46 (1)	3.57	4.26	0.050	8272825
Dissolved Sulphur (S)	mg/L	6.2	6.8	9.4	10.5	9.8	3.0	8272825

RDL = Reportable Detection Limit

(1) Dissolved greater than total. Reanalysis yields similar results.



Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		QQ7304	QQ7305		QQ7306		
Sampling Date		2016/05/16 11:18	2016/05/16 10:55		2016/05/16 12:05		
COC Number		08421154	08421154		08421154		
	UNITS	MW15-09S	MW15-10S	QC Batch	MW15-10D	RDL	QC Batch
<b>Misc. Inorganics</b>							
Dissolved Hardness (CaCO3)	mg/L	227	327	8273585	2020	0.50	8273585
<b>Elements</b>							
Dissolved Mercury (Hg)	mg/L	<0.000020	<0.000020	8275384	<0.000020	0.000020	8275384
<b>Dissolved Metals by ICPMS</b>							
Dissolved Aluminum (Al)	mg/L	0.00059	0.00281	8275057	0.0298	0.00050	8275081
Dissolved Antimony (Sb)	mg/L	0.000153	0.000195	8275057	<0.000020	0.000020	8275081
Dissolved Arsenic (As)	mg/L	0.000535	0.00966	8275057	0.000203	0.000020	8275081
Dissolved Barium (Ba)	mg/L	0.188	0.119	8275057	0.266	0.000020	8275081
Dissolved Beryllium (Be)	mg/L	<0.000010	0.000026	8275057	0.000540	0.000010	8275081
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	8275057	<0.0000050	0.0000050	8275081
Dissolved Boron (B)	mg/L	<0.010	<0.010	8275057	0.011	0.010	8275081
Dissolved Cadmium (Cd)	mg/L	0.0000120	0.000798	8275057	0.0000170	0.0000050	8275081
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	8275057	<0.00010	0.00010	8275081
Dissolved Cobalt (Co)	mg/L	0.000204	0.00665	8275057	0.000213	0.0000050	8275081
Dissolved Copper (Cu)	mg/L	0.000129	0.000559	8275057	0.00216	0.000050	8275081
Dissolved Iron (Fe)	mg/L	<0.0010	0.241	8275057	1.35	0.0010	8275081
Dissolved Lead (Pb)	mg/L	<0.0000050	0.0000190	8275057	0.0000090	0.0000050	8275081
Dissolved Lithium (Li)	mg/L	0.00289	0.00498	8275057	0.249	0.00050	8275081
Dissolved Manganese (Mn)	mg/L	0.164	1.09	8275057	5.16	0.000050	8275081
Dissolved Molybdenum (Mo)	mg/L	0.00739 (1)	0.00199	8275057	0.000347	0.000050	8275081
Dissolved Nickel (Ni)	mg/L	0.000480	0.0101	8275057	0.000507	0.000020	8275081
Dissolved Phosphorus (P)	mg/L	<0.0020	<0.0020	8275057	0.0125	0.0020	8275081
Dissolved Selenium (Se)	mg/L	0.000762	0.00187	8275057	<0.000040	0.000040	8275081
Dissolved Silicon (Si)	mg/L	4.47	4.48	8275057	38.0	0.050	8275081
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	8275057	<0.0000050	0.0000050	8275081
Dissolved Strontium (Sr)	mg/L	0.312	0.562	8275057	2.77	0.000050	8275081
Dissolved Thallium (Tl)	mg/L	<0.0000020	0.0000060	8275057	0.0000030	0.0000020	8278115
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	8275057	<0.00020	0.00020	8275081
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	8275057	<0.00050	0.00050	8275081
Dissolved Uranium (U)	mg/L	0.00345	0.00240	8275057	0.000258	0.0000020	8275081
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	8275057	<0.00020	0.00020	8275081
RDL = Reportable Detection Limit							
(1) Dissolved greater than total. Reanalysis yields similar results.							

Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		OQ7304	OQ7305		OQ7306		
Sampling Date		2016/05/16 11:18	2016/05/16 10:55		2016/05/16 12:05		
COC Number		08421154	08421154		08421154		
	UNITS	MW15-09S	MW15-10S	QC Batch	MW15-10D	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	0.00035	0.0142	8275057	0.00224	0.00010	8275081
Dissolved Zirconium (Zr)	mg/L	<0.00010	<0.00010	8275057	0.00144	0.00010	8275081
Dissolved Calcium (Ca)	mg/L	73.1	117	8272825	593	0.050	8293416
Dissolved Magnesium (Mg)	mg/L	10.9	8.29	8272825	71.1	0.050	8293416
Dissolved Potassium (K)	mg/L	2.10	2.43	8272825	8.57	0.050	8293416
Dissolved Sodium (Na)	mg/L	4.87	12.8	8272825	20.6	0.050	8293416
Dissolved Sulphur (S)	mg/L	6.0	9.9	8272825	<3.0	3.0	8272825
RDL = Reportable Detection Limit							

Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		OQ7307		OQ7308	OQ7309	OQ7310		
Sampling Date		2016/05/13 14:10		2016/05/14 19:15	2016/05/15 12:24	2016/05/14 15:00		
COC Number		08421154		08421154	08421154	08421154		
	UNITS	BH95G-22	QC Batch	BH95G-25S	BH95G-25D	BH95G-30	RDL	QC Batch
<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO3)	mg/L	176	8273585	528	621	225	0.50	8273585
<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	<0.000020	8275384	<0.000020	<0.000020	<0.000020	0.000020	8275384
<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	0.00186	8275081	<0.00050	0.00089	0.00098	0.00050	8275081
Dissolved Antimony (Sb)	mg/L	0.000083	8275081	<0.000020	0.000021	0.000035	0.000020	8275081
Dissolved Arsenic (As)	mg/L	0.000081	8275081	0.00146	0.000703	0.000085	0.000020	8275081
Dissolved Barium (Ba)	mg/L	0.102	8275081	0.0623	0.0285	0.0747	0.000020	8275081
Dissolved Beryllium (Be)	mg/L	<0.000010	8275081	<0.000010	<0.000010	<0.000010	0.000010	8275081
Dissolved Bismuth (Bi)	mg/L	<0.0000050	8275081	<0.0000050	<0.0000050	<0.0000050	0.0000050	8275081
Dissolved Boron (B)	mg/L	<0.010	8275081	<0.010	<0.010	<0.010	0.010	8275081
Dissolved Cadmium (Cd)	mg/L	0.000167	8275081	0.0000090	0.0000060	0.0000960	0.0000050	8275081
Dissolved Chromium (Cr)	mg/L	<0.00010	8275081	<0.00010	<0.00010	<0.00010	0.00010	8275081
Dissolved Cobalt (Co)	mg/L	0.0000200	8275081	0.000285	0.000301	0.0000250	0.0000050	8275081
Dissolved Copper (Cu)	mg/L	0.000761	8275081	0.000116	0.000086	0.000595	0.000050	8275081
Dissolved Iron (Fe)	mg/L	0.0023	8275081	0.0023	0.0021	<0.0010	0.0010	8275081
Dissolved Lead (Pb)	mg/L	0.0000310	8275081	0.0000140	<0.0000050	0.0000840	0.0000050	8275081
Dissolved Lithium (Li)	mg/L	0.00178	8275081	0.0118	0.0122	0.00218	0.00050	8275081
Dissolved Manganese (Mn)	mg/L	0.00645	8275081	0.407	0.421	0.00243	0.000050	8275081
Dissolved Molybdenum (Mo)	mg/L	0.000203	8275081	0.00164	0.000312	0.00210	0.000050	8275081
Dissolved Nickel (Ni)	mg/L	0.000211	8275081	0.000426	0.000377	0.000558	0.000020	8275081
Dissolved Phosphorus (P)	mg/L	0.0031	8275081	0.0029	<0.0020	0.0048	0.0020	8275081
Dissolved Selenium (Se)	mg/L	0.000592	8275081	<0.000040	<0.000040	0.00258	0.000040	8275081
Dissolved Silicon (Si)	mg/L	3.11	8275081	6.48	5.50	3.51	0.050	8275081
Dissolved Silver (Ag)	mg/L	0.0000070	8275081	<0.0000050	0.0000060	<0.0000050	0.0000050	8275081
Dissolved Strontium (Sr)	mg/L	0.170	8275081	0.508	0.552	0.247	0.000050	8275081
Dissolved Thallium (Tl)	mg/L	0.0000020	8275081	0.0000040	0.0000020	<0.0000020	0.0000020	8275081
Dissolved Tin (Sn)	mg/L	<0.00020	8275081	<0.00020	<0.00020	<0.00020	0.00020	8275081
Dissolved Titanium (Ti)	mg/L	<0.00050	8275081	<0.00050	<0.00050	<0.00050	0.00050	8275081
Dissolved Uranium (U)	mg/L	0.00223	8275081	0.00292	0.00672	0.00255	0.0000020	8275081
Dissolved Vanadium (V)	mg/L	<0.00020	8275081	<0.00020	<0.00020	<0.00020	0.00020	8275081
Dissolved Zinc (Zn)	mg/L	0.00479	8275081	0.00048	0.00953	0.00697	0.00010	8275081
RDL = Reportable Detection Limit								

Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		OQ7307		OQ7308	OQ7309	OQ7310		
Sampling Date		2016/05/13 14:10		2016/05/14 19:15	2016/05/15 12:24	2016/05/14 15:00		
COC Number		08421154		08421154	08421154	08421154		
	UNITS	BH95G-22	QC Batch	BH95G-25S	BH95G-25D	BH95G-30	RDL	QC Batch
Dissolved Zirconium (Zr)	mg/L	<0.00010	8275081	<0.00010	0.00106 (1)	<0.00010	0.00010	8275081
Dissolved Calcium (Ca)	mg/L	56.0	8278074	145	157	78.6	0.050	8272825
Dissolved Magnesium (Mg)	mg/L	8.93	8278074	40.4	55.6	7.07	0.050	8272825
Dissolved Potassium (K)	mg/L	1.31	8278074	6.41	4.48	2.03	0.050	8272825
Dissolved Sodium (Na)	mg/L	0.925	8278074	4.55	2.44	1.65	0.050	8272825
Dissolved Sulphur (S)	mg/L	16.2 (1)	8278074	62.3	85.3	7.9	3.0	8272825

RDL = Reportable Detection Limit

(1) Dissolved greater than total. Reanalysis yields similar results.

Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		OQ7311		OQ7312		OQ7313		
Sampling Date		2016/05/14 13:20		2016/05/14 09:00		2016/05/14 09:15		
COC Number		08421154		08421154		08421154		
	UNITS	BH95G-33D	QC Batch	MW-FB	QC Batch	BH95G-GWD1	RDL	QC Batch
<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO3)	mg/L	237	8273585	<0.50	8273585	261	0.50	8273585
<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	<0.0000020	8275384	<0.0000020	8275384	<0.0000020	0.0000020	8275384
<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	0.00059	8275081	<0.00050	8275081	0.00225	0.00050	8275081
Dissolved Antimony (Sb)	mg/L	<0.000020	8275081	<0.000020	8275081	0.000051	0.000020	8275081
Dissolved Arsenic (As)	mg/L	0.000286	8275081	<0.000020	8275081	0.000485	0.000020	8275081
Dissolved Barium (Ba)	mg/L	0.0794	8275081	<0.000020	8275081	0.0833	0.000020	8275081
Dissolved Beryllium (Be)	mg/L	<0.000010	8275081	<0.000010	8275081	<0.000010	0.000010	8275081
Dissolved Bismuth (Bi)	mg/L	<0.0000050	8275081	<0.0000050	8275081	<0.0000050	0.0000050	8275081
Dissolved Boron (B)	mg/L	<0.010	8275081	<0.010	8275081	<0.010	0.010	8275081
Dissolved Cadmium (Cd)	mg/L	<0.0000050	8275081	<0.0000050	8275081	0.0000120	0.0000050	8275081
Dissolved Chromium (Cr)	mg/L	<0.00010	8275081	<0.00010	8275081	<0.00010	0.00010	8275081
Dissolved Cobalt (Co)	mg/L	<0.0000050	8275081	<0.0000050	8275081	0.000207	0.0000050	8275081
Dissolved Copper (Cu)	mg/L	0.000096	8275081	<0.000050	8275081	0.000088	0.000050	8275081
Dissolved Iron (Fe)	mg/L	<0.0010	8275081	<0.0010	8275081	<0.0010	0.0010	8275081
Dissolved Lead (Pb)	mg/L	<0.0000050	8275081	<0.0000050	8275081	0.0000120	0.0000050	8275081
Dissolved Lithium (Li)	mg/L	0.00122	8275081	<0.00050	8275081	0.00120	0.00050	8275081
Dissolved Manganese (Mn)	mg/L	0.000384	8275081	<0.000050	8275081	0.0506	0.000050	8275081
Dissolved Molybdenum (Mo)	mg/L	0.00142 (1)	8279202	<0.000050	8275081	0.00158 (1)	0.000050	8279202
Dissolved Nickel (Ni)	mg/L	0.000521	8275081	<0.000020	8275081	0.00225	0.000020	8275081
Dissolved Phosphorus (P)	mg/L	0.0038	8275081	0.0030	8275081	0.0045	0.0020	8275081
Dissolved Selenium (Se)	mg/L	0.00389	8275081	<0.000040	8275081	0.00455	0.000040	8275081
Dissolved Silicon (Si)	mg/L	3.14	8275081	<0.050	8275081	3.31	0.050	8275081
Dissolved Silver (Ag)	mg/L	<0.0000050	8275081	<0.0000050	8275081	<0.0000050	0.0000050	8275081
Dissolved Strontium (Sr)	mg/L	0.244	8275081	0.000060	8275081	0.261	0.000050	8275081
Dissolved Thallium (Tl)	mg/L	<0.0000020	8275081	<0.0000020	8275081	0.0000030	0.0000020	8275081
Dissolved Tin (Sn)	mg/L	<0.00020	8275081	<0.00020	8275081	<0.00020	0.00020	8275081
Dissolved Titanium (Ti)	mg/L	<0.00050	8275081	<0.00050	8275081	<0.00050	0.00050	8275081
Dissolved Uranium (U)	mg/L	0.00440	8275081	0.0000020	8275081	0.00436	0.0000020	8275081
Dissolved Vanadium (V)	mg/L	<0.00020	8275081	<0.00020	8275081	<0.00020	0.00020	8275081
RDL = Reportable Detection Limit								
(1) Dissolved greater than total. Reanalysis yields similar results.								

Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		OQ7311		OQ7312		OQ7313		
Sampling Date		2016/05/14 13:20		2016/05/14 09:00		2016/05/14 09:15		
COC Number		08421154		08421154		08421154		
	UNITS	BH95G-33D	QC Batch	MW-FB	QC Batch	BH95G-GWD1	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	0.00014	8275081	<0.00010	8275081	0.00036	0.00010	8275081
Dissolved Zirconium (Zr)	mg/L	<0.00010	8275081	<0.00010	8275081	<0.00010	0.00010	8275081
Dissolved Calcium (Ca)	mg/L	79.8	8272825	<0.050	8272825	89.2	0.050	8272825
Dissolved Magnesium (Mg)	mg/L	9.24	8272825	<0.050	8272825	9.31	0.050	8272825
Dissolved Potassium (K)	mg/L	0.987	8272825	<0.050	8272825	1.02	0.050	8272825
Dissolved Sodium (Na)	mg/L	0.820	8272825	<0.050	8272825	0.851	0.050	8272825
Dissolved Sulphur (S)	mg/L	22.1	8272825	<3.0	8272825	21.4	3.0	8272825
RDL = Reportable Detection Limit								

Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		OQ7297		OQ7312		
Sampling Date		2016/05/15 09:36		2016/05/14 09:00		
COC Number		08421153		08421154		
	UNITS	MW15-03D	QC Batch	MW-FB	RDL	QC Batch
<b>Calculated Parameters</b>						
Total Hardness (CaCO3)	mg/L	215	8272394	<0.50	0.50	8273584
<b>Elements</b>						
Total Mercury (Hg)	mg/L	<0.0000020	8275459	<0.0000020	0.0000020	8275459
<b>Total Metals by ICPMS</b>						
Total Aluminum (Al)	mg/L	0.0475	8275756	<0.00050	0.00050	8275756
Total Antimony (Sb)	mg/L	0.000131	8275756	<0.000020	0.000020	8275756
Total Arsenic (As)	mg/L	0.00254	8275756	<0.000020	0.000020	8275756
Total Barium (Ba)	mg/L	0.0492	8275756	<0.000020	0.000020	8275756
Total Beryllium (Be)	mg/L	0.000015	8275756	<0.000010	0.000010	8275756
Total Bismuth (Bi)	mg/L	<0.0000050	8275756	<0.0000050	0.0000050	8275756
Total Boron (B)	mg/L	<0.010	8275756	<0.010	0.010	8275756
Total Cadmium (Cd)	mg/L	0.0000190	8275756	<0.0000050	0.0000050	8275756
Total Chromium (Cr)	mg/L	0.00025	8275756	<0.00010	0.00010	8275756
Total Cobalt (Co)	mg/L	0.000109	8275756	<0.0000050	0.0000050	8275756
Total Copper (Cu)	mg/L	0.000732	8275756	<0.000050	0.000050	8275756
Total Iron (Fe)	mg/L	1.72	8275756	<0.0010	0.0010	8275756
Total Lead (Pb)	mg/L	0.000200	8275756	<0.0000050	0.0000050	8275756
Total Lithium (Li)	mg/L	0.00627	8275756	0.00067	0.00050	8275756
Total Manganese (Mn)	mg/L	0.0607	8275756	<0.000050	0.000050	8275756
Total Molybdenum (Mo)	mg/L	0.00322	8275756	<0.000050	0.000050	8275756
Total Nickel (Ni)	mg/L	0.000425	8275756	<0.000020	0.000020	8275756
Total Phosphorus (P)	mg/L	0.0112	8275756	<0.0020	0.0020	8275756
Total Selenium (Se)	mg/L	<0.000040	8275756	<0.000040	0.000040	8275756
Total Silicon (Si)	mg/L	5.27	8275756	<0.050	0.050	8275756
Total Silver (Ag)	mg/L	0.0000070	8275756	<0.0000050	0.0000050	8275756
Total Strontium (Sr)	mg/L	0.258	8275756	<0.000050	0.000050	8275756
Total Thallium (Tl)	mg/L	<0.0000020	8275756	<0.0000020	0.0000020	8275756
Total Tin (Sn)	mg/L	<0.00020	8275756	<0.00020	0.00020	8275756
Total Titanium (Ti)	mg/L	0.00272	8275756	<0.00050	0.00050	8275756
Total Uranium (U)	mg/L	0.00240	8275756	<0.0000020	0.0000020	8275756
Total Vanadium (V)	mg/L	<0.00020	8275756	<0.00020	0.00020	8275756
Total Zinc (Zn)	mg/L	0.00166	8275756	<0.00010	0.00010	8275756
RDL = Reportable Detection Limit						

Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		OQ7297		OQ7312		
Sampling Date		2016/05/15 09:36		2016/05/14 09:00		
COC Number		08421153		08421154		
	UNITS	MW15-03D	QC Batch	MW-FB	RDL	QC Batch
Total Zirconium (Zr)	mg/L	0.00143	8275756	<0.00010	0.00010	8275756
Total Calcium (Ca)	mg/L	58.6	8272444	<0.050	0.050	8272444
Total Magnesium (Mg)	mg/L	16.5	8272444	<0.050	0.050	8272444
Total Potassium (K)	mg/L	2.54	8272444	<0.050	0.050	8272444
Total Sodium (Na)	mg/L	2.14	8272444	<0.050	0.050	8272444
Total Sulphur (S)	mg/L	7.2	8272444	<3.0	3.0	8272444
RDL = Reportable Detection Limit						



Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		OQ7295	OQ7296	OQ7298	OQ7299	OQ7300		
Sampling Date		2016/05/16 17:40	2016/05/15 10:00	2016/05/15 12:10	2016/05/15 11:00	2016/05/15 11:38		
COC Number		08421153	08421153	08421153	08421153	08421153		
	UNITS	MW15-01	MW15-03S	MW15-04S	DUP 2	MW15-04D	RDL	QC Batch
<b>Calculated Parameters</b>								
Total Hardness (CaCO3)	mg/L	196	149	768	144	145	0.50	8272394
<b>Elements</b>								
Total Mercury (Hg)	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000020	8275459
<b>Total Metals by ICPMS</b>								
Total Aluminum (Al)	mg/L	1.50	3.05	36.5	2.32	0.521	0.0030	8274504
Total Antimony (Sb)	mg/L	0.000102	0.000152	<0.000050	0.000137	<0.000050	0.000050	8274504
Total Arsenic (As)	mg/L	0.00109	0.00320	0.0273	0.00288	0.00301	0.000020	8274504
Total Barium (Ba)	mg/L	0.0349	0.117	1.74	0.100	0.0724	0.00010	8274504
Total Beryllium (Be)	mg/L	0.000058	0.000245	0.00211	0.000212	0.000041	0.000010	8274504
Total Bismuth (Bi)	mg/L	0.000024	0.000086	0.00206	0.000110	<0.000020	0.000020	8274504
Total Boron (B)	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	8274504
Total Cadmium (Cd)	mg/L	0.000135	0.000249	0.00504	0.000213	0.0000750	0.0000050	8274504
Total Chromium (Cr)	mg/L	0.00667	0.0144	0.0904	0.0113	0.00228	0.00050	8274504
Total Cobalt (Co)	mg/L	0.00164	0.00552	0.103	0.00449	0.00146	0.000010	8274504
Total Copper (Cu)	mg/L	0.00815	0.0280	0.443	0.0249	0.00437	0.00020	8274504
Total Iron (Fe)	mg/L	4.72	8.23	54.7	7.10	1.24	0.0050	8274504
Total Lead (Pb)	mg/L	0.00338	0.0128	0.424	0.0110	0.00175	0.000050	8274504
Total Lithium (Li)	mg/L	0.00225	0.00420	0.0316	0.00314	0.00098	0.00050	8274504
Total Manganese (Mn)	mg/L	0.110	0.490	5.28	0.389	0.202	0.00010	8274504
Total Molybdenum (Mo)	mg/L	0.00127	0.00887	0.00102	0.00765	0.00244	0.000050	8274504
Total Nickel (Ni)	mg/L	0.00278	0.0145	0.150	0.0126	0.00256	0.00010	8274504
Total Phosphorus (P)	mg/L	0.217	0.217	6.60	0.172	0.060	0.010	8274504
Total Selenium (Se)	mg/L	0.000470	0.000322	0.000778	0.000325	0.000059	0.000040	8274504
Total Silicon (Si)	mg/L	3.61	6.28	44.9	5.42	3.95	0.10	8274504
Total Silver (Ag)	mg/L	0.000956	0.00105	0.0135	0.00136	0.000133	0.0000050	8274504
Total Strontium (Sr)	mg/L	0.189	0.164	1.01	0.160	0.206	0.000050	8274504
Total Thallium (Tl)	mg/L	0.0000150	0.0000700	0.000396	0.0000690	0.0000150	0.0000020	8274504
Total Tin (Sn)	mg/L	0.00028	0.00046	0.00050	0.00036	0.00033	0.00020	8274504
Total Titanium (Ti)	mg/L	0.0892	0.0956	0.217	0.0752	0.0192	0.0050	8274504
Total Uranium (U)	mg/L	0.00208	0.00120	0.00537	0.00113	0.00119	0.0000050	8274504
Total Vanadium (V)	mg/L	0.00782	0.00884	0.0641	0.00721	0.00131	0.00050	8274504
Total Zinc (Zn)	mg/L	0.0304	0.0449	0.494	0.0339	0.0057	0.0010	8274504
RDL = Reportable Detection Limit								

Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		OQ7295	OQ7296	OQ7298	OQ7299	OQ7300		
Sampling Date		2016/05/16 17:40	2016/05/15 10:00	2016/05/15 12:10	2016/05/15 11:00	2016/05/15 11:38		
COC Number		08421153	08421153	08421153	08421153	08421153		
	UNITS	MW15-01	MW15-03S	MW15-04S	DUP 2	MW15-04D	RDL	QC Batch
Total Zirconium (Zr)	mg/L	0.00040	0.00049	0.00109	0.00037	0.00029	0.00010	8274504
Total Calcium (Ca)	mg/L	66.3	46.8	261	46.5	49.0	0.25	8272444
Total Magnesium (Mg)	mg/L	7.44	7.86	28.4	6.71	5.55	0.25	8272444
Total Potassium (K)	mg/L	0.72	2.80	8.58	2.33	2.44	0.25	8272444
Total Sodium (Na)	mg/L	0.92	4.49	1.24	3.31	1.88	0.25	8272444
Total Sulphur (S)	mg/L	20	<15	<15	<15	<15	15	8272444

RDL = Reportable Detection Limit

Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		OQ7301	OQ7302	OQ7303	OQ7304	OQ7305		
Sampling Date		2016/05/15 13:30	2016/05/15 14:10	2016/05/15 15:32	2016/05/16 11:18	2016/05/16 10:55		
COC Number		08421153	08421153	08421153	08421154	08421154		
	UNITS	MW15-05D	MW15-07S	MW15-07D	MW15-09S	MW15-10S	RDL	QC Batch

Calculated Parameters								
Total Hardness (CaCO3)	mg/L	160	547	224	252	538	0.50	8272394

Elements								
Total Mercury (Hg)	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000020	8275459

Total Metals by ICPMS								
Total Aluminum (Al)	mg/L	0.590 (1)	20.3	0.847	4.21	46.2	0.0030	8274504
Total Antimony (Sb)	mg/L	0.000118	0.000117	<0.000050	0.000300	0.000271	0.000050	8274504
Total Arsenic (As)	mg/L	0.000374	0.0448	0.000307	0.00292	0.0685	0.000020	8274504
Total Barium (Ba)	mg/L	0.0423	0.579	0.0799	0.337	2.03	0.00010	8274504
Total Beryllium (Be)	mg/L	0.000122	0.00148	0.000019	0.000728	0.00409	0.000010	8274504
Total Bismuth (Bi)	mg/L	0.000030	0.000293	0.000053	0.000336	0.00160	0.000020	8274504
Total Boron (B)	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	8274504
Total Cadmium (Cd)	mg/L	0.000390	0.00148	0.0000380	0.00142	0.0131	0.0000050	8274504
Total Chromium (Cr)	mg/L	0.00056	0.0928	0.00278	0.0156	0.231	0.00050	8274504
Total Cobalt (Co)	mg/L	0.000706	0.130	0.000691	0.00632	0.132	0.000010	8274504
Total Copper (Cu)	mg/L	0.00426	0.566	0.00416	0.0512	0.582	0.00020	8274504
Total Iron (Fe)	mg/L	0.451	56.8	2.59	7.74	115	0.0050	8274504
Total Lead (Pb)	mg/L	0.00460	0.0539	0.00368	0.0406	0.424	0.000050	8274504
Total Lithium (Li)	mg/L	0.00165	0.0314	0.0140	0.00835	0.0545	0.00050	8274504
Total Manganese (Mn)	mg/L	0.0571	2.40	0.110	0.343	4.99	0.00010	8274504
Total Molybdenum (Mo)	mg/L	0.000490	0.000756	0.000077	0.00413	0.00592	0.000050	8274504
Total Nickel (Ni)	mg/L	0.00079	0.297	0.00140	0.0139	0.275	0.00010	8274504
Total Phosphorus (P)	mg/L	<0.010	2.39	0.053	0.295	5.16	0.010	8274504
Total Selenium (Se)	mg/L	0.00130	0.00329	0.000066	0.00105	0.00315	0.000040	8274504
Total Silicon (Si)	mg/L	3.44	30.8	10.1	10.5	50.8	0.10	8274504
Total Silver (Ag)	mg/L	0.0000610 (2)	0.00408	0.000143	0.00166	0.0105	0.0000050	8274504
Total Strontium (Sr)	mg/L	0.216	0.537	0.353	0.356	0.771	0.000050	8274504
Total Thallium (Tl)	mg/L	0.0000080	0.000223	0.0000090	0.0000980	0.000609	0.000020	8274504
Total Tin (Sn)	mg/L	0.00045	<0.00020	<0.00020	<0.00020	0.00036	0.00020	8274504
Total Titanium (Ti)	mg/L	0.0112	0.103	0.0221	0.0520	0.288	0.0050	8274504
Total Uranium (U)	mg/L	0.00178	0.0109	0.00119	0.00615	0.0236	0.0000050	8274504

RDL = Reportable Detection Limit  
 (1) Duplicate RPD above control limit - (10% of analytes failure allowed).  
 (2) Matrix Spike outside acceptance criteria (10% of analytes failure allowed).

Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		OQ7301	OQ7302	OQ7303	OQ7304	OQ7305		
Sampling Date		2016/05/15 13:30	2016/05/15 14:10	2016/05/15 15:32	2016/05/16 11:18	2016/05/16 10:55		
COC Number		08421153	08421153	08421153	08421154	08421154		
	UNITS	MW15-05D	MW15-07S	MW15-07D	MW15-09S	MW15-10S	RDL	QC Batch
Total Vanadium (V)	mg/L	0.00051	0.0732	0.00257	0.0153	0.151	0.00050	8274504
Total Zinc (Zn)	mg/L	0.0222	0.363	0.0109	0.0784	1.16	0.0010	8274504
Total Zirconium (Zr)	mg/L	0.00058	0.00400	0.00129	0.00030	0.00160	0.00010	8274504
Total Calcium (Ca)	mg/L	54.6	173	64.9	77.9	157	0.25	8272444
Total Magnesium (Mg)	mg/L	5.77	28.2	15.2	13.8	35.7	0.25	8272444
Total Potassium (K)	mg/L	1.52	4.74	1.86	3.03	9.41	0.25	8272444
Total Sodium (Na)	mg/L	1.96	3.92	4.65	5.79	13.9	0.25	8272444
Total Sulphur (S)	mg/L	<15	<15	<15	<15	<15	15	8272444
RDL = Reportable Detection Limit								

Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		OQ7306	OQ7307		OQ7308	OQ7309		
Sampling Date		2016/05/16 12:05	2016/05/13 14:10		2016/05/14 19:15	2016/05/15 12:24		
COC Number		08421154	08421154		08421154	08421154		
	UNITS	MW15-10D	BH95G-22	QC Batch	BH95G-25S	BH95G-25D	RDL	QC Batch
<b>Calculated Parameters</b>								
Total Hardness (CaCO <sub>3</sub> )	mg/L	1900	349	8272394	527	668	0.50	8273584
<b>Elements</b>								
Total Mercury (Hg)	mg/L	<0.000020	0.000035	8275459	<0.000020	<0.000020	0.000020	8275459
<b>Total Metals by ICPMS</b>								
Total Aluminum (Al)	mg/L	0.848	25.0	8274504	1.32	1.73	0.0030	8274504
Total Antimony (Sb)	mg/L	<0.000050	0.000837	8274504	0.000122	0.000222	0.000050	8274504
Total Arsenic (As)	mg/L	0.00105	0.0393	8274504	0.0102	0.00283	0.000020	8274504
Total Barium (Ba)	mg/L	0.406	1.66	8274504	0.0944	0.0693	0.00010	8274504
Total Beryllium (Be)	mg/L	0.00109	0.00240	8274504	0.000130	0.000073	0.000010	8274504
Total Bismuth (Bi)	mg/L	0.000185	0.00515	8274504	0.000071	0.000086	0.000020	8274504
Total Boron (B)	mg/L	<0.050	<0.050	8274504	<0.050	<0.050	0.050	8274504
Total Cadmium (Cd)	mg/L	0.000711	0.0404	8274504	0.0000800	0.000154	0.0000050	8274504
Total Chromium (Cr)	mg/L	0.00285	0.0514	8274504	0.00307	0.00433	0.00050	8274504
Total Cobalt (Co)	mg/L	0.00141	0.127	8274504	0.00143	0.00194	0.000010	8274504
Total Copper (Cu)	mg/L	0.00547	0.943	8274504	0.00480	0.00705	0.00020	8274504
Total Iron (Fe)	mg/L	27.1	405	8274504	10.5	5.86	0.0050	8274504
Total Lead (Pb)	mg/L	0.0146	0.874	8274504	0.00515	0.00957	0.000050	8274504
Total Lithium (Li)	mg/L	0.242	0.0332	8274504	0.0145	0.0159	0.00050	8274504
Total Manganese (Mn)	mg/L	4.68	11.3	8274504	0.461	0.570	0.00010	8274504
Total Molybdenum (Mo)	mg/L	0.000719	0.000517	8274504	0.00164	0.000353	0.000050	8274504
Total Nickel (Ni)	mg/L	0.00186	0.174	8274504	0.00304	0.00277	0.00010	8274504
Total Phosphorus (P)	mg/L	0.065	1.65	8274504	0.110	0.092	0.010	8274504
Total Selenium (Se)	mg/L	0.000096	0.00157	8274504	<0.000040	0.000079	0.000040	8274504
Total Silicon (Si)	mg/L	39.6	74.9	8274504	8.62	8.62	0.10	8274504
Total Silver (Ag)	mg/L	0.000385	0.0126	8274504	0.000129	0.0000880	0.0000050	8274504
Total Strontium (Sr)	mg/L	2.74	0.394	8274504	0.513	0.588	0.000050	8274504
Total Thallium (Tl)	mg/L	0.0000240	0.000656	8274504	0.0000440	0.0000400	0.0000020	8274504
Total Tin (Sn)	mg/L	<0.00020	0.00095	8274504	0.00023	0.00040	0.00020	8274504
Total Titanium (Ti)	mg/L	0.0415	0.400	8274504	0.0659	0.118	0.0050	8274504
Total Uranium (U)	mg/L	0.000364	0.0179	8274504	0.00350	0.00759	0.0000050	8274504
Total Vanadium (V)	mg/L	0.00388	0.0560	8274504	0.00415	0.00512	0.00050	8274504
Total Zinc (Zn)	mg/L	0.0070	3.60	8274504	0.0157	0.0699	0.0010	8274504
RDL = Reportable Detection Limit								

Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		OQ7306	OQ7307		OQ7308	OQ7309		
Sampling Date		2016/05/16 12:05	2016/05/13 14:10		2016/05/14 19:15	2016/05/15 12:24		
COC Number		08421154	08421154		08421154	08421154		
	UNITS	MW15-10D	BH95G-22	QC Batch	BH95G-25S	BH95G-25D	RDL	QC Batch
Total Zirconium (Zr)	mg/L	0.00157	0.00238	8274504	0.00027	0.00078	0.00010	8274504
Total Calcium (Ca)	mg/L	637	96.6	8272444	142	160	0.25	8272444
Total Magnesium (Mg)	mg/L	75.0	26.1	8272444	41.8	64.9	0.25	8272444
Total Potassium (K)	mg/L	8.65	8.72	8272444	6.63	5.03	0.25	8272444
Total Sodium (Na)	mg/L	22.2	1.23	8272444	4.84	2.84	0.25	8272444
Total Sulphur (S)	mg/L	<15	<15	8272444	68	96	15	8272444
RDL = Reportable Detection Limit								

Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		OQ7310	OQ7311	OQ7313		
Sampling Date		2016/05/14 15:00	2016/05/14 13:20	2016/05/14 09:15		
COC Number		08421154	08421154	08421154		
	UNITS	BH95G-30	BH95G-33D	BH95G-GWD1	RDL	QC Batch
<b>Calculated Parameters</b>						
Total Hardness (CaCO3)	mg/L	209	287	293	0.50	8273584
<b>Elements</b>						
Total Mercury (Hg)	mg/L	<0.000020	0.000058	<0.000020	0.000020	8275459
<b>Total Metals by ICPMS</b>						
Total Aluminum (Al)	mg/L	0.259	5.79	5.89	0.0030	8274504
Total Antimony (Sb)	mg/L	0.000054	0.000088	0.000167	0.000050	8274504
Total Arsenic (As)	mg/L	0.000285	0.0153	0.0112	0.000020	8274504
Total Barium (Ba)	mg/L	0.0805	0.284	0.238	0.00010	8274504
Total Beryllium (Be)	mg/L	0.000038	0.000536	0.000500	0.000010	8274504
Total Bismuth (Bi)	mg/L	<0.000020	0.000121	0.000177	0.000020	8274504
Total Boron (B)	mg/L	<0.050	<0.050	<0.050	0.050	8274504
Total Cadmium (Cd)	mg/L	0.000140	0.000191	0.000206	0.0000050	8274504
Total Chromium (Cr)	mg/L	<0.00050	0.00860	0.00700	0.00050	8274504
Total Cobalt (Co)	mg/L	0.000222	0.0215	0.0153	0.000010	8274504
Total Copper (Cu)	mg/L	0.00284	0.0297	0.0297	0.00020	8274504
Total Iron (Fe)	mg/L	0.302	14.3	15.2	0.0050	8274504
Total Lead (Pb)	mg/L	0.00135	0.0118	0.0142	0.000050	8274504
Total Lithium (Li)	mg/L	0.00203	0.00659	0.00643	0.00050	8274504
Total Manganese (Mn)	mg/L	0.0102	2.79	1.69	0.00010	8274504
Total Molybdenum (Mo)	mg/L	0.00197	0.000447	0.000899	0.000050	8274504
Total Nickel (Ni)	mg/L	0.00106	0.0688	0.0495	0.00010	8274504
Total Phosphorus (P)	mg/L	0.027	0.675	0.554	0.010	8274504
Total Selenium (Se)	mg/L	0.00254	0.00428	0.00490	0.000040	8274504
Total Silicon (Si)	mg/L	3.92	11.6	11.4	0.10	8274504
Total Silver (Ag)	mg/L	0.000116	0.000209	0.000186	0.0000050	8274504
Total Strontium (Sr)	mg/L	0.261	0.286	0.307	0.000050	8274504
Total Thallium (Tl)	mg/L	0.0000080	0.0000610	0.0000650	0.0000020	8274504
Total Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	0.00020	8274504
Total Titanium (Ti)	mg/L	0.0062	0.0557	0.0557	0.0050	8274504
Total Uranium (U)	mg/L	0.00280	0.00717	0.00687	0.0000050	8274504
Total Vanadium (V)	mg/L	<0.00050	0.0178	0.0185	0.00050	8274504
Total Zinc (Zn)	mg/L	0.0155	0.0913	0.0717	0.0010	8274504
RDL = Reportable Detection Limit						

Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		OQ7310	OQ7311	OQ7313		
Sampling Date		2016/05/14 15:00	2016/05/14 13:20	2016/05/14 09:15		
COC Number		08421154	08421154	08421154		
	UNITS	BH95G-30	BH95G-33D	BH95G-GWD1	RDL	QC Batch
Total Zirconium (Zr)	mg/L	0.00022	0.00071	0.00096	0.00010	8274504
Total Calcium (Ca)	mg/L	71.7	92.3	95.8	0.25	8272444
Total Magnesium (Mg)	mg/L	7.23	13.6	13.0	0.25	8272444
Total Potassium (K)	mg/L	2.03	1.95	1.78	0.25	8272444
Total Sodium (Na)	mg/L	1.67	0.86	0.89	0.25	8272444
Total Sulphur (S)	mg/L	<15	21	20	15	8272444
RDL = Reportable Detection Limit						



Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** OQ7295  
**Sample ID:** MW15-01  
**Matrix:** Water

**Collected:** 2016/05/16  
**Shipped:**  
**Received:** 2016/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8274249	N/A	2016/05/19	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8274266	2016/05/19	2016/05/19	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8274727	N/A	2016/05/19	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8276146	N/A	2016/05/20	Isabel Choi
Conductance - water	AT/ALK	8274267	N/A	2016/05/19	Maria Maclean
Fluoride	ISE/ISE	8275672	N/A	2016/05/19	Balwinder Bassi
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8272394	N/A	2016/05/24	Andy Lu
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8272442	N/A	2016/05/24	Andy Lu
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8275384	N/A	2016/05/20	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8275459	2016/05/20	2016/05/20	Edwin Lamigo
Ion Balance	CALC	8273223	N/A	2016/05/25	Rob Reinert
Sum of cations, anions	CALC	8273224	N/A	2016/05/25	Rob Reinert
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8272825	N/A	2016/05/24	Andy Lu
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8275057	N/A	2016/05/20	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8274504	2016/05/19	2016/05/20	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8272444	N/A	2016/05/24	Andy Lu
Ammonia-N (Preserved)	KONE/COL	8275822	N/A	2016/05/20	Sherryl Flores
Nitrate+Nitrite (N) (low level)	TRAA/COL	8274905	N/A	2016/05/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8274907	N/A	2016/05/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8273090	N/A	2016/05/24	Andy Lu
Filter and HNO <sub>3</sub> Preserve for Metals	ICP	8274227	N/A	2016/05/19	Irene Popov
pH Water	AT/ALK	8274268	N/A	2016/05/19	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8274739	N/A	2016/05/19	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8274691	2016/05/19	2016/05/19	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8274697	N/A	2016/05/19	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8274843	2016/05/19	2016/05/20	Jamie Sun

**Maxxam ID:** OQ7295 Dup  
**Sample ID:** MW15-01  
**Matrix:** Water

**Collected:** 2016/05/16  
**Shipped:**  
**Received:** 2016/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbon (DOC) - field filtered/preserved	TRAA/COL	8276146	N/A	2016/05/20	Isabel Choi

**Maxxam ID:** OQ7296  
**Sample ID:** MW15-03S  
**Matrix:** Water

**Collected:** 2016/05/15  
**Shipped:**  
**Received:** 2016/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8274249	N/A	2016/05/19	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8274266	2016/05/19	2016/05/19	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8274727	N/A	2016/05/19	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8276144	N/A	2016/05/20	Isabel Choi
Conductance - water	AT/ALK	8274267	N/A	2016/05/19	Maria Maclean
Fluoride	ISE/ISE	8275672	N/A	2016/05/19	Balwinder Bassi

Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** OQ7296  
**Sample ID:** MW15-03S  
**Matrix:** Water

**Collected:** 2016/05/15  
**Shipped:**  
**Received:** 2016/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hardness Total (calculated as CaCO3)	CALC	8272394	N/A	2016/05/24	Andy Lu
Hardness (calculated as CaCO3)	CALC	8272442	N/A	2016/05/24	Andy Lu
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8275384	N/A	2016/05/20	Edwin Lamigo
Mercury (Total-LowLevel) by CVAF	CV/AF	8275459	2016/05/20	2016/05/20	Edwin Lamigo
Ion Balance	CALC	8273223	N/A	2016/05/25	Rob Reinert
Sum of cations, anions	CALC	8273224	N/A	2016/05/25	Rob Reinert
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8272825	N/A	2016/05/24	Andy Lu
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8275057	N/A	2016/05/20	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8274504	2016/05/19	2016/05/20	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8272444	N/A	2016/05/24	Andy Lu
Ammonia-N (Preserved)	KONE/COL	8275822	N/A	2016/05/20	Sherryl Flores
Nitrate+Nitrite (N) (low level)	TRAA/COL	8274909	N/A	2016/05/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8274911	N/A	2016/05/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8273090	N/A	2016/05/24	Andy Lu
Filter and HNO3 Preserve for Metals	ICP	8274227	N/A	2016/05/19	Irene Popov
pH Water	AT/ALK	8274268	N/A	2016/05/19	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8274739	N/A	2016/05/19	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8296648	2016/06/11	2016/06/11	Alex Leung
Total Phosphorus - unpreserved	KONE/COL	8274697	N/A	2016/05/19	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8273554	2016/05/19	2016/05/20	Jamie Sun

**Maxxam ID:** OQ7297  
**Sample ID:** MW15-03D  
**Matrix:** Water

**Collected:** 2016/05/15  
**Shipped:**  
**Received:** 2016/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8274249	N/A	2016/05/19	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8274266	2016/05/19	2016/05/19	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8274727	N/A	2016/05/19	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8276146	N/A	2016/05/20	Isabel Choi
Conductance - water	AT/ALK	8274267	N/A	2016/05/19	Maria Maclean
Fluoride	ISE/ISE	8275667	N/A	2016/05/19	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8272394	N/A	2016/05/24	Andy Lu
Hardness (calculated as CaCO3)	CALC	8272442	N/A	2016/05/24	Andy Lu
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8275384	N/A	2016/05/20	Edwin Lamigo
Mercury (Total-LowLevel) by CVAF	CV/AF	8275459	2016/05/20	2016/05/20	Edwin Lamigo
Ion Balance	CALC	8273223	N/A	2016/05/25	Rob Reinert
Sum of cations, anions	CALC	8273224	N/A	2016/05/25	Rob Reinert
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8272825	N/A	2016/05/24	Andy Lu
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8275057	N/A	2016/05/20	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8272444	N/A	2016/05/24	Andy Lu
Elements by ICPMS Low Level (total)	ICP/CRCM	8275756	N/A	2016/05/21	Andrew An
Ammonia-N (Preserved)	KONE/COL	8275825	N/A	2016/05/20	Sherryl Flores
Nitrate+Nitrite (N) (low level)	TRAA/COL	8274905	N/A	2016/05/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8274907	N/A	2016/05/19	Isaac Wang

Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** OQ7297  
**Sample ID:** MW15-03D  
**Matrix:** Water

**Collected:** 2016/05/15  
**Shipped:**  
**Received:** 2016/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrogen - Nitrate (as N)	CALC	8273090	N/A	2016/05/24	Andy Lu
Filter and HNO3 Preserve for Metals	ICP	8274227	N/A	2016/05/19	Irene Popov
pH Water	AT/ALK	8274268	N/A	2016/05/19	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8274739	N/A	2016/05/19	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8280267	2016/05/26	2016/05/26	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8280275	N/A	2016/05/26	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8273554	2016/05/19	2016/05/20	Jamie Sun

**Maxxam ID:** OQ7298  
**Sample ID:** MW15-04S  
**Matrix:** Water

**Collected:** 2016/05/15  
**Shipped:**  
**Received:** 2016/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8274249	N/A	2016/05/19	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8274266	2016/05/19	2016/05/19	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8274727	N/A	2016/05/19	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8276146	N/A	2016/05/20	Isabel Choi
Conductance - water	AT/ALK	8274267	N/A	2016/05/19	Maria Maclean
Fluoride	ISE/ISE	8275672	N/A	2016/05/19	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8272394	N/A	2016/05/24	Andy Lu
Hardness (calculated as CaCO3)	CALC	8273585	N/A	2016/05/24	Andy Lu
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8275384	N/A	2016/05/20	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8275459	2016/05/20	2016/05/20	Edwin Lamigo
Ion Balance	CALC	8273223	N/A	2016/05/25	Rob Reinert
Sum of cations, anions	CALC	8273224	N/A	2016/05/25	Rob Reinert
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8272825	N/A	2016/05/24	Andy Lu
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8275057	N/A	2016/05/20	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8274504	2016/05/19	2016/05/20	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8272444	N/A	2016/05/24	Andy Lu
Ammonia-N (Preserved)	KONE/COL	8275822	N/A	2016/05/20	Sherryl Flores
Nitrate+Nitrite (N) (low level)	TRAA/COL	8274909	N/A	2016/05/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8274911	N/A	2016/05/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8273090	N/A	2016/05/24	Andy Lu
Filter and HNO3 Preserve for Metals	ICP	8274227	N/A	2016/05/19	Irene Popov
pH Water	AT/ALK	8274268	N/A	2016/05/19	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8274739	N/A	2016/05/19	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8274691	2016/05/19	2016/05/19	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8274697	N/A	2016/05/19	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8273554	2016/05/19	2016/05/20	Jamie Sun

Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** OQ7299  
**Sample ID:** DUP 2  
**Matrix:** Water

**Collected:** 2016/05/15  
**Shipped:**  
**Received:** 2016/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8274249	N/A	2016/05/19	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8274266	2016/05/19	2016/05/19	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8274727	N/A	2016/05/19	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8276144	N/A	2016/05/20	Isabel Choi
Conductance - water	AT/ALK	8274267	N/A	2016/05/19	Maria Maclean
Fluoride	ISE/ISE	8275672	N/A	2016/05/19	Balwinder Bassi
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8272394	N/A	2016/05/24	Andy Lu
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8273585	N/A	2016/05/24	Andy Lu
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8275384	N/A	2016/05/20	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8275459	2016/05/20	2016/05/20	Edwin Lamigo
Ion Balance	CALC	8273223	N/A	2016/05/25	Rob Reinert
Sum of cations, anions	CALC	8273224	N/A	2016/05/25	Rob Reinert
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8272825	N/A	2016/05/24	Andy Lu
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8275057	N/A	2016/05/20	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8274504	2016/05/19	2016/05/20	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8272444	N/A	2016/05/24	Andy Lu
Ammonia-N (Preserved)	KONE/COL	8275822	N/A	2016/05/20	Sherryl Flores
Nitrate+Nitrite (N) (low level)	TRAA/COL	8274909	N/A	2016/05/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8274911	N/A	2016/05/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8273090	N/A	2016/05/24	Andy Lu
Filter and HNO <sub>3</sub> Preserve for Metals	ICP	8274227	N/A	2016/05/19	Irene Popov
pH Water	AT/ALK	8274268	N/A	2016/05/19	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8274739	N/A	2016/05/19	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8274691	2016/05/19	2016/05/19	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8274696	N/A	2016/05/19	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8273554	2016/05/19	2016/05/20	Jamie Sun

**Maxxam ID:** OQ7300  
**Sample ID:** MW15-04D  
**Matrix:** Water

**Collected:** 2016/05/15  
**Shipped:**  
**Received:** 2016/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8274249	N/A	2016/05/19	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8274266	2016/05/19	2016/05/19	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8274727	N/A	2016/05/19	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8276146	N/A	2016/05/20	Isabel Choi
Conductance - water	AT/ALK	8274267	N/A	2016/05/19	Maria Maclean
Fluoride	ISE/ISE	8275672	N/A	2016/05/19	Balwinder Bassi
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8272394	N/A	2016/05/24	Andy Lu
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8273585	N/A	2016/05/24	Andy Lu
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8275384	N/A	2016/05/20	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8275459	2016/05/20	2016/05/20	Edwin Lamigo
Ion Balance	CALC	8273223	N/A	2016/05/25	Rob Reinert
Sum of cations, anions	CALC	8273224	N/A	2016/05/25	Rob Reinert
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8272825	N/A	2016/05/24	Andy Lu

Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** OQ7300  
**Sample ID:** MW15-04D  
**Matrix:** Water

**Collected:** 2016/05/15  
**Shipped:**  
**Received:** 2016/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8275057	N/A	2016/05/20	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8274504	2016/05/19	2016/05/20	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8272444	N/A	2016/05/24	Andy Lu
Ammonia-N (Preserved)	KONE/COL	8275822	N/A	2016/05/20	Sherryl Flores
Nitrate+Nitrite (N) (low level)	TRAA/COL	8274905	N/A	2016/05/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8274907	N/A	2016/05/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8273090	N/A	2016/05/24	Andy Lu
Filter and HNO3 Preserve for Metals	ICP	8274227	N/A	2016/05/19	Irene Popov
pH Water	AT/ALK	8274268	N/A	2016/05/19	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8275948	N/A	2016/05/20	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8274691	2016/05/19	2016/05/19	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8274697	N/A	2016/05/19	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8273554	2016/05/19	2016/05/20	Jamie Sun

**Maxxam ID:** OQ7301  
**Sample ID:** MW15-05D  
**Matrix:** Water

**Collected:** 2016/05/15  
**Shipped:**  
**Received:** 2016/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8274249	N/A	2016/05/19	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8274266	2016/05/19	2016/05/19	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8274727	N/A	2016/05/19	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8276146	N/A	2016/05/20	Isabel Choi
Conductance - water	AT/ALK	8274267	N/A	2016/05/19	Maria Maclean
Fluoride	ISE/ISE	8275667	N/A	2016/05/19	Balwinder Bassi
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8272394	N/A	2016/05/24	Andy Lu
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8273585	N/A	2016/05/24	Andy Lu
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8275384	N/A	2016/05/20	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8275459	2016/05/20	2016/05/20	Edwin Lamigo
Ion Balance	CALC	8273223	N/A	2016/05/26	Andy Lu
Sum of cations, anions	CALC	8273224	N/A	2016/05/25	Andy Lu
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8272825	N/A	2016/05/24	Andy Lu
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8275057	N/A	2016/05/20	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8274504	2016/05/19	2016/05/20	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8272444	N/A	2016/05/24	Andy Lu
Ammonia-N (Preserved)	KONE/COL	8275825	N/A	2016/05/20	Sherryl Flores
Nitrate+Nitrite (N) (low level)	TRAA/COL	8274905	N/A	2016/05/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8274907	N/A	2016/05/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8273090	N/A	2016/05/24	Andy Lu
Filter and HNO3 Preserve for Metals	ICP	8274227	N/A	2016/05/19	Irene Popov
pH Water	AT/ALK	8274268	N/A	2016/05/19	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8274739	N/A	2016/05/19	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8274691	2016/05/19	2016/05/19	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8274697	N/A	2016/05/19	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8273554	2016/05/19	2016/05/20	Jamie Sun

Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** OQ7301 Dup  
**Sample ID:** MW15-05D  
**Matrix:** Water

**Collected:** 2016/05/15  
**Shipped:**  
**Received:** 2016/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Elements by ICPMS Digested LL (total)	ICP/CRCM	8274504	2016/05/19	2016/05/20	Andrew An

**Maxxam ID:** OQ7302  
**Sample ID:** MW15-07S  
**Matrix:** Water

**Collected:** 2016/05/15  
**Shipped:**  
**Received:** 2016/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8274249	N/A	2016/05/19	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8274266	2016/05/19	2016/05/19	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8274727	N/A	2016/05/19	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8276144	N/A	2016/05/20	Isabel Choi
Conductance - water	AT/ALK	8274267	N/A	2016/05/19	Maria Maclean
Fluoride	ISE/ISE	8275667	N/A	2016/05/19	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8272394	N/A	2016/05/24	Andy Lu
Hardness (calculated as CaCO3)	CALC	8273585	N/A	2016/05/24	Andy Lu
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8275384	N/A	2016/05/20	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8275459	2016/05/20	2016/05/20	Edwin Lamigo
Ion Balance	CALC	8273223	N/A	2016/05/25	Rob Reinert
Sum of cations, anions	CALC	8273224	N/A	2016/05/25	Rob Reinert
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8272825	N/A	2016/05/24	Andy Lu
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8275057	N/A	2016/05/20	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8274504	2016/05/19	2016/05/20	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8272444	N/A	2016/05/24	Andy Lu
Ammonia-N (Preserved)	KONE/COL	8275822	N/A	2016/05/20	Sherryl Flores
Nitrate+Nitrite (N) (low level)	TRAA/COL	8274905	N/A	2016/05/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8274907	N/A	2016/05/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8273090	N/A	2016/05/24	Andy Lu
Filter and HNO3 Preserve for Metals	ICP	8274227	N/A	2016/05/19	Irene Popov
pH Water	AT/ALK	8274268	N/A	2016/05/19	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8274739	N/A	2016/05/19	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8274691	2016/05/19	2016/05/19	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8274696	N/A	2016/05/19	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8273554	2016/05/19	2016/05/20	Jamie Sun

**Maxxam ID:** OQ7303  
**Sample ID:** MW15-07D  
**Matrix:** Water

**Collected:** 2016/05/15  
**Shipped:**  
**Received:** 2016/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8274249	N/A	2016/05/19	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8274266	2016/05/19	2016/05/19	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8274727	N/A	2016/05/19	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8276146	N/A	2016/05/20	Isabel Choi
Conductance - water	AT/ALK	8274267	N/A	2016/05/19	Maria Maclean
Fluoride	ISE/ISE	8275667	N/A	2016/05/19	Balwinder Bassi



Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** OQ7303  
**Sample ID:** MW15-07D  
**Matrix:** Water

**Collected:** 2016/05/15  
**Shipped:**  
**Received:** 2016/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hardness Total (calculated as CaCO3)	CALC	8272394	N/A	2016/05/24	Andy Lu
Hardness (calculated as CaCO3)	CALC	8273585	N/A	2016/05/24	Andy Lu
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8275384	N/A	2016/05/20	Edwin Lamigo
Mercury (Total-LowLevel) by CVAF	CV/AF	8275459	2016/05/20	2016/05/20	Edwin Lamigo
Ion Balance	CALC	8273223	N/A	2016/05/25	Rob Reinert
Sum of cations, anions	CALC	8273224	N/A	2016/05/25	Rob Reinert
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8272825	N/A	2016/05/24	Andy Lu
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8275057	N/A	2016/05/20	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8274504	2016/05/19	2016/05/20	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8272444	N/A	2016/05/24	Andy Lu
Ammonia-N (Preserved)	KONE/COL	8275825	N/A	2016/05/20	Sherryl Flores
Nitrate+Nitrite (N) (low level)	TRAA/COL	8274905	N/A	2016/05/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8274907	N/A	2016/05/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8273090	N/A	2016/05/24	Andy Lu
Filter and HNO3 Preserve for Metals	ICP	8274227	N/A	2016/05/19	Irene Popov
pH Water	AT/ALK	8274268	N/A	2016/05/19	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8274739	N/A	2016/05/19	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8280267	2016/05/26	2016/05/26	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8280275	N/A	2016/05/26	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8273554	2016/05/19	2016/05/20	Jamie Sun

**Maxxam ID:** OQ7304  
**Sample ID:** MW15-09S  
**Matrix:** Water

**Collected:** 2016/05/16  
**Shipped:**  
**Received:** 2016/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8274249	N/A	2016/05/19	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8274270	2016/05/19	2016/05/19	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8274727	N/A	2016/05/19	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8276146	N/A	2016/05/20	Isabel Choi
Conductance - water	AT/ALK	8274271	N/A	2016/05/19	Maria Maclean
Fluoride	ISE/ISE	8275672	N/A	2016/05/19	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8272394	N/A	2016/05/24	Andy Lu
Hardness (calculated as CaCO3)	CALC	8273585	N/A	2016/05/24	Andy Lu
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8275384	N/A	2016/05/20	Edwin Lamigo
Mercury (Total-LowLevel) by CVAF	CV/AF	8275459	2016/05/20	2016/05/20	Edwin Lamigo
Ion Balance	CALC	8273223	N/A	2016/05/25	Rob Reinert
Sum of cations, anions	CALC	8273224	N/A	2016/05/25	Rob Reinert
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8272825	N/A	2016/05/24	Andy Lu
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8275057	N/A	2016/05/20	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8274504	2016/05/19	2016/05/20	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8272444	N/A	2016/05/24	Andy Lu
Ammonia-N (Preserved)	KONE/COL	8275825	N/A	2016/05/20	Sherryl Flores
Nitrate+Nitrite (N) (low level)	TRAA/COL	8274909	N/A	2016/05/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8274911	N/A	2016/05/19	Isaac Wang

Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** OQ7304  
**Sample ID:** MW15-09S  
**Matrix:** Water

**Collected:** 2016/05/16  
**Shipped:**  
**Received:** 2016/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrogen - Nitrate (as N)	CALC	8273090	N/A	2016/05/24	Andy Lu
Filter and HNO3 Preserve for Metals	ICP	8274227	N/A	2016/05/19	Irene Popov
pH Water	AT/ALK	8274273	N/A	2016/05/19	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8274739	N/A	2016/05/19	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8274691	2016/05/19	2016/05/19	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8274696	N/A	2016/05/19	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8274843	2016/05/19	2016/05/20	Jamie Sun

**Maxxam ID:** OQ7305  
**Sample ID:** MW15-10S  
**Matrix:** Water

**Collected:** 2016/05/16  
**Shipped:**  
**Received:** 2016/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8274249	N/A	2016/05/19	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8274270	2016/05/19	2016/05/19	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8274727	N/A	2016/05/19	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8276144	N/A	2016/05/20	Isabel Choi
Conductance - water	AT/ALK	8274271	N/A	2016/05/19	Maria Maclean
Fluoride	ISE/ISE	8275672	N/A	2016/05/19	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8272394	N/A	2016/05/24	Andy Lu
Hardness (calculated as CaCO3)	CALC	8273585	N/A	2016/05/24	Andy Lu
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8275384	N/A	2016/05/20	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8275459	2016/05/20	2016/05/20	Edwin Lamigo
Ion Balance	CALC	8273223	N/A	2016/05/25	Rob Reinert
Sum of cations, anions	CALC	8273224	N/A	2016/05/25	Rob Reinert
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8272825	N/A	2016/05/24	Andy Lu
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8275057	N/A	2016/05/21	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8274504	2016/05/19	2016/05/20	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8272444	N/A	2016/05/24	Andy Lu
Ammonia-N (Preserved)	KONE/COL	8275822	N/A	2016/05/20	Sherryl Flores
Nitrate+Nitrite (N) (low level)	TRAA/COL	8274909	N/A	2016/05/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8274911	N/A	2016/05/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8273090	N/A	2016/05/24	Andy Lu
Filter and HNO3 Preserve for Metals	ICP	8274227	N/A	2016/05/19	Irene Popov
pH Water	AT/ALK	8274273	N/A	2016/05/19	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8274739	N/A	2016/05/19	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8274691	2016/05/19	2016/05/19	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8274696	N/A	2016/05/19	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8274843	2016/05/19	2016/05/20	Jamie Sun



Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** OQ7306  
**Sample ID:** MW15-10D  
**Matrix:** Water

**Collected:** 2016/05/16  
**Shipped:**  
**Received:** 2016/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8274249	N/A	2016/05/19	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8274270	2016/05/19	2016/05/19	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8274727	N/A	2016/05/19	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8276146	N/A	2016/05/20	Isabel Choi
Conductance - water	AT/ALK	8274271	N/A	2016/05/19	Maria Maclean
Fluoride	ISE/ISE	8275672	N/A	2016/05/19	Balwinder Bassi
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8272394	N/A	2016/05/24	Andy Lu
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8273585	N/A	2016/05/24	Andy Lu
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8275384	N/A	2016/05/20	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8275459	2016/05/20	2016/05/20	Edwin Lamigo
Ion Balance	CALC	8293322	N/A	2016/06/09	David Huang
Sum of cations, anions	CALC	8273224	N/A	2016/05/25	Rob Reinert
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8293416	N/A	2016/06/09	David Huang
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8275081	N/A	2016/05/24	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8274504	2016/05/19	2016/05/20	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8272444	N/A	2016/05/24	Andy Lu
Ammonia-N (Preserved)	KONE/COL	8275825	N/A	2016/05/20	Sherryl Flores
Nitrate+Nitrite (N) (low level)	TRAA/COL	8274909	N/A	2016/05/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8274911	N/A	2016/05/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8273090	N/A	2016/05/24	Andy Lu
Filter and HNO <sub>3</sub> Preserve for Metals	ICP	8274227	N/A	2016/05/19	Irene Popov
pH Water	AT/ALK	8274273	N/A	2016/05/19	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8275948	N/A	2016/05/20	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8274691	2016/05/19	2016/05/19	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8274696	N/A	2016/05/19	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8274843	2016/05/19	2016/05/20	Jamie Sun

**Maxxam ID:** OQ7307  
**Sample ID:** BH95G-22  
**Matrix:** Water

**Collected:** 2016/05/13  
**Shipped:**  
**Received:** 2016/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8274249	N/A	2016/05/19	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8274266	2016/05/19	2016/05/19	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8274714	N/A	2016/05/19	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8276146	N/A	2016/05/20	Isabel Choi
Conductance - water	AT/ALK	8274267	N/A	2016/05/19	Maria Maclean
Fluoride	ISE/ISE	8275667	N/A	2016/05/19	Balwinder Bassi
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8272394	N/A	2016/05/24	Andy Lu
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8273585	N/A	2016/05/24	Andy Lu
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8275384	N/A	2016/05/20	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8275459	2016/05/20	2016/05/20	Edwin Lamigo
Ion Balance	CALC	8292815	N/A	2016/06/08	David Huang
Sum of cations, anions	CALC	8273224	N/A	2016/05/25	Andy Lu
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8278074	N/A	2016/05/26	Andy Lu

Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**TEST SUMMARY**

**Maxxam ID:** OQ7307  
**Sample ID:** BH95G-22  
**Matrix:** Water

**Collected:** 2016/05/13  
**Shipped:**  
**Received:** 2016/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8275081	N/A	2016/05/21	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8274504	2016/05/19	2016/05/20	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8272444	N/A	2016/05/24	Andy Lu
Ammonia-N (Preserved)	KONE/COL	8275822	N/A	2016/05/20	Sherryl Flores
Nitrate+Nitrite (N) (low level)	TRAA/COL	8274905	N/A	2016/05/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8274907	N/A	2016/05/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8273090	N/A	2016/05/24	Andy Lu
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2016/05/18	Avani Patel
pH Water	AT/ALK	8274268	N/A	2016/05/19	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8274724	N/A	2016/05/19	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8274691	2016/05/19	2016/05/19	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8274697	N/A	2016/05/19	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8273554	2016/05/19	2016/05/20	Jamie Sun

**Maxxam ID:** OQ7307 Dup  
**Sample ID:** BH95G-22  
**Matrix:** Water

**Collected:** 2016/05/13  
**Shipped:**  
**Received:** 2016/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8274249	N/A	2016/05/19	Wilson Au Yueng
Fluoride	ISE/ISE	8275667	N/A	2016/05/19	Balwinder Bassi
Nitrate+Nitrite (N) (low level)	TRAA/COL	8274905	N/A	2016/05/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8274907	N/A	2016/05/19	Isaac Wang

**Maxxam ID:** OQ7308  
**Sample ID:** BH95G-25S  
**Matrix:** Water

**Collected:** 2016/05/14  
**Shipped:**  
**Received:** 2016/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8274249	N/A	2016/05/19	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8274266	2016/05/19	2016/05/19	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8274727	N/A	2016/05/19	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8276144	N/A	2016/05/20	Isabel Choi
Conductance - water	AT/ALK	8274267	N/A	2016/05/19	Maria Maclean
Fluoride	ISE/ISE	8275667	N/A	2016/05/19	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8273584	N/A	2016/05/24	Andy Lu
Hardness (calculated as CaCO3)	CALC	8273585	N/A	2016/05/24	Andy Lu
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8275384	N/A	2016/05/20	Edwin Lamigo
Mercury (Total-LowLevel) by CVAF	CV/AF	8275459	2016/05/20	2016/05/20	Edwin Lamigo
Ion Balance	CALC	8273223	N/A	2016/05/25	Rob Reinert
Sum of cations, anions	CALC	8273224	N/A	2016/05/25	Rob Reinert
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8272825	N/A	2016/05/24	Andy Lu
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8275081	N/A	2016/05/21	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8274504	2016/05/19	2016/05/20	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8272444	N/A	2016/05/24	Andy Lu

Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** OQ7308  
**Sample ID:** BH95G-25S  
**Matrix:** Water

**Collected:** 2016/05/14  
**Shipped:**  
**Received:** 2016/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Ammonia-N (Preserved)	KONE/COL	8275822	N/A	2016/05/20	Sherryl Flores
Nitrate+Nitrite (N) (low level)	TRAA/COL	8274905	N/A	2016/05/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8274907	N/A	2016/05/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8273090	N/A	2016/05/24	Andy Lu
Filter and HNO3 Preserve for Metals	ICP	8274227	N/A	2016/05/19	Irene Popov
pH Water	AT/ALK	8274268	N/A	2016/05/19	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8274739	N/A	2016/05/19	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8274691	2016/05/19	2016/05/19	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8274696	N/A	2016/05/19	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8273554	2016/05/19	2016/05/20	Jamie Sun

**Maxxam ID:** OQ7309  
**Sample ID:** BH95G-25D  
**Matrix:** Water

**Collected:** 2016/05/15  
**Shipped:**  
**Received:** 2016/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8274249	N/A	2016/05/19	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8274266	2016/05/19	2016/05/19	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8274727	N/A	2016/05/19	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8276144	N/A	2016/05/20	Isabel Choi
Conductance - water	AT/ALK	8274267	N/A	2016/05/19	Maria Maclean
Fluoride	ISE/ISE	8275672	N/A	2016/05/19	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8273584	N/A	2016/05/24	Andy Lu
Hardness (calculated as CaCO3)	CALC	8273585	N/A	2016/05/24	Andy Lu
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8275384	N/A	2016/05/20	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8275459	2016/05/20	2016/05/20	Edwin Lamigo
Ion Balance	CALC	8273223	N/A	2016/05/25	Rob Reinert
Sum of cations, anions	CALC	8273224	N/A	2016/05/25	Rob Reinert
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8272825	N/A	2016/05/24	Andy Lu
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8275081	N/A	2016/05/21	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8274504	2016/05/19	2016/05/20	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8272444	N/A	2016/05/24	Andy Lu
Ammonia-N (Preserved)	KONE/COL	8275822	N/A	2016/05/20	Sherryl Flores
Nitrate+Nitrite (N) (low level)	TRAA/COL	8274905	N/A	2016/05/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8274907	N/A	2016/05/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8273090	N/A	2016/05/24	Andy Lu
Filter and HNO3 Preserve for Metals	ICP	8274227	N/A	2016/05/19	Irene Popov
pH Water	AT/ALK	8274268	N/A	2016/05/19	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8274739	N/A	2016/05/19	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8274691	2016/05/19	2016/05/19	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8274697	N/A	2016/05/19	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8273554	2016/05/19	2016/05/20	Jamie Sun

Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**TEST SUMMARY**

**Maxxam ID:** OQ7310  
**Sample ID:** BH95G-30  
**Matrix:** Water

**Collected:** 2016/05/14  
**Shipped:**  
**Received:** 2016/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8274249	N/A	2016/05/19	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8274266	2016/05/19	2016/05/19	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8274727	N/A	2016/05/19	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8276144	N/A	2016/05/20	Isabel Choi
Conductance - water	AT/ALK	8274267	N/A	2016/05/19	Maria Maclean
Fluoride	ISE/ISE	8275667	N/A	2016/05/19	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8273584	N/A	2016/05/24	Andy Lu
Hardness (calculated as CaCO3)	CALC	8273585	N/A	2016/05/24	Andy Lu
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8275384	N/A	2016/05/20	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8275459	2016/05/20	2016/05/20	Edwin Lamigo
Ion Balance	CALC	8273223	N/A	2016/05/25	Rob Reinert
Sum of cations, anions	CALC	8273224	N/A	2016/05/25	Rob Reinert
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8272825	N/A	2016/05/24	Andy Lu
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8275081	N/A	2016/05/21	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8274504	2016/05/19	2016/05/20	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8272444	N/A	2016/05/24	Andy Lu
Ammonia-N (Preserved)	KONE/COL	8275825	N/A	2016/05/20	Sherryl Flores
Nitrate+Nitrite (N) (low level)	TRAA/COL	8274905	N/A	2016/05/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8274907	N/A	2016/05/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8273090	N/A	2016/05/24	Andy Lu
Filter and HNO3 Preserve for Metals	ICP	8274227	N/A	2016/05/19	Irene Popov
pH Water	AT/ALK	8274268	N/A	2016/05/19	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8274739	N/A	2016/05/19	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8274691	2016/05/19	2016/05/19	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8274697	N/A	2016/05/19	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8274843	2016/05/19	2016/05/20	Jamie Sun

**Maxxam ID:** OQ7310 Dup  
**Sample ID:** BH95G-30  
**Matrix:** Water

**Collected:** 2016/05/14  
**Shipped:**  
**Received:** 2016/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Ammonia-N (Preserved)	KONE/COL	8275825	N/A	2016/05/20	Sherryl Flores

**Maxxam ID:** OQ7311  
**Sample ID:** BH95G-33D  
**Matrix:** Water

**Collected:** 2016/05/14  
**Shipped:**  
**Received:** 2016/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8274249	N/A	2016/05/19	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8274270	2016/05/19	2016/05/19	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8274727	N/A	2016/05/19	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8276146	N/A	2016/05/20	Isabel Choi
Conductance - water	AT/ALK	8274271	N/A	2016/05/19	Maria Maclean
Fluoride	ISE/ISE	8275672	N/A	2016/05/19	Balwinder Bassi

Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**TEST SUMMARY**

**Maxxam ID:** OQ7311  
**Sample ID:** BH95G-33D  
**Matrix:** Water

**Collected:** 2016/05/14  
**Shipped:**  
**Received:** 2016/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hardness Total (calculated as CaCO3)	CALC	8273584	N/A	2016/05/24	Andy Lu
Hardness (calculated as CaCO3)	CALC	8273585	N/A	2016/05/24	Andy Lu
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8275384	N/A	2016/05/20	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8275459	2016/05/20	2016/05/20	Edwin Lamigo
Ion Balance	CALC	8273223	N/A	2016/05/25	Rob Reinert
Sum of cations, anions	CALC	8273224	N/A	2016/05/25	Rob Reinert
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8272825	N/A	2016/05/24	Andy Lu
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8275081	N/A	2016/05/21	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8274504	2016/05/19	2016/05/20	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8272444	N/A	2016/05/24	Andy Lu
Ammonia-N (Preserved)	KONE/COL	8275825	N/A	2016/05/20	Sherryl Flores
Nitrate+Nitrite (N) (low level)	TRAA/COL	8274909	N/A	2016/05/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8274911	N/A	2016/05/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8273090	N/A	2016/05/24	Andy Lu
Filter and HNO3 Preserve for Metals	ICP	8274227	N/A	2016/05/19	Irene Popov
pH Water	AT/ALK	8274273	N/A	2016/05/19	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8274739	N/A	2016/05/19	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8274691	2016/05/19	2016/05/19	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8274696	N/A	2016/05/19	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8274843	2016/05/19	2016/05/20	Jamie Sun

**Maxxam ID:** OQ7311 Dup  
**Sample ID:** BH95G-33D  
**Matrix:** Water

**Collected:** 2016/05/14  
**Shipped:**  
**Received:** 2016/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Fluoride	ISE/ISE	8275672	N/A	2016/05/19	Balwinder Bassi

**Maxxam ID:** OQ7312  
**Sample ID:** MW-FB  
**Matrix:** Water

**Collected:** 2016/05/14  
**Shipped:**  
**Received:** 2016/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8274249	N/A	2016/05/19	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8274270	2016/05/19	2016/05/19	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8274727	N/A	2016/05/19	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8276146	N/A	2016/05/20	Isabel Choi
Conductance - water	AT/ALK	8274271	N/A	2016/05/19	Maria Maclean
Fluoride	ISE/ISE	8275672	N/A	2016/05/19	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8273584	N/A	2016/05/24	Andy Lu
Hardness (calculated as CaCO3)	CALC	8273585	N/A	2016/05/24	Andy Lu
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8275384	N/A	2016/05/20	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8275459	2016/05/20	2016/05/20	Edwin Lamigo
Ion Balance	CALC	8273223	N/A	2016/05/25	Rob Reinert
Sum of cations, anions	CALC	8273224	N/A	2016/05/25	Rob Reinert

Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** OQ7312  
**Sample ID:** MW-FB  
**Matrix:** Water

**Collected:** 2016/05/14  
**Shipped:**  
**Received:** 2016/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8272825	N/A	2016/05/24	Andy Lu
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8275081	N/A	2016/05/21	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8272444	N/A	2016/05/24	Andy Lu
Elements by ICPMS Low Level (total)	ICP/CRCM	8275756	N/A	2016/05/21	Andrew An
Ammonia-N (Preserved)	KONE/COL	8275825	N/A	2016/05/20	Sherryl Flores
Nitrate+Nitrite (N) (low level)	TRAA/COL	8274909	N/A	2016/05/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8274911	N/A	2016/05/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8273090	N/A	2016/05/24	Andy Lu
Filter and HNO3 Preserve for Metals	ICP	8274227	N/A	2016/05/19	Irene Popov
pH Water	AT/ALK	8274273	N/A	2016/05/19	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8274739	N/A	2016/05/19	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8274691	2016/05/19	2016/05/19	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8274697	N/A	2016/05/19	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8274843	2016/05/19	2016/05/20	Jamie Sun

**Maxxam ID:** OQ7312 Dup  
**Sample ID:** MW-FB  
**Matrix:** Water

**Collected:** 2016/05/14  
**Shipped:**  
**Received:** 2016/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (Total-LowLevel) by CVAf	CV/AF	8275459	2016/05/20	2016/05/20	Edwin Lamigo
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8275081	N/A	2016/05/21	Andrew An
Elements by ICPMS Low Level (total)	ICP/CRCM	8275756	N/A	2016/05/21	Andrew An

**Maxxam ID:** OQ7313  
**Sample ID:** BH95G-GWD1  
**Matrix:** Water

**Collected:** 2016/05/14  
**Shipped:**  
**Received:** 2016/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8274249	N/A	2016/05/19	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8274270	2016/05/19	2016/05/19	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8274727	N/A	2016/05/19	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8276146	N/A	2016/05/20	Isabel Choi
Conductance - water	AT/ALK	8274271	N/A	2016/05/19	Maria Maclean
Fluoride	ISE/ISE	8275672	N/A	2016/05/19	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8273584	N/A	2016/05/24	Andy Lu
Hardness (calculated as CaCO3)	CALC	8273585	N/A	2016/05/24	Andy Lu
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8275384	N/A	2016/05/20	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8275459	2016/05/20	2016/05/20	Edwin Lamigo
Ion Balance	CALC	8273223	N/A	2016/05/25	Rob Reinert
Sum of cations, anions	CALC	8273224	N/A	2016/05/25	Rob Reinert
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8272825	N/A	2016/05/24	Andy Lu
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8275081	N/A	2016/05/21	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8274504	2016/05/19	2016/05/20	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8272444	N/A	2016/05/24	Andy Lu

Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**TEST SUMMARY**

**Maxxam ID:** OQ7313  
**Sample ID:** BH95G-GWD1  
**Matrix:** Water

**Collected:** 2016/05/14  
**Shipped:**  
**Received:** 2016/05/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Ammonia-N (Preserved)	KONE/COL	8275822	N/A	2016/05/20	Sherryl Flores
Nitrate+Nitrite (N) (low level)	TRAA/COL	8274909	N/A	2016/05/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8274911	N/A	2016/05/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8273090	N/A	2016/05/24	Andy Lu
Filter and HNO3 Preserve for Metals	ICP	8274227	N/A	2016/05/19	Irene Popov
pH Water	AT/ALK	8274273	N/A	2016/05/19	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8274739	N/A	2016/05/19	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8274691	2016/05/19	2016/05/19	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8274696	N/A	2016/05/19	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8274843	2016/05/19	2016/05/20	Jamie Sun



Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	3.3°C
Package 2	4.0°C
Package 3	5.3°C
Package 4	5.0°C

Revised report V2: Due to client request, samples were recalculated for Ion Balance. Corrected values for sample OQ7307 are included in this report (MM4).

Revised report V3: Due to client request, sample OQ7306 was recalculated for Ion Balance, sample OQ7296 was requested for reanalysis for Total and Dissolved Phosphorus. Corrected values are included in this report (MM4).

Sample OQ7295-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OQ7296-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OQ7298-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OQ7299-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OQ7300-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OQ7301-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OQ7302-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OQ7303-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OQ7304-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OQ7305-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OQ7306-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OQ7307-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OQ7308-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OQ7309-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.



Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### GENERAL COMMENTS

Sample QQ7310-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample QQ7311-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample QQ7313-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample QQ7306, Sum of cations, anions: Test repeated.

Sample QQ7306, Elements by ICPMS Low Level (dissolved): Test repeated.

Sample QQ7306, Na, K, Ca, Mg, S by CRC ICPMS (diss.): Test repeated.

Sample QQ7311, Elements by ICPMS Low Level (dissolved): Test repeated.

Sample QQ7313, Elements by ICPMS Low Level (dissolved): Test repeated.

**Results relate only to the items tested.**

Maxxam Job #: B638464  
Report Date: 2016/06/20

**QUALITY ASSURANCE REPORT**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8273554	Total Suspended Solids	2016/05/20			97	80 - 120	<1.0	mg/L		
8274249	Acidity (pH 4.5)	2016/05/19					<0.50	mg/L	NC	20
8274249	Acidity (pH 8.3)	2016/05/19			100	80 - 120	<0.50	mg/L	5.3	20
8274266	Alkalinity (PP as CaCO3)	2016/05/19					<0.50	mg/L	NC	20
8274266	Alkalinity (Total as CaCO3)	2016/05/19	72 (1)	80 - 120	101	80 - 120	<0.50	mg/L	NC	20
8274266	Bicarbonate (HCO3)	2016/05/19					<0.50	mg/L	NC	20
8274266	Carbonate (CO3)	2016/05/19					<0.50	mg/L	NC	20
8274266	Hydroxide (OH)	2016/05/19					<0.50	mg/L	NC	20
8274267	Conductivity	2016/05/19			101	80 - 120	<1.0	uS/cm	0.24	20
8274268	pH	2016/05/19			101	97 - 103			1.3	N/A
8274270	Alkalinity (PP as CaCO3)	2016/05/19					<0.50	mg/L	NC	20
8274270	Alkalinity (Total as CaCO3)	2016/05/19	NC	80 - 120	99	80 - 120	<0.50	mg/L	0.056	20
8274270	Bicarbonate (HCO3)	2016/05/19					<0.50	mg/L	0.056	20
8274270	Carbonate (CO3)	2016/05/19					<0.50	mg/L	NC	20
8274270	Hydroxide (OH)	2016/05/19					<0.50	mg/L	NC	20
8274271	Conductivity	2016/05/19			101	80 - 120	<1.0	uS/cm	0	20
8274273	pH	2016/05/19			102	97 - 103			0.37	N/A
8274504	Total Aluminum (Al)	2016/05/20	NC	80 - 120	107	80 - 120	<0.0030	mg/L	24 (2)	20
8274504	Total Antimony (Sb)	2016/05/20	96	80 - 120	106	80 - 120	<0.000050	mg/L	NC	20
8274504	Total Arsenic (As)	2016/05/20	110	80 - 120	104	80 - 120	<0.000020	mg/L	3.7	20
8274504	Total Barium (Ba)	2016/05/20	NC	80 - 120	106	80 - 120	<0.00010	mg/L	3.1	20
8274504	Total Beryllium (Be)	2016/05/20	105	80 - 120	105	80 - 120	<0.000010	mg/L	5.0	20
8274504	Total Bismuth (Bi)	2016/05/20	108	80 - 120	107	80 - 120	<0.000020	mg/L	NC	20
8274504	Total Boron (B)	2016/05/20	104	80 - 120	101	80 - 120	<0.050	mg/L	NC	20
8274504	Total Cadmium (Cd)	2016/05/20	101	80 - 120	110	80 - 120	<0.0000050	mg/L	2.3	20
8274504	Total Calcium (Ca)	2016/05/20					<0.050	mg/L	0.49	20
8274504	Total Cesium (Cs)	2016/05/20							NC	20
8274504	Total Chromium (Cr)	2016/05/20	112	80 - 120	105	80 - 120	<0.00050	mg/L	NC	20
8274504	Total Cobalt (Co)	2016/05/20	109	80 - 120	106	80 - 120	<0.000010	mg/L	0.28	20
8274504	Total Copper (Cu)	2016/05/20	109	80 - 120	107	80 - 120	<0.00020	mg/L	3.2	20
8274504	Total Iron (Fe)	2016/05/20	NC	80 - 120	110	80 - 120	<0.0050	mg/L	9.2	20

Maxxam Job #: B638464  
Report Date: 2016/06/20

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8274504	Total Lanthanum (La)	2016/05/20							1.3	20
8274504	Total Lead (Pb)	2016/05/20	114	80 - 120	106	80 - 120	<0.000050	mg/L	4.0	20
8274504	Total Lithium (Li)	2016/05/20	103	80 - 120	107	80 - 120	<0.00050	mg/L	NC	20
8274504	Total Magnesium (Mg)	2016/05/20					<0.050	mg/L	0.77	20
8274504	Total Manganese (Mn)	2016/05/20	NC	80 - 120	104	80 - 120	<0.00010	mg/L	1.2	20
8274504	Total Mercury (Hg)	2016/05/20							NC	20
8274504	Total Molybdenum (Mo)	2016/05/20	112	80 - 120	101	80 - 120	<0.000050	mg/L	3.7	20
8274504	Total Nickel (Ni)	2016/05/20	109	80 - 120	104	80 - 120	<0.00010	mg/L	2.2	20
8274504	Total Phosphorus (P)	2016/05/20					<0.010	mg/L	NC	20
8274504	Total Potassium (K)	2016/05/20					<0.050	mg/L	0.095	20
8274504	Total Rubidium (Rb)	2016/05/20							0	20
8274504	Total Selenium (Se)	2016/05/20	95	80 - 120	111	80 - 120	<0.000040	mg/L	4.7	20
8274504	Total Silicon (Si)	2016/05/20					<0.10	mg/L	4.9	20
8274504	Total Silver (Ag)	2016/05/20	129 (2)	80 - 120	95	80 - 120	<0.0000050	mg/L	5.0	20
8274504	Total Sodium (Na)	2016/05/20					<0.050	mg/L	1.5	20
8274504	Total Strontium (Sr)	2016/05/20	NC	80 - 120	107	80 - 120	<0.000050	mg/L	1.2	20
8274504	Total Sulphur (S)	2016/05/20					<3.0	mg/L	NC	20
8274504	Total Tellurium (Te)	2016/05/20							NC	20
8274504	Total Thallium (Tl)	2016/05/20	97	80 - 120	97	80 - 120	<0.0000020	mg/L	NC	20
8274504	Total Thorium (Th)	2016/05/20							12	20
8274504	Total Tin (Sn)	2016/05/20	101	80 - 120	106	80 - 120	<0.00020	mg/L	NC	20
8274504	Total Titanium (Ti)	2016/05/20	NC	80 - 120	101	80 - 120	<0.0050	mg/L	NC	20
8274504	Total Uranium (U)	2016/05/20	114	80 - 120	106	80 - 120	<0.0000050	mg/L	4.8	20
8274504	Total Vanadium (V)	2016/05/20	113	80 - 120	102	80 - 120	<0.00050	mg/L	NC	20
8274504	Total Zinc (Zn)	2016/05/20	NC	80 - 120	110	80 - 120	<0.0010	mg/L	1.0	20
8274504	Total Zirconium (Zr)	2016/05/20					<0.00010	mg/L	13	20
8274691	Dissolved Phosphorus (P)	2016/05/19	102	80 - 120	105	80 - 120	<0.0020	mg/L	NC	20
8274696	Total Phosphorus (P)	2016/05/19	90	80 - 120	105	80 - 120	<0.0020	mg/L	7.5	20
8274697	Total Phosphorus (P)	2016/05/19	92	80 - 120	98	80 - 120	<0.0020	mg/L	NC	20
8274714	Dissolved Chloride (Cl)	2016/05/19	NC	80 - 120	101	80 - 120	<0.50	mg/L	5.1	20
8274724	Dissolved Sulphate (SO4)	2016/05/19			98	80 - 120	<0.50	mg/L	1.2	20

Maxxam Job #: B638464  
Report Date: 2016/06/20

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8274727	Dissolved Chloride (Cl)	2016/05/19	NC	80 - 120	107	80 - 120	<0.50	mg/L	0.26	20
8274739	Dissolved Sulphate (SO4)	2016/05/19	107	80 - 120	96	80 - 120	<0.50	mg/L	7.7	20
8274843	Total Suspended Solids	2016/05/20			108	80 - 120	<1.0	mg/L		
8274905	Nitrate plus Nitrite (N)	2016/05/19	104	80 - 120	105	80 - 120	<0.0020	mg/L	1.1	25
8274907	Nitrite (N)	2016/05/19	100	80 - 120	99	80 - 120	<0.0020	mg/L	NC	25
8274909	Nitrate plus Nitrite (N)	2016/05/19	108	80 - 120	108	80 - 120	<0.0020	mg/L	1.9	25
8274911	Nitrite (N)	2016/05/19	96	80 - 120	99	80 - 120	<0.0020	mg/L	NC	25
8275057	Dissolved Aluminum (Al)	2016/05/20	104	80 - 120	105	80 - 120	<0.00050	mg/L	5.0	20
8275057	Dissolved Antimony (Sb)	2016/05/20	95	80 - 120	100	80 - 120	<0.000020	mg/L	NC	20
8275057	Dissolved Arsenic (As)	2016/05/20	102	80 - 120	99	80 - 120	<0.000020	mg/L	NC	20
8275057	Dissolved Barium (Ba)	2016/05/20	NC	80 - 120	101	80 - 120	<0.000020	mg/L	1.2	20
8275057	Dissolved Beryllium (Be)	2016/05/20	99	80 - 120	98	80 - 120	<0.000010	mg/L	NC	20
8275057	Dissolved Bismuth (Bi)	2016/05/20	98	80 - 120	98	80 - 120	<0.0000050	mg/L	NC	20
8275057	Dissolved Boron (B)	2016/05/20	93	80 - 120	94	80 - 120	<0.010	mg/L	NC	20
8275057	Dissolved Cadmium (Cd)	2016/05/20	100	80 - 120	101	80 - 120	<0.0000050	mg/L	NC	20
8275057	Dissolved Calcium (Ca)	2016/05/20					<0.010	mg/L		
8275057	Dissolved Chromium (Cr)	2016/05/20	96	80 - 120	100	80 - 120	<0.00010	mg/L	NC	20
8275057	Dissolved Cobalt (Co)	2016/05/20	96	80 - 120	100	80 - 120	<0.0000050	mg/L	NC	20
8275057	Dissolved Copper (Cu)	2016/05/20	94	80 - 120	102	80 - 120	<0.000050	mg/L	6.0	20
8275057	Dissolved Iron (Fe)	2016/05/20	111	80 - 120	118	80 - 120	<0.0010	mg/L	16	20
8275057	Dissolved Lead (Pb)	2016/05/20	100	80 - 120	99	80 - 120	<0.0000050	mg/L	NC	20
8275057	Dissolved Lithium (Li)	2016/05/20	98	80 - 120	96	80 - 120	<0.00050	mg/L	NC	20
8275057	Dissolved Magnesium (Mg)	2016/05/20					<0.010	mg/L		
8275057	Dissolved Manganese (Mn)	2016/05/20	98	80 - 120	101	80 - 120	<0.000050	mg/L	NC	20
8275057	Dissolved Molybdenum (Mo)	2016/05/20	NC	80 - 120	96	80 - 120	<0.000050	mg/L	3.8	20
8275057	Dissolved Nickel (Ni)	2016/05/20	94	80 - 120	102	80 - 120	<0.000020	mg/L		
8275057	Dissolved Phosphorus (P)	2016/05/20					0.0024, RDL=0.0020	mg/L	NC	20
8275057	Dissolved Potassium (K)	2016/05/20					<0.010	mg/L		
8275057	Dissolved Selenium (Se)	2016/05/20	97	80 - 120	97	80 - 120	<0.000040	mg/L	14	20
8275057	Dissolved Silicon (Si)	2016/05/20					<0.050	mg/L	4.9	20

Maxxam Job #: B638464  
Report Date: 2016/06/20

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8275057	Dissolved Silver (Ag)	2016/05/20	99	80 - 120	100	80 - 120	<0.0000050	mg/L	NC	20
8275057	Dissolved Sodium (Na)	2016/05/20					<0.010	mg/L		
8275057	Dissolved Strontium (Sr)	2016/05/20	NC	80 - 120	104	80 - 120	<0.000050	mg/L	4.8	20
8275057	Dissolved Sulphur (S)	2016/05/20					<0.60	mg/L		
8275057	Dissolved Thallium (Tl)	2016/05/20	113	80 - 120	106	80 - 120	0.0000020, RDL=0.0000020	mg/L	NC	20
8275057	Dissolved Tin (Sn)	2016/05/20	102	80 - 120	101	80 - 120	<0.00020	mg/L	NC	20
8275057	Dissolved Titanium (Ti)	2016/05/20	98	80 - 120	93	80 - 120	<0.00050	mg/L	NC	20
8275057	Dissolved Uranium (U)	2016/05/20	101	80 - 120	98	80 - 120	<0.0000020	mg/L	4.4	20
8275057	Dissolved Vanadium (V)	2016/05/20	99	80 - 120	103	80 - 120	<0.00020	mg/L	NC	20
8275057	Dissolved Zinc (Zn)	2016/05/20	102	80 - 120	102	80 - 120	<0.00010	mg/L	NC	20
8275057	Dissolved Zirconium (Zr)	2016/05/20					<0.00010	mg/L	NC	20
8275081	Dissolved Aluminum (Al)	2016/05/21	104	80 - 120	102	80 - 120	<0.00050	mg/L	NC	20
8275081	Dissolved Antimony (Sb)	2016/05/21	96	80 - 120	97	80 - 120	<0.000020	mg/L	NC	20
8275081	Dissolved Arsenic (As)	2016/05/21	96	80 - 120	97	80 - 120	<0.000020	mg/L	NC	20
8275081	Dissolved Barium (Ba)	2016/05/21	98	80 - 120	100	80 - 120	<0.000020	mg/L	NC	20
8275081	Dissolved Beryllium (Be)	2016/05/21	97	80 - 120	94	80 - 120	<0.000010	mg/L	NC	20
8275081	Dissolved Bismuth (Bi)	2016/05/21	95	80 - 120	100	80 - 120	<0.0000050	mg/L	NC	20
8275081	Dissolved Boron (B)	2016/05/21	90	80 - 120	101	80 - 120	<0.010	mg/L	NC	20
8275081	Dissolved Cadmium (Cd)	2016/05/21	101	80 - 120	98	80 - 120	<0.0000050	mg/L	NC	20
8275081	Dissolved Calcium (Ca)	2016/05/21					<0.010	mg/L	NC	20
8275081	Dissolved Cesium (Cs)	2016/05/21							NC	20
8275081	Dissolved Chromium (Cr)	2016/05/21	96	80 - 120	98	80 - 120	<0.00010	mg/L	NC	20
8275081	Dissolved Cobalt (Co)	2016/05/21	97	80 - 120	97	80 - 120	<0.0000050	mg/L	NC	20
8275081	Dissolved Copper (Cu)	2016/05/21	97	80 - 120	99	80 - 120	<0.000050	mg/L	NC	20
8275081	Dissolved Gold (Au)	2016/05/21							NC	20
8275081	Dissolved Iron (Fe)	2016/05/21	107	80 - 120	112	80 - 120	<0.0010	mg/L	NC	20
8275081	Dissolved Lanthanum (La)	2016/05/21							NC	20
8275081	Dissolved Lead (Pb)	2016/05/21	95	80 - 120	101	80 - 120	<0.0000050	mg/L	NC	20
8275081	Dissolved Lithium (Li)	2016/05/21	98	80 - 120	94	80 - 120	<0.00050	mg/L	NC	20
8275081	Dissolved Magnesium (Mg)	2016/05/21					<0.010	mg/L	NC	20

Maxxam Job #: B638464  
Report Date: 2016/06/20

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8275081	Dissolved Manganese (Mn)	2016/05/21	98	80 - 120	99	80 - 120	0.000073, RDL=0.000050	mg/L	NC	20
8275081	Dissolved Mercury (Hg)	2016/05/21							NC	20
8275081	Dissolved Molybdenum (Mo)	2016/05/21	93	80 - 120	93	80 - 120	<0.000050	mg/L	NC	20
8275081	Dissolved Nickel (Ni)	2016/05/21	96	80 - 120	96	80 - 120	<0.000020	mg/L	NC	20
8275081	Dissolved Palladium (Pd)	2016/05/21							NC	20
8275081	Dissolved Phosphorus (P)	2016/05/21					0.0027, RDL=0.0020	mg/L	NC	20
8275081	Dissolved Platinum (Pt)	2016/05/21							NC	20
8275081	Dissolved Potassium (K)	2016/05/21					<0.010	mg/L	NC	20
8275081	Dissolved Rubidium (Rb)	2016/05/21							NC	20
8275081	Dissolved Selenium (Se)	2016/05/21	96	80 - 120	89	80 - 120	<0.000040	mg/L	NC	20
8275081	Dissolved Silicon (Si)	2016/05/21					<0.050	mg/L	NC	20
8275081	Dissolved Silver (Ag)	2016/05/21	94	80 - 120	96	80 - 120	0.0000090, RDL=0.0000050	mg/L	NC	20
8275081	Dissolved Sodium (Na)	2016/05/21					<0.010	mg/L	NC	20
8275081	Dissolved Strontium (Sr)	2016/05/21	91	80 - 120	97	80 - 120	<0.000050	mg/L	NC	20
8275081	Dissolved Sulphur (S)	2016/05/21					<0.60	mg/L	NC	20
8275081	Dissolved Tellurium (Te)	2016/05/21							NC	20
8275081	Dissolved Thallium (Tl)	2016/05/21	94	80 - 120	107	80 - 120	<0.0000020	mg/L	NC	20
8275081	Dissolved Thorium (Th)	2016/05/21							NC	20
8275081	Dissolved Tin (Sn)	2016/05/21	96	80 - 120	98	80 - 120	<0.00020	mg/L	NC	20
8275081	Dissolved Titanium (Ti)	2016/05/21	94	80 - 120	98	80 - 120	<0.00050	mg/L	NC	20
8275081	Dissolved Tungsten (W)	2016/05/21							NC	20
8275081	Dissolved Uranium (U)	2016/05/21	96	80 - 120	99	80 - 120	<0.0000020	mg/L	NC	20
8275081	Dissolved Vanadium (V)	2016/05/21	98	80 - 120	96	80 - 120	<0.00020	mg/L	NC	20
8275081	Dissolved Zinc (Zn)	2016/05/21	105	80 - 120	97	80 - 120	<0.00010	mg/L	NC	20
8275081	Dissolved Zirconium (Zr)	2016/05/21					<0.00010	mg/L	NC	20
8275384	Dissolved Mercury (Hg)	2016/05/20	97	80 - 120	97	80 - 120	<0.0000020	mg/L	NC	20
8275459	Total Mercury (Hg)	2016/05/20	99	80 - 120	98	80 - 120	<0.0000020	mg/L	NC	20
8275667	Fluoride (F)	2016/05/19	98	80 - 120	98	80 - 120	0.011, RDL=0.010	mg/L	1.5	20

Maxxam Job #: B638464  
Report Date: 2016/06/20

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8275672	Fluoride (F)	2016/05/19	98	80 - 120	100	80 - 120	<0.010	mg/L	3.6	20
8275756	Total Aluminum (Al)	2016/05/21	111	80 - 120	105	80 - 120	<0.00050	mg/L	NC	20
8275756	Total Antimony (Sb)	2016/05/21	101	80 - 120	103	80 - 120	<0.000020	mg/L	NC	20
8275756	Total Arsenic (As)	2016/05/21	99	80 - 120	100	80 - 120	<0.000020	mg/L	NC	20
8275756	Total Barium (Ba)	2016/05/21	105	80 - 120	103	80 - 120	<0.000020	mg/L	NC	20
8275756	Total Beryllium (Be)	2016/05/21	100	80 - 120	100	80 - 120	<0.000010	mg/L	NC	20
8275756	Total Bismuth (Bi)	2016/05/21	100	80 - 120	100	80 - 120	<0.0000050	mg/L	NC	20
8275756	Total Boron (B)	2016/05/21	101	80 - 120	106	80 - 120	<0.010	mg/L	NC	20
8275756	Total Cadmium (Cd)	2016/05/21	103	80 - 120	99	80 - 120	<0.0000050	mg/L	NC	20
8275756	Total Calcium (Ca)	2016/05/21					<0.010	mg/L	NC	20
8275756	Total Cesium (Cs)	2016/05/21							NC	20
8275756	Total Chromium (Cr)	2016/05/21	100	80 - 120	99	80 - 120	<0.00010	mg/L	NC	20
8275756	Total Cobalt (Co)	2016/05/21	100	80 - 120	100	80 - 120	<0.0000050	mg/L	NC	20
8275756	Total Copper (Cu)	2016/05/21	101	80 - 120	102	80 - 120	<0.000050	mg/L	NC	20
8275756	Total Gold (Au)	2016/05/21							NC	20
8275756	Total Iron (Fe)	2016/05/21	114	80 - 120	120	80 - 120	<0.0010	mg/L	NC	20
8275756	Total Lanthanum (La)	2016/05/21							NC	20
8275756	Total Lead (Pb)	2016/05/21	102	80 - 120	102	80 - 120	<0.0000050	mg/L	NC	20
8275756	Total Lithium (Li)	2016/05/21	95	80 - 120	104	80 - 120	<0.00050	mg/L	NC	20
8275756	Total Magnesium (Mg)	2016/05/21					<0.010	mg/L	NC	20
8275756	Total Manganese (Mn)	2016/05/21	104	80 - 120	101	80 - 120	<0.000050	mg/L	NC	20
8275756	Total Mercury (Hg)	2016/05/21							NC	20
8275756	Total Molybdenum (Mo)	2016/05/21	102	80 - 120	96	80 - 120	<0.000050	mg/L	NC	20
8275756	Total Nickel (Ni)	2016/05/21	99	80 - 120	99	80 - 120	<0.000020	mg/L	NC	20
8275756	Total Palladium (Pd)	2016/05/21							NC	20
8275756	Total Phosphorus (P)	2016/05/21					<0.0020	mg/L	NC	20
8275756	Total Platinum (Pt)	2016/05/21							NC	20
8275756	Total Potassium (K)	2016/05/21					<0.010	mg/L	NC	20
8275756	Total Rubidium (Rb)	2016/05/21							NC	20
8275756	Total Selenium (Se)	2016/05/21	101	80 - 120	102	80 - 120	<0.000040	mg/L	NC	20
8275756	Total Silicon (Si)	2016/05/21					<0.050	mg/L	NC	20

Maxxam Job #: B638464  
Report Date: 2016/06/20

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8275756	Total Silver (Ag)	2016/05/21	112	80 - 120	109	80 - 120	<0.0000050	mg/L	NC	20
8275756	Total Sodium (Na)	2016/05/21					<0.010	mg/L	NC	20
8275756	Total Strontium (Sr)	2016/05/21	110	80 - 120	101	80 - 120	<0.000050	mg/L	NC	20
8275756	Total Sulphur (S)	2016/05/21					<0.60	mg/L	NC	20
8275756	Total Tellurium (Te)	2016/05/21							NC	20
8275756	Total Thallium (Tl)	2016/05/21	106	80 - 120	109	80 - 120	<0.0000020	mg/L	NC	20
8275756	Total Thorium (Th)	2016/05/21							NC	20
8275756	Total Tin (Sn)	2016/05/21	103	80 - 120	101	80 - 120	<0.00020	mg/L	NC	20
8275756	Total Titanium (Ti)	2016/05/21	89	80 - 120	99	80 - 120	<0.00050	mg/L	NC	20
8275756	Total Tungsten (W)	2016/05/21							NC	20
8275756	Total Uranium (U)	2016/05/21	101	80 - 120	100	80 - 120	<0.0000020	mg/L	NC	20
8275756	Total Vanadium (V)	2016/05/21	101	80 - 120	98	80 - 120	<0.00020	mg/L	NC	20
8275756	Total Zinc (Zn)	2016/05/21	114	80 - 120	98	80 - 120	<0.00010	mg/L	NC	20
8275756	Total Zirconium (Zr)	2016/05/21					<0.00010	mg/L	NC	20
8275822	Total Ammonia (N)	2016/05/20	3.4 (2)	80 - 120	100	80 - 120	<0.0050	mg/L	NC	20
8275825	Total Ammonia (N)	2016/05/20	108	80 - 120	99	80 - 120	<0.0050	mg/L	NC	20
8275948	Dissolved Sulphate (SO4)	2016/05/20	NC	80 - 120	99	80 - 120	0.62, RDL=0.50	mg/L	0.45	20
8276144	Dissolved Organic Carbon (C)	2016/05/20	106	80 - 120	118	80 - 120	<0.50	mg/L		
8276146	Dissolved Organic Carbon (C)	2016/05/20	113	80 - 120	110	80 - 120	<0.50	mg/L	NC	20
8278115	Dissolved Aluminum (Al)	2016/05/25	88	80 - 120	105	80 - 120	<0.00050	mg/L		
8278115	Dissolved Antimony (Sb)	2016/05/25	NC	80 - 120	97	80 - 120	<0.000020	mg/L		
8278115	Dissolved Arsenic (As)	2016/05/25	NC	80 - 120	101	80 - 120	<0.000020	mg/L		
8278115	Dissolved Barium (Ba)	2016/05/25	NC	80 - 120	101	80 - 120	<0.000020	mg/L		
8278115	Dissolved Beryllium (Be)	2016/05/25	89	80 - 120	97	80 - 120	<0.000010	mg/L		
8278115	Dissolved Bismuth (Bi)	2016/05/25	89	80 - 120	98	80 - 120	<0.0000050	mg/L		
8278115	Dissolved Boron (B)	2016/05/25	NC	80 - 120	99	80 - 120	<0.010	mg/L		
8278115	Dissolved Cadmium (Cd)	2016/05/25	89	80 - 120	102	80 - 120	<0.0000050	mg/L		
8278115	Dissolved Calcium (Ca)	2016/05/25					<0.010	mg/L		
8278115	Dissolved Chromium (Cr)	2016/05/25	91	80 - 120	102	80 - 120	<0.00010	mg/L		
8278115	Dissolved Cobalt (Co)	2016/05/25	88	80 - 120	101	80 - 120	<0.0000050	mg/L		
8278115	Dissolved Copper (Cu)	2016/05/25	83	80 - 120	102	80 - 120	<0.000050	mg/L		



Maxxam Job #: B638464  
Report Date: 2016/06/20

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8278115	Dissolved Iron (Fe)	2016/05/25	72 (2)	80 - 120	104	80 - 120	<0.0010	mg/L		
8278115	Dissolved Lead (Pb)	2016/05/25	92	80 - 120	100	80 - 120	<0.0000050	mg/L		
8278115	Dissolved Lithium (Li)	2016/05/25	NC	80 - 120	96	80 - 120	<0.00050	mg/L		
8278115	Dissolved Magnesium (Mg)	2016/05/25					<0.010	mg/L		
8278115	Dissolved Manganese (Mn)	2016/05/25	NC	80 - 120	101	80 - 120	<0.000050	mg/L		
8278115	Dissolved Molybdenum (Mo)	2016/05/25	NC	80 - 120	93	80 - 120	<0.000050	mg/L		
8278115	Dissolved Nickel (Ni)	2016/05/25	81	80 - 120	103	80 - 120	<0.000020	mg/L		
8278115	Dissolved Potassium (K)	2016/05/25					<0.010	mg/L		
8278115	Dissolved Selenium (Se)	2016/05/25	118	80 - 120	98	80 - 120	<0.000040	mg/L		
8278115	Dissolved Silicon (Si)	2016/05/25					<0.050	mg/L		
8278115	Dissolved Silver (Ag)	2016/05/25	96	80 - 120	103	80 - 120	<0.0000050	mg/L		
8278115	Dissolved Sodium (Na)	2016/05/25					0.016, RDL=0.010	mg/L		
8278115	Dissolved Strontium (Sr)	2016/05/25	NC	80 - 120	103	80 - 120	<0.000050	mg/L		
8278115	Dissolved Sulphur (S)	2016/05/25					<0.60	mg/L		
8278115	Dissolved Thallium (Tl)	2016/05/25	79 (2)	80 - 120	110	80 - 120	<0.0000020	mg/L	NC	20
8278115	Dissolved Tin (Sn)	2016/05/25	103	80 - 120	99	80 - 120	<0.00020	mg/L		
8278115	Dissolved Titanium (Ti)	2016/05/25	97	80 - 120	109	80 - 120	<0.00050	mg/L		
8278115	Dissolved Uranium (U)	2016/05/25	96	80 - 120	97	80 - 120	<0.0000020	mg/L		
8278115	Dissolved Vanadium (V)	2016/05/25	100	80 - 120	103	80 - 120	<0.00020	mg/L		
8278115	Dissolved Zinc (Zn)	2016/05/25	83	80 - 120	104	80 - 120	<0.00010	mg/L		
8278115	Dissolved Zirconium (Zr)	2016/05/25					<0.00010	mg/L		
8279202	Dissolved Aluminum (Al)	2016/05/26			98	80 - 120	<0.00050	mg/L		
8279202	Dissolved Antimony (Sb)	2016/05/26			98	80 - 120	<0.000020	mg/L		
8279202	Dissolved Arsenic (As)	2016/05/26			97	80 - 120	<0.000020	mg/L		
8279202	Dissolved Barium (Ba)	2016/05/26			100	80 - 120	<0.000020	mg/L		
8279202	Dissolved Beryllium (Be)	2016/05/26			89	80 - 120	<0.000010	mg/L		
8279202	Dissolved Bismuth (Bi)	2016/05/26			101	80 - 120	<0.0000050	mg/L		
8279202	Dissolved Boron (B)	2016/05/26			87	80 - 120	<0.010	mg/L		
8279202	Dissolved Cadmium (Cd)	2016/05/26			101	80 - 120	<0.0000050	mg/L		
8279202	Dissolved Calcium (Ca)	2016/05/26					<0.010	mg/L		

Maxxam Job #: B638464  
Report Date: 2016/06/20

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8279202	Dissolved Chromium (Cr)	2016/05/26			99	80 - 120	<0.00010	mg/L		
8279202	Dissolved Cobalt (Co)	2016/05/26			101	80 - 120	<0.0000050	mg/L		
8279202	Dissolved Copper (Cu)	2016/05/26			100	80 - 120	<0.000050	mg/L		
8279202	Dissolved Iron (Fe)	2016/05/26			105	80 - 120	<0.0010	mg/L		
8279202	Dissolved Lead (Pb)	2016/05/26			101	80 - 120	<0.0000050	mg/L		
8279202	Dissolved Lithium (Li)	2016/05/26			88	80 - 120	<0.00050	mg/L		
8279202	Dissolved Magnesium (Mg)	2016/05/26					<0.010	mg/L		
8279202	Dissolved Manganese (Mn)	2016/05/26			101	80 - 120	<0.000050	mg/L		
8279202	Dissolved Molybdenum (Mo)	2016/05/26			94	80 - 120	<0.000050	mg/L		
8279202	Dissolved Nickel (Ni)	2016/05/26			101	80 - 120	<0.000020	mg/L		
8279202	Dissolved Phosphorus (P)	2016/05/26					0.0033, RDL=0.0020	mg/L		
8279202	Dissolved Potassium (K)	2016/05/26					<0.010	mg/L		
8279202	Dissolved Selenium (Se)	2016/05/26			95	80 - 120	<0.000040	mg/L		
8279202	Dissolved Silicon (Si)	2016/05/26					<0.050	mg/L		
8279202	Dissolved Silver (Ag)	2016/05/26			95	80 - 120	0.0000050, RDL=0.0000050	mg/L		
8279202	Dissolved Sodium (Na)	2016/05/26					<0.010	mg/L		
8279202	Dissolved Strontium (Sr)	2016/05/26			99	80 - 120	<0.000050	mg/L		
8279202	Dissolved Sulphur (S)	2016/05/26					<0.60	mg/L		
8279202	Dissolved Thallium (Tl)	2016/05/26			104	80 - 120	<0.0000020	mg/L		
8279202	Dissolved Tin (Sn)	2016/05/26			99	80 - 120	<0.00020	mg/L		
8279202	Dissolved Titanium (Ti)	2016/05/26			95	80 - 120	<0.00050	mg/L		
8279202	Dissolved Uranium (U)	2016/05/26			100	80 - 120	<0.0000020	mg/L		
8279202	Dissolved Vanadium (V)	2016/05/26			102	80 - 120	0.00024, RDL=0.00020	mg/L		
8279202	Dissolved Zinc (Zn)	2016/05/26			101	80 - 120	<0.00010	mg/L		
8279202	Dissolved Zirconium (Zr)	2016/05/26					<0.00010	mg/L		
8280267	Dissolved Phosphorus (P)	2016/05/26	98	80 - 120	104	80 - 120	<0.0020	mg/L	NC	20
8280275	Total Phosphorus (P)	2016/05/26			104	80 - 120	<0.0020	mg/L		
8294826	Conductivity	2016/06/10			99	80 - 120	<1.0	uS/cm		
8295099	Dissolved Aluminum (Al)	2016/06/10			107	80 - 120	<0.00050	mg/L		

Maxxam Job #: B638464  
Report Date: 2016/06/20

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8295099	Dissolved Antimony (Sb)	2016/06/10			95	80 - 120	<0.000020	mg/L		
8295099	Dissolved Arsenic (As)	2016/06/10			100	80 - 120	<0.000020	mg/L		
8295099	Dissolved Barium (Ba)	2016/06/10			96	80 - 120	<0.000020	mg/L		
8295099	Dissolved Beryllium (Be)	2016/06/10			94	80 - 120	<0.000010	mg/L		
8295099	Dissolved Bismuth (Bi)	2016/06/10			99	80 - 120	0.0000060, RDL=0.0000050	mg/L		
8295099	Dissolved Boron (B)	2016/06/10			93	80 - 120	<0.010	mg/L		
8295099	Dissolved Cadmium (Cd)	2016/06/10			99	80 - 120	<0.0000050	mg/L		
8295099	Dissolved Calcium (Ca)	2016/06/10					<0.010	mg/L		
8295099	Dissolved Chromium (Cr)	2016/06/10			100	80 - 120	<0.00010	mg/L		
8295099	Dissolved Cobalt (Co)	2016/06/10			98	80 - 120	<0.0000050	mg/L		
8295099	Dissolved Copper (Cu)	2016/06/10			98	80 - 120	<0.000050	mg/L		
8295099	Dissolved Iron (Fe)	2016/06/10			105	80 - 120	<0.0010	mg/L		
8295099	Dissolved Lead (Pb)	2016/06/10			99	80 - 120	0.0000060, RDL=0.0000050	mg/L		
8295099	Dissolved Lithium (Li)	2016/06/10			93	80 - 120	<0.00050	mg/L		
8295099	Dissolved Magnesium (Mg)	2016/06/10					<0.010	mg/L		
8295099	Dissolved Manganese (Mn)	2016/06/10			101	80 - 120	<0.000050	mg/L		
8295099	Dissolved Molybdenum (Mo)	2016/06/10			97	80 - 120	<0.000050	mg/L		
8295099	Dissolved Nickel (Ni)	2016/06/10			114	80 - 120	<0.000020	mg/L		
8295099	Dissolved Phosphorus (P)	2016/06/10					<0.0020	mg/L		
8295099	Dissolved Potassium (K)	2016/06/10					<0.010	mg/L		
8295099	Dissolved Selenium (Se)	2016/06/10			94	80 - 120	<0.000040	mg/L		
8295099	Dissolved Silicon (Si)	2016/06/10					<0.050	mg/L		
8295099	Dissolved Silver (Ag)	2016/06/10			107	80 - 120	0.0000080, RDL=0.0000050	mg/L		
8295099	Dissolved Sodium (Na)	2016/06/10					<0.010	mg/L		
8295099	Dissolved Strontium (Sr)	2016/06/10			97	80 - 120	<0.000050	mg/L		
8295099	Dissolved Sulphur (S)	2016/06/10					<0.60	mg/L		
8295099	Dissolved Thallium (Tl)	2016/06/10			107	80 - 120	<0.0000020	mg/L		
8295099	Dissolved Tin (Sn)	2016/06/10			96	80 - 120	<0.00020	mg/L		
8295099	Dissolved Titanium (Ti)	2016/06/10			101	80 - 120	<0.00050	mg/L		

Maxxam Job #: B638464  
Report Date: 2016/06/20

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8295099	Dissolved Uranium (U)	2016/06/10			97	80 - 120	<0.0000020	mg/L		
8295099	Dissolved Vanadium (V)	2016/06/10			99	80 - 120	<0.00020	mg/L		
8295099	Dissolved Zinc (Zn)	2016/06/10			98	80 - 120	0.00013, RDL=0.00010	mg/L		
8295099	Dissolved Zirconium (Zr)	2016/06/10					<0.00010	mg/L		
8295785	Dissolved Chloride (Cl)	2016/06/10			102	80 - 120	<0.50	mg/L		
8295790	Dissolved Sulphate (SO4)	2016/06/10			97	80 - 120	<0.50	mg/L		
8296648	Dissolved Phosphorus (P)	2016/06/11	NC	80 - 120	100	80 - 120	<0.0020	mg/L	3.6	20
8296650	Total Phosphorus (P)	2016/06/11			100	80 - 120	<0.0020	mg/L		
8298842	Conductivity	2016/06/14			99	80 - 120	<1.0	uS/cm		
8299380	Dissolved Phosphorus (P)	2016/06/14	NC	80 - 120	104	80 - 120	<0.0020	mg/L		
8299384	Total Phosphorus (P)	2016/06/14			104	80 - 120	<0.0020	mg/L	NC	20
8300714	Dissolved Phosphorus (P)	2016/06/15	89	80 - 120	100	80 - 120	<0.0020	mg/L		
8300715	Total Phosphorus (P)	2016/06/15	96	80 - 120	100	80 - 120	<0.0020	mg/L		
8305323	Alkalinity (PP as CaCO3)	2016/06/20					<0.50	mg/L		
8305323	Alkalinity (Total as CaCO3)	2016/06/20			100	80 - 120	<0.50	mg/L		
8305323	Bicarbonate (HCO3)	2016/06/20					<0.50	mg/L		
8305323	Carbonate (CO3)	2016/06/20					<0.50	mg/L		
8305323	Hydroxide (OH)	2016/06/20					<0.50	mg/L		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

(1) Matrix Spike exceeds acceptance limits due to matrix interference. Reanalysis yields similar results.

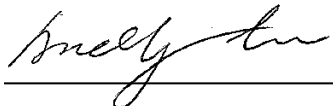
(2) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Maxxam Job #: B638464  
Report Date: 2016/06/20

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Andy Lu, Ph.D., P.Chem., Scientific Specialist



David Huang, M.Sc., P.Chem., QP, Scientific Services Manager

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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 BY. Syano@1300



2016 -05- 17

CHAIN OF CUSTODY RECORD

BBY FCD-00077/05

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CO

08421153

Page 1 2

Invoice Information		Report Information (if differs from invoice)		Project Information (where applicable)		Round Time (TAT) Required	
Company Name: <b>BMC MINERALS LTD.</b>	Company Name: <b>ALEXCO ENVIRONMENTAL</b>	Quotation #: <b>B50743</b>	<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses)		PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS		
Contact Name:	Contact Name: <b>KAI WOLOSHYN</b>	P.O. #/ AFE#:			Rush TAT (Surcharges will be applied)		
Address: <b>530-1130 WEST PENDER ST</b>	Address: <b>UNIT 3 151 INDUSTRIAL RD</b>	Project #: <b>BMC-15-01</b>			<input type="checkbox"/> Same Day	<input type="checkbox"/> 2 Days	
<b>Vancouver, BC PC: V6E 4A4</b>	<b>Whitehorse, YK PC: V1A 2V3</b>	Site Location: <b>*Kudz Ze Kayah</b>			<input type="checkbox"/> 1 Day	<input type="checkbox"/> 3 Days	
Phone:	Phone: <b>(867) 668-6463</b>	Site #:			Date Required:		
Email:	Email: <b>kwoloshyn@alexcoresource.com</b>	Sampled By:					

Regulatory Criteria		Special Instructions		Analysis Requested										Rush Confirmation #:				
<input type="checkbox"/> BC CSR Soil	<input type="checkbox"/> BC CSR Water	<input type="checkbox"/> Return Cooler	<input type="checkbox"/> Ship Sample Bottles (Please Specify)	TOTAL LOW LEVEL METALS INCL. MERCURY	DISSOLVED LOW LEVEL METALS INCL. MERCURY	LOW LEVEL TSS	ANIONS (Cl, F, SO4, NO2, NO3)	AMMONIA	CONDUCTIVITY	pH	ALKALINITY & ACIDITY	DOC	TOTAL PHOSPHORUS - LOW LEVEL	DISSOLVED PHOSPHORUS - LOW LEVEL	# OF CONTAINERS SUBMITTED	LABORATORY USE ONLY		
<input type="checkbox"/> CCME (Specify)	<input type="checkbox"/> Other (Specify)	<input type="checkbox"/> USE SCENARIO # 12485															CUSTOM SEAL Y/N	COOLER TEMPERATURES
<input type="checkbox"/> Drinking Water	<input type="checkbox"/> BC Water Quality																Present	Intact

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	TOTAL LOW LEVEL METALS INCL. MERCURY	DISSOLVED LOW LEVEL METALS INCL. MERCURY	LOW LEVEL TSS	ANIONS (Cl, F, SO4, NO2, NO3)	AMMONIA	CONDUCTIVITY	pH	ALKALINITY & ACIDITY	DOC	TOTAL PHOSPHORUS - LOW LEVEL	DISSOLVED PHOSPHORUS - LOW LEVEL	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	COMMENTS
1 MW15-01		16-May-16	17:40	Water	X	X	X	X	X	X	X	X	X	X	X	11		
3 MW15-03s		15-May-16	10:00	Water	X	X	X	X	X	X	X	X	X	X	X	11		
4 MW15-03d		15-May-16	9:36	Water	X	X	X	X	X	X	X	X	X	X	X	11		
5 Mw15-04s		15-May-16	12:10	Water	X	X	X	X	X	X	X	X	X	X	X	11		
6 Dup 2		15-May-16	11:00	Water	X	X	X	X	X	X	X	X	X	X	X	11		
7 MW15-04d		15-May-16	11:38	Water	X	X	X	X	X	X	X	X	X	X	X	11		
8 MW15-05d		15-May-16	13:30	Water	X	X	X	X	X	X	X	X	X	X	X	11		
9 MW15-07s		15-May-16	14:10	Water	X	X	X	X	X	X	X	X	X	X	X	11		
10 MW15-07d		15-May-16	15:32	Water	X	X	X	X	X	X	X	X	X	X	X	11		



B638464\_COC

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #
Lela Fougere	17/05/2016	8:00	<u>Laurel Bernier</u>	2016/05/18	14:00	B638464

**CHAIN OF CUSTODY RECORD**

Burnaby: 4506 Canada Way, Burnaby, BC V5G 1K5. Toll Free (800) 665-8566

COC:

08421154

BBY FCD-00077/05

Page 2 2

Invoice Information		Report Information (if differs from invoice)				Project Information (when)				Lead Time (TAT) Required								
Company Name: <b>BMC MINERALS LTD.</b>		Company Name: <b>ALEXCO ENVIRONMENTAL</b>				Quotation #: <b>B50743</b>				<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses)								
Contact Name:		Contact Name: <b>KAI WOLOSHYN</b>				P.O. #/ AFE#:				PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS								
Address: <b>530-1130 WEST PENDER ST</b>		Address: <b>UNIT 3 151 INDUSTRIAL RD</b>				Project #: <b>BMC-15-01</b>				Rush TAT (Surcharges will be applied)								
Vancouver, BC PC: V6E 4A4		Whitehorse, YK PC: V1A 2V3				Site Location: <b>Kudz Ze Kayah</b>				<input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days								
Phone:		Phone: <b>(867) 668-6463</b>				Site #:				<input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days								
Email:		Email: <b>kwoloshyn@alexcoresource.com</b>				Sampled By: <b>Andrew MacPhail</b>				Date Required:								
Regulatory Criteria		Special Instructions		Analysis Requested								Rush Confirmation #:						
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> BC CSR Water <input type="checkbox"/> CCME (Specify) <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC Water Quality		<input type="checkbox"/> Return Cooler <input type="checkbox"/> Shp Sample Bottles (Please Specify) <b>USE SCENARIO # 12485</b>		TOTAL LOW LEVEL METALS INCL. MERCURY DISSOLVED LOW LEVEL METALS INCL. MERCURY LOW LEVEL TSS ANIONS (Cl, F, SO4, NO2, NO3) AMMONIA CONDUCTIVITY pH ALKALINITY & ACIDITY DOC TOTAL PHOSPHORUS - LOW LEVEL DISSOLVED PHOSPHORUS - LOW LEVEL								LABORATORY USE ONLY CUSTODY SEAL Y/N COOLER TEMPERATURES Present Intact 1A 222 1A 324 1A 224/333 COOLING MEDIA PRESENT Y/N COMMENTS						
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM																		
Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	TOTAL LOW LEVEL METALS INCL. MERCURY	DISSOLVED LOW LEVEL METALS INCL. MERCURY	LOW LEVEL TSS	ANIONS (Cl, F, SO4, NO2, NO3)	AMMONIA	CONDUCTIVITY	pH	ALKALINITY & ACIDITY	DOC	TOTAL PHOSPHORUS - LOW LEVEL	DISSOLVED PHOSPHORUS - LOW LEVEL	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	COMMENTS
1	MW15-09s	16-May-16	11:18	Water	X	X	X	X	X	X	X	X	X	X	X	11		
2	MW15-10s	16-May-16	10:55	Water	X	X	X	X	X	X	X	X	X	X	X	11		
3	MW15-10d	16-May-16	12:05	Water	X	X	X	X	X	X	X	X	X	X	X	11		
4	BH95G-22	13-May-16	14:10	Water	X	X	X	X	X	X	X	X	X	X	X	11		Total met are preserved, diss met are filtered and preserved.
5	BH95G-25s	14-May-16	19:15	Water	X	X	X	X	X	X	X	X	X	X	X	11		
6	BH95G-25d	15-May-16	12:24	Water	X	X	X	X	X	X	X	X	X	X	X	11		
7	BH95G-30	14-May-16	15:00	Water	X	X	X	X	X	X	X	X	X	X	X	11		
8	BH95G-33d	14-May-16	13:20	Water	X	X	X	X	X	X	X	X	X	X	X	11		
9	MW-FB	14-May-16	9:00	Water	X	X	X	X	X	X	X	X	X	X	X	11		
10	BH95G-GWD1	14-May-16	9:15	Water	X	X	X	X	X	X	X	X	X	X	X	11		
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #										
Leila Fougere		17/05/2016	8:00	<i>Laurel Beutner</i>		2016/05/18	14:00	B 638464										



Your Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Your C.O.C. #: 08423165

**Attention: KAI WOLOSHYN**

ALEXCO ENVIRONMENTAL GROUP INC.  
Unit 3 Calcite Business Centre  
151 Industrial Road  
WHITEHORSE, YT  
Canada Y1A 2V3

**Report Date: 2016/06/22**  
Report #: R2204043  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B647882**

**Received: 2016/06/14, 16:30**

Sample Matrix: Water  
# Samples Received: 7

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Acidity pH 4.5 & pH 8.3 (as CaCO3)	7	N/A	2016/06/16	BBY6SOP-00037	SM 22 2310 B m
Alkalinity - Water	7	2016/06/16	2016/06/16	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry	6	N/A	2016/06/16	BBY6SOP-00011	SM 22 4500-Cl- E m
Chloride by Automated Colourimetry	1	N/A	2016/06/17	BBY6SOP-00011	SM 22 4500-Cl- E m
Carbon (DOC) - field filtered/preserved (1)	7	N/A	2016/06/17	BBY6SOP-00003	SM 22 5310 C m
Conductance - water	7	N/A	2016/06/16	BBY6SOP-00026	SM 22 2510 B m
Fluoride	7	N/A	2016/06/16	BBY6SOP-00048	SM 22 4500-F C m
Hardness Total (calculated as CaCO3)	7	N/A	2016/06/17	BBY WI-00033	Auto Calc
Hardness (calculated as CaCO3)	7	N/A	2016/06/17	BBY WI-00033	Auto Calc
Mercury (Dissolved-LowLevel) by CVAF	7	N/A	2016/06/16	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total-LowLevel) by CVAF	7	2016/06/16	2016/06/16	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Ion Balance	7	N/A	2016/06/17	BBY WI-00033	SM 22 1030E
Sum of cations, anions	7	N/A	2016/06/17	Calc	
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	7	N/A	2016/06/17	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Low Level (dissolved)	7	N/A	2016/06/16	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Digested LL (total)	6	2016/06/16	2016/06/17	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Na, K, Ca, Mg, S by CRC ICPMS (total)	7	N/A	2016/06/17	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Elements by ICPMS Low Level (total)	1	N/A	2016/06/17	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Ammonia-N (Preserved)	7	N/A	2016/06/16	BBY6SOP-00009	SM 22 4500-NH3- G m
Nitrate+Nitrite (N) (low level)	7	N/A	2016/06/16	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) (low level)	7	N/A	2016/06/16	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N)	7	N/A	2016/06/17	BBY6SOP-00010	SM 22 4500-NO3- I m
Filter and HNO3 Preserve for Metals	7	N/A	2016/06/16	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (2)	7	N/A	2016/06/16	BBY6SOP-00026	SM 22 4500-H+ B m
Sulphate by Automated Colourimetry	6	N/A	2016/06/16	BBY6SOP-00017	SM 22 4500-SO42- E m
Sulphate by Automated Colourimetry	1	N/A	2016/06/17	BBY6SOP-00017	SM 22 4500-SO42- E m
Phosphorus-P (LL Tot, dissolved) - UF/UP	6	2016/06/16	2016/06/16	BBY6SOP-00013	SM 22 4500-P E m
Phosphorus-P (LL Tot, dissolved) - UF/UP	1	2016/06/20	2016/06/20	BBY6SOP-00013	SM 22 4500-P E m
Total Phosphorus - unpreserved	7	N/A	2016/06/16	BBY6SOP-00013	SM 22 4500-P E m



Your Project #: BMC-16-01  
 Site Location: KUDZ ZE KAYAH  
 Your C.O.C. #: 08423165

**Attention:KAI WOLOSHYN**

ALEXCO ENVIRONMENTAL GROUP INC.  
 Unit 3 Calcite Business Centre  
 151 Industrial Road  
 WHITEHORSE, YT  
 Canada Y1A 2V3

**Report Date: 2016/06/22**  
 Report #: R2204043  
 Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B647882**

**Received: 2016/06/14, 16:30**

Sample Matrix: Water  
 # Samples Received: 7

Analyses	Date		Laboratory Method	Analytical Method
	Quantity Extracted	Date Analyzed		
Total Suspended Solids-Low Level	7	2016/06/16	2016/06/17 BBY6SOP-00034	SM 22 2540 D

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) DOC present in the sample should be considered as non-purgeable DOC.

(2) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

**Encryption Key**

Please direct all questions regarding this Certificate of Analysis to your Project Manager.  
 Morgan Melnychuk, Burnaby Project Manager  
 Email: MMelnychuk@maxxam.ca  
 Phone# (604)638-8034 Ext:8034

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B647882  
Report Date: 2016/06/22

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		OV5408			OV5409			OV5410		
Sampling Date		2016/06/13 16:46			2016/06/13 14:35			2016/06/13 14:10		
COC Number		08423165			08423165			08423165		
	UNITS	MW15-01	RDL	QC Batch	BH95G-25D	RDL	QC Batch	BH95G-25S	RDL	QC Batch
<b>Calculated Parameters</b>										
Anion Sum	meq/L	3.9	N/A	8299904	12	N/A	8299904	11	N/A	8299904
Cation Sum	meq/L	3.6	N/A	8299904	13	N/A	8299904	11	N/A	8299904
Filter and HNO3 Preservation	N/A	LAB	N/A	8300992	LAB	N/A	8300992	LAB	N/A	8300992
Ion Balance	N/A	0.94	0.010	8299902	1.1	0.010	8299902	1.0	0.010	8299902
Nitrate (N)	mg/L	0.324	0.0020	8300282	<0.0020	0.0020	8300282	0.0024	0.0020	8300282
<b>Misc. Inorganics</b>										
Fluoride (F)	mg/L	0.090	0.010	8301917	0.095	0.010	8301917	0.130	0.010	8301917
Dissolved Organic Carbon (C)	mg/L	0.94	0.50	8303633	2.22	0.50	8303633	2.49	0.50	8303633
Acidity (pH 4.5)	mg/L	<0.50	0.50	8301670	<0.50	0.50	8301670	<0.50	0.50	8301670
Alkalinity (Total as CaCO3)	mg/L	119	0.50	8301105	360	0.50	8301105	354	0.50	8301105
Acidity (pH 8.3)	mg/L	<0.50	0.50	8301670	14.3	0.50	8301670	15.7	0.50	8301670
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8301105	<0.50	0.50	8301105	<0.50	0.50	8301105
Bicarbonate (HCO3)	mg/L	146	0.50	8301105	439	0.50	8301105	432	0.50	8301105
Carbonate (CO3)	mg/L	<0.50	0.50	8301105	<0.50	0.50	8301105	<0.50	0.50	8301105
Hydroxide (OH)	mg/L	<0.50	0.50	8301105	<0.50	0.50	8301105	<0.50	0.50	8301105
<b>Anions</b>										
Dissolved Sulphate (SO4)	mg/L	67.5	0.50	8302055	222 (1)	5.0	8302021	190	0.50	8302055
Dissolved Chloride (Cl)	mg/L	1.0	0.50	8302042	1.1	0.50	8301998	1.2	0.50	8302042
<b>Nutrients</b>										
Dissolved Phosphorus (P)	mg/L	0.0191	0.0020	8302122	0.0121	0.0020	8302122	0.0062	0.0020	8302122
Total Ammonia (N)	mg/L	0.0076	0.0050	8301565	0.077	0.0050	8301565	0.23	0.0050	8301565
Nitrate plus Nitrite (N)	mg/L	0.329	0.0020	8302073	0.0066	0.0020	8302073	0.0059	0.0020	8302073
Nitrite (N)	mg/L	0.0047	0.0020	8302076	0.0058	0.0020	8302076	0.0035	0.0020	8302076
Total Phosphorus (P)	mg/L	0.0181	0.0020	8302121	0.0105	0.0020	8302121	0.0057	0.0020	8302121
<b>Physical Properties</b>										
Conductivity	uS/cm	356	1.0	8301103	1050	1.0	8301103	955	1.0	8301103
pH	pH	7.68		8301097	7.61		8301097	7.69		8301097
<b>Physical Properties</b>										
Total Suspended Solids	mg/L	183	1.0	8301206	1220	1.0	8301206	3630	1.0	8301206
RDL = Reportable Detection Limit N/A = Not Applicable (1) Detection limits raised due to dilution to bring analyte within the calibrated range.										

Maxxam Job #: B647882  
Report Date: 2016/06/22

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		OV5411		OV5412			OV5413		
Sampling Date		2016/06/13 12:50		2016/06/13 15:30			2016/06/12 16:41		
COC Number		08423165		08423165			08423165		
	UNITS	BH95G-29	QC Batch	BH95G-22	RDL	QC Batch	BH95G-146	RDL	QC Batch
<b>Calculated Parameters</b>									
Anion Sum	meq/L	4.8	8299904	3.6	N/A	8299904	7.6	N/A	8299904
Cation Sum	meq/L	4.7	8299904	3.5	N/A	8299904	8.0	N/A	8299904
Filter and HNO3 Preservation	N/A	LAB	8300992	LAB	N/A	8300992	LAB	N/A	8300992
Ion Balance	N/A	0.99	8299902	0.97	0.010	8299902	1.1	0.010	8299902
Nitrate (N)	mg/L	0.0022	8300282	0.392	0.0020	8300282	0.0028	0.0020	8300282
<b>Misc. Inorganics</b>									
Fluoride (F)	mg/L	0.110	8301917	0.054	0.010	8301917	0.290	0.010	8301917
Dissolved Organic Carbon (C)	mg/L	1.32	8303633	0.82	0.50	8303633	<0.50	0.50	8303633
Acidity (pH 4.5)	mg/L	<0.50	8301670	<0.50	0.50	8301670	<0.50	0.50	8301670
Alkalinity (Total as CaCO3)	mg/L	186	8301105	134	0.50	8301105	135	0.50	8301105
Acidity (pH 8.3)	mg/L	2.52	8301670	3.55	0.50	8301670	3.80	0.50	8301670
Alkalinity (PP as CaCO3)	mg/L	<0.50	8301105	<0.50	0.50	8301105	<0.50	0.50	8301105
Bicarbonate (HCO3)	mg/L	227	8301105	164	0.50	8301105	165	0.50	8301105
Carbonate (CO3)	mg/L	<0.50	8301105	<0.50	0.50	8301105	<0.50	0.50	8301105
Hydroxide (OH)	mg/L	<0.50	8301105	<0.50	0.50	8301105	<0.50	0.50	8301105
<b>Anions</b>									
Dissolved Sulphate (SO4)	mg/L	50.2	8302021	40.1	0.50	8303655	232 (1)	5.0	8302055
Dissolved Chloride (Cl)	mg/L	0.96	8303653	1.3	0.50	8302042	0.76	0.50	8302042
<b>Nutrients</b>									
Dissolved Phosphorus (P)	mg/L	<0.0020 (2)	8305552	0.0289	0.0020	8302122	0.0067 (2)	0.0020	8302122
Total Ammonia (N)	mg/L	0.10	8301563	0.011	0.0050	8301565	0.022	0.0050	8301565
Nitrate plus Nitrite (N)	mg/L	0.0100	8302073	0.409	0.0020	8302073	0.0028 (2)	0.0020	8302073
Nitrite (N)	mg/L	0.0078	8302076	0.0167	0.0020	8302076	<0.0020 (2)	0.0020	8302076
Total Phosphorus (P)	mg/L	0.0316	8302121	0.0286	0.0020	8302121	0.0041 (2)	0.0020	8302121
<b>Physical Properties</b>									
Conductivity	uS/cm	428	8301103	334	1.0	8301103	751	1.0	8301103
pH	pH	7.86	8301097	7.63		8301097	7.81		8301097
<b>Physical Properties</b>									
Total Suspended Solids	mg/L	8290	8301206	834	1.0	8301206	6.4	1.0	8300731
RDL = Reportable Detection Limit N/A = Not Applicable (1) Detection limits raised due to dilution to bring analyte within the calibrated range. (2) Sample analysed past recommended hold time.									

Maxxam Job #: B647882  
Report Date: 2016/06/22

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		OV5414		
Sampling Date		2016/06/13 15:10		
COC Number		08423165		
	UNITS	DUP1	RDL	QC Batch
<b>Calculated Parameters</b>				
Anion Sum	meq/L	3.6	N/A	8299904
Cation Sum	meq/L	3.4	N/A	8299904
Filter and HNO3 Preservation	N/A	LAB	N/A	8300992
Ion Balance	N/A	0.95	0.010	8299902
Nitrate (N)	mg/L	0.386	0.0020	8300282
<b>Misc. Inorganics</b>				
Fluoride (F)	mg/L	0.055	0.010	8301917
Dissolved Organic Carbon (C)	mg/L	1.54	0.50	8303633
Acidity (pH 4.5)	mg/L	<0.50	0.50	8301670
Alkalinity (Total as CaCO3)	mg/L	136	0.50	8301105
Acidity (pH 8.3)	mg/L	3.77	0.50	8301670
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8301105
Bicarbonate (HCO3)	mg/L	166	0.50	8301105
Carbonate (CO3)	mg/L	<0.50	0.50	8301105
Hydroxide (OH)	mg/L	<0.50	0.50	8301105
<b>Anions</b>				
Dissolved Sulphate (SO4)	mg/L	38.9	0.50	8302055
Dissolved Chloride (Cl)	mg/L	1.0	0.50	8302042
<b>Nutrients</b>				
Dissolved Phosphorus (P)	mg/L	0.0189	0.0020	8302122
Total Ammonia (N)	mg/L	0.018	0.0050	8301565
Nitrate plus Nitrite (N)	mg/L	0.396	0.0020	8302073
Nitrite (N)	mg/L	0.0107	0.0020	8302076
Total Phosphorus (P)	mg/L	0.0195	0.0020	8302121
<b>Physical Properties</b>				
Conductivity	uS/cm	333	1.0	8301103
pH	pH	7.61		8301097
<b>Physical Properties</b>				
Total Suspended Solids	mg/L	2160	1.0	8301206
RDL = Reportable Detection Limit N/A = Not Applicable				

Maxxam Job #: B647882  
Report Date: 2016/06/22

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		OV5408	OV5409	OV5410	OV5411	OV5412		
Sampling Date		2016/06/13 16:46	2016/06/13 14:35	2016/06/13 14:10	2016/06/13 12:50	2016/06/13 15:30		
COC Number		08423165	08423165	08423165	08423165	08423165		
	UNITS	MW15-01	BH95G-25D	BH95G-25S	BH95G-29	BH95G-22	RDL	QC Batch
<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO3)	mg/L	176	614	536	230	170	0.50	8300559
<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	0.000023	0.000020	8301333
<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	0.00848	<0.00050	<0.00050	0.00158	0.00099	0.00050	8301267
Dissolved Antimony (Sb)	mg/L	0.000044	0.000185	0.000053	0.00164	0.000070	0.000020	8301267
Dissolved Arsenic (As)	mg/L	0.000142	0.000906	0.00187	0.00633	0.000086	0.000020	8301267
Dissolved Barium (Ba)	mg/L	0.0188	0.0252	0.0763	0.0943	0.100	0.000020	8301267
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000010	8301267
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8301267
Dissolved Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	8301267
Dissolved Cadmium (Cd)	mg/L	0.0000144	<0.0000050	0.0000088	<0.0000050	0.000123	0.0000050	8301267
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	8301267
Dissolved Cobalt (Co)	mg/L	0.0000308	0.000679	0.000351	0.000264	0.000060	0.0000050	8301267
Dissolved Copper (Cu)	mg/L	0.000524	<0.000050	0.000059	0.000076	0.000798	0.000050	8301267
Dissolved Iron (Fe)	mg/L	<0.0010	0.0014	0.0015	<0.0010	0.0019	0.0010	8301267
Dissolved Lead (Pb)	mg/L	<0.0000050	<0.0000050	<0.0000050	0.000481	0.0000134	0.0000050	8301267
Dissolved Lithium (Li)	mg/L	0.00137	0.0126	0.0119	0.00503	0.00157	0.00050	8301267
Dissolved Manganese (Mn)	mg/L	0.000764	0.402	0.393	0.129	0.000799	0.000050	8301267
Dissolved Molybdenum (Mo)	mg/L	0.000868	0.000542	0.00183	0.00313	0.000199	0.000050	8301267
Dissolved Nickel (Ni)	mg/L	0.000228	0.00126	0.000641	0.000766	0.000168	0.000020	8301267
Dissolved Phosphorus (P)	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0020	8301267
Dissolved Selenium (Se)	mg/L	0.000499	<0.000040	<0.000040	0.000154	0.000866	0.000040	8301267
Dissolved Silicon (Si)	mg/L	1.82	5.85	5.98	3.34	3.04	0.050	8301267
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8301267
Dissolved Strontium (Sr)	mg/L	0.158	0.506	0.461	0.197	0.150	0.000050	8301267
Dissolved Thallium (Tl)	mg/L	<0.0000020	<0.0000020	<0.0000020	0.0000026	<0.0000020	0.0000020	8301267
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8301267
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	8301267
Dissolved Uranium (U)	mg/L	0.00197	0.00688	0.00339	0.0103	0.00224	0.0000020	8301267
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	0.00057	<0.00020	0.00020	8301267
Dissolved Zinc (Zn)	mg/L	0.00144	0.00375	0.00037	0.00164	0.00541	0.00010	8301267
RDL = Reportable Detection Limit								

Maxxam Job #: B647882  
Report Date: 2016/06/22

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		OV5408	OV5409	OV5410	OV5411	OV5412		
Sampling Date		2016/06/13 16:46	2016/06/13 14:35	2016/06/13 14:10	2016/06/13 12:50	2016/06/13 15:30		
COC Number		08423165	08423165	08423165	08423165	08423165		
	UNITS	MW15-01	BH95G-25D	BH95G-25S	BH95G-29	BH95G-22	RDL	QC Batch
Dissolved Zirconium (Zr)	mg/L	<0.00010	0.00051	<0.00010	<0.00010	<0.00010	0.00010	8301267
Dissolved Calcium (Ca)	mg/L	60.1	152	147	76.6	53.9	0.050	8299845
Dissolved Magnesium (Mg)	mg/L	6.42	56.8	41.3	9.46	8.52	0.050	8299845
Dissolved Potassium (K)	mg/L	0.538	4.66	6.13	3.03	1.28	0.050	8299845
Dissolved Sodium (Na)	mg/L	1.87	2.29	4.05	0.937	0.888	0.050	8299845
Dissolved Sulphur (S)	mg/L	20.8	88.8	65.9	16.2	13.1	3.0	8299845
RDL = Reportable Detection Limit								

Maxxam Job #: B647882  
Report Date: 2016/06/22

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		OV5413	OV5414		
Sampling Date		2016/06/12 16:41	2016/06/13 15:10		
COC Number		08423165	08423165		
	UNITS	BH95G-146	DUP1	RDL	QC Batch
<b>Misc. Inorganics</b>					
Dissolved Hardness (CaCO3)	mg/L	392	166	0.50	8300559
<b>Elements</b>					
Dissolved Mercury (Hg)	mg/L	<0.000020	0.000031	0.000020	8301333
<b>Dissolved Metals by ICPMS</b>					
Dissolved Aluminum (Al)	mg/L	<0.00050	0.00112	0.00050	8301267
Dissolved Antimony (Sb)	mg/L	0.000061	0.000073	0.000020	8301267
Dissolved Arsenic (As)	mg/L	0.000296	0.000090	0.000020	8301267
Dissolved Barium (Ba)	mg/L	0.00773	0.107	0.000020	8301267
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	0.000010	8301267
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	0.0000050	8301267
Dissolved Boron (B)	mg/L	<0.010	<0.010	0.010	8301267
Dissolved Cadmium (Cd)	mg/L	<0.0000050	0.000116	0.0000050	8301267
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	0.00010	8301267
Dissolved Cobalt (Co)	mg/L	<0.0000050	0.0000059	0.0000050	8301267
Dissolved Copper (Cu)	mg/L	<0.000050	0.000780	0.000050	8301267
Dissolved Iron (Fe)	mg/L	<0.0010	0.0026	0.0010	8301267
Dissolved Lead (Pb)	mg/L	<0.0000050	0.0000140	0.0000050	8301267
Dissolved Lithium (Li)	mg/L	0.0207	0.00156	0.00050	8301267
Dissolved Manganese (Mn)	mg/L	0.0182	0.000951	0.000050	8301267
Dissolved Molybdenum (Mo)	mg/L	0.000230	0.000198	0.000050	8301267
Dissolved Nickel (Ni)	mg/L	0.000029	0.000189	0.000020	8301267
Dissolved Phosphorus (P)	mg/L	<0.0020	<0.0020	0.0020	8301267
Dissolved Selenium (Se)	mg/L	<0.000040	0.000831	0.000040	8301267
Dissolved Silicon (Si)	mg/L	14.8	3.04	0.050	8301267
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	0.0000050	8301267
Dissolved Strontium (Sr)	mg/L	0.373	0.147	0.000050	8301267
Dissolved Thallium (Tl)	mg/L	<0.0000020	<0.0000020	0.0000020	8301267
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	0.00020	8301267
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	0.00050	8301267
Dissolved Uranium (U)	mg/L	0.00165	0.00228	0.0000020	8301267
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	0.00020	8301267
Dissolved Zinc (Zn)	mg/L	0.00059	0.00501	0.00010	8301267
RDL = Reportable Detection Limit					

Maxxam Job #: B647882  
Report Date: 2016/06/22

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		OV5413	OV5414		
Sampling Date		2016/06/12 16:41	2016/06/13 15:10		
COC Number		08423165	08423165		
	UNITS	BH95G-146	DUP1	RDL	QC Batch
Dissolved Zirconium (Zr)	mg/L	<0.00010	<0.00010	0.00010	8301267
Dissolved Calcium (Ca)	mg/L	121	51.8	0.050	8299845
Dissolved Magnesium (Mg)	mg/L	22.0	8.85	0.050	8299845
Dissolved Potassium (K)	mg/L	2.36	1.32	0.050	8299845
Dissolved Sodium (Na)	mg/L	3.23	0.930	0.050	8299845
Dissolved Sulphur (S)	mg/L	89.1	13.5	3.0	8299845
RDL = Reportable Detection Limit					



Maxxam Job #: B647882  
Report Date: 2016/06/22

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		OV5413		
<b>Sampling Date</b>		2016/06/12 16:41		
<b>COC Number</b>		08423165		
	<b>UNITS</b>	<b>BH95G-146</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>				
Total Hardness (CaCO3)	mg/L	376	0.50	8300609
<b>Elements</b>				
Total Mercury (Hg)	mg/L	<0.0000020	0.0000020	8301653
<b>Total Metals by ICPMS</b>				
Total Aluminum (Al)	mg/L	0.0623	0.00050	8301426
Total Antimony (Sb)	mg/L	0.000183	0.000020	8301426
Total Arsenic (As)	mg/L	0.000983	0.000020	8301426
Total Barium (Ba)	mg/L	0.00956	0.000020	8301426
Total Beryllium (Be)	mg/L	<0.000010	0.000010	8301426
Total Bismuth (Bi)	mg/L	0.0000130	0.0000050	8301426
Total Boron (B)	mg/L	<0.010	0.010	8301426
Total Cadmium (Cd)	mg/L	0.0000690	0.0000050	8301426
Total Chromium (Cr)	mg/L	0.00023	0.00010	8301426
Total Cobalt (Co)	mg/L	0.0000700	0.0000050	8301426
Total Copper (Cu)	mg/L	0.000628	0.000050	8301426
Total Iron (Fe)	mg/L	1.44	0.0010	8301426
Total Lead (Pb)	mg/L	0.00358	0.0000050	8301426
Total Lithium (Li)	mg/L	0.0196	0.00050	8301426
Total Manganese (Mn)	mg/L	0.0198	0.000050	8301426
Total Molybdenum (Mo)	mg/L	0.000223	0.000050	8301426
Total Nickel (Ni)	mg/L	0.000253	0.000020	8301426
Total Phosphorus (P)	mg/L	0.0108	0.0020	8301426
Total Selenium (Se)	mg/L	<0.000040	0.000040	8301426
Total Silicon (Si)	mg/L	13.9	0.050	8301426
Total Silver (Ag)	mg/L	0.0000330	0.0000050	8301426
Total Strontium (Sr)	mg/L	0.405	0.000050	8301426
Total Thallium (Tl)	mg/L	0.0000110	0.0000020	8301426
Total Tin (Sn)	mg/L	<0.00020	0.00020	8301426
Total Titanium (Ti)	mg/L	0.00298	0.00050	8301426
Total Uranium (U)	mg/L	0.00154	0.0000020	8301426
Total Vanadium (V)	mg/L	<0.00020	0.00020	8301426
Total Zinc (Zn)	mg/L	0.0119	0.00010	8301426
RDL = Reportable Detection Limit				

Maxxam Job #: B647882  
Report Date: 2016/06/22

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		OV5413		
<b>Sampling Date</b>		2016/06/12 16:41		
<b>COC Number</b>		08423165		
	<b>UNITS</b>	<b>BH95G-146</b>	<b>RDL</b>	<b>QC Batch</b>
Total Zirconium (Zr)	mg/L	0.00095	0.00010	8301426
Total Calcium (Ca)	mg/L	115	0.050	8299907
Total Magnesium (Mg)	mg/L	21.4	0.050	8299907
Total Potassium (K)	mg/L	2.35	0.050	8299907
Total Sodium (Na)	mg/L	3.07	0.050	8299907
Total Sulphur (S)	mg/L	85.1	3.0	8299907
RDL = Reportable Detection Limit				

Maxxam Job #: B647882  
Report Date: 2016/06/22

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		OV5408	OV5409	OV5410		
Sampling Date		2016/06/13 16:46	2016/06/13 14:35	2016/06/13 14:10		
COC Number		08423165	08423165	08423165		
	UNITS	MW15-01	BH95G-25D	BH95G-25S	RDL	QC Batch
<b>Calculated Parameters</b>						
Total Hardness (CaCO3)	mg/L	213	741	724	0.50	8300609
<b>Elements</b>						
Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	0.0000020	8301653
<b>Total Metals by ICPMS</b>						
Total Aluminum (Al)	mg/L	2.42	9.21	33.9	0.0030	8301259
Total Antimony (Sb)	mg/L	0.000205	0.000595	0.000272	0.000050	8301259
Total Arsenic (As)	mg/L	0.00163	0.0130	0.0340	0.000020	8301259
Total Barium (Ba)	mg/L	0.0440	1.09	0.689	0.00010	8301259
Total Beryllium (Be)	mg/L	0.000120	0.00110	0.00328	0.000010	8301259
Total Bismuth (Bi)	mg/L	0.000024	0.000638	0.00167	0.000020	8301259
Total Boron (B)	mg/L	<0.050	<0.050	<0.050	0.050	8301259
Total Cadmium (Cd)	mg/L	0.000316	0.000996	0.00209	0.0000050	8301259
Total Chromium (Cr)	mg/L	0.0144	0.0121	0.0775	0.00050	8301259
Total Cobalt (Co)	mg/L	0.00236	0.0112	0.0310	0.000010	8301259
Total Copper (Cu)	mg/L	0.0118	0.0394	0.111	0.00020	8301259
Total Iron (Fe)	mg/L	7.56	28.2	80.5	0.0050	8301259
Total Lead (Pb)	mg/L	0.00685	0.0494	0.124	0.000050	8301259
Total Lithium (Li)	mg/L	0.00160	0.0194	0.0597	0.00050	8301259
Total Manganese (Mn)	mg/L	0.119	0.998	1.40	0.00010	8301259
Total Molybdenum (Mo)	mg/L	0.00317	0.000775	0.00181	0.000050	8301259
Total Nickel (Ni)	mg/L	0.00401	0.0183	0.0704	0.00010	8301259
Total Phosphorus (P)	mg/L	0.156	0.920	3.54	0.010	8301259
Total Selenium (Se)	mg/L	0.000580	0.000178	0.000170	0.000040	8301259
Total Silicon (Si)	mg/L	4.19	19.9	49.2	0.10	8301259
Total Silver (Ag)	mg/L	0.00183	0.000297	0.000471	0.000010	8301259
Total Strontium (Sr)	mg/L	0.183	0.695	0.670	0.000050	8301259
Total Thallium (Tl)	mg/L	0.0000190	0.000143	0.000630	0.0000020	8301259
Total Tin (Sn)	mg/L	0.00028	0.00050	0.00057	0.00020	8301259
Total Titanium (Ti)	mg/L	0.0959	0.146	0.545	0.0050	8301259
Total Uranium (U)	mg/L	0.00223	0.0117	0.0128	0.0000050	8301259
Total Vanadium (V)	mg/L	0.00611	0.0170	0.0937	0.00050	8301259
Total Zinc (Zn)	mg/L	0.0740	0.758	0.331	0.0010	8301259
RDL = Reportable Detection Limit						

Maxxam Job #: B647882  
Report Date: 2016/06/22

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		OV5408	OV5409	OV5410		
Sampling Date		2016/06/13 16:46	2016/06/13 14:35	2016/06/13 14:10		
COC Number		08423165	08423165	08423165		
	UNITS	MW15-01	BH95G-25D	BH95G-25S	RDL	QC Batch
Total Zirconium (Zr)	mg/L	0.00061	0.00467	0.00151	0.00010	8301259
Total Calcium (Ca)	mg/L	72.7	176	179	0.25	8299907
Total Magnesium (Mg)	mg/L	7.60	73.0	67.1	0.25	8299907
Total Potassium (K)	mg/L	0.80	7.68	18.5	0.25	8299907
Total Sodium (Na)	mg/L	1.84	2.52	4.45	0.25	8299907
Total Sulphur (S)	mg/L	23	99	70	15	8299907
RDL = Reportable Detection Limit						

Maxxam Job #: B647882  
Report Date: 2016/06/22

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		OV5411			OV5412	OV5414		
Sampling Date		2016/06/13 12:50			2016/06/13 15:30	2016/06/13 15:10		
COC Number		08423165			08423165	08423165		
	UNITS	BH95G-29	RDL	QC Batch	BH95G-22	DUP1	RDL	QC Batch
<b>Calculated Parameters</b>								
Total Hardness (CaCO3)	mg/L	420	0.50	8300609	188	189	0.50	8300609
<b>Elements</b>								
Total Mercury (Hg)	mg/L	<0.0000020	0.0000020	8301653	0.0000032	0.0000038	0.0000020	8301653
<b>Total Metals by ICPMS</b>								
Total Aluminum (Al)	mg/L	37.5	0.0030	8301259	6.59	7.11	0.0030	8301259
Total Antimony (Sb)	mg/L	0.00232	0.000050	8301259	0.00131	0.00120	0.000050	8301259
Total Arsenic (As)	mg/L	0.0843	0.000020	8301259	0.0204	0.0185	0.000020	8301259
Total Barium (Ba)	mg/L	0.999	0.00010	8301259	0.262	0.285	0.00010	8301259
Total Beryllium (Be)	mg/L	0.00234	0.000010	8301259	0.000375	0.000408	0.000010	8301259
Total Bismuth (Bi)	mg/L	0.00280	0.000020	8301259	0.000747	0.000796	0.000020	8301259
Total Boron (B)	mg/L	<0.050	0.050	8301259	<0.050	<0.050	0.050	8301259
Total Cadmium (Cd)	mg/L	0.0193	0.0000050	8301259	0.00278	0.00325	0.0000050	8301259
Total Chromium (Cr)	mg/L	0.0866	0.00050	8301259	0.0132	0.0134	0.00050	8301259
Total Cobalt (Co)	mg/L	0.0505	0.000010	8301259	0.0132	0.0154	0.000010	8301259
Total Copper (Cu)	mg/L	0.509	0.00020	8301259	0.134	0.152	0.00020	8301259
Total Iron (Fe)	mg/L	81.7	0.0050	8301259	23.2	26.3	0.0050	8301259
Total Lead (Pb)	mg/L	0.486	0.000050	8301259	0.0820	0.0991	0.000050	8301259
Total Lithium (Li)	mg/L	0.0502	0.00050	8301259	0.00843	0.00911	0.00050	8301259
Total Manganese (Mn)	mg/L	2.75	0.00010	8301259	0.874	1.11	0.00010	8301259
Total Molybdenum (Mo)	mg/L	0.00423	0.00020	8305229	0.000440	0.000337	0.000050	8301259
Total Nickel (Ni)	mg/L	0.151	0.00010	8301259	0.0218	0.0251	0.00010	8301259
Total Phosphorus (P)	mg/L	3.11	0.010	8301259	0.211	0.293	0.010	8301259
Total Selenium (Se)	mg/L	0.000711	0.000040	8301259	0.000851	0.000785	0.000040	8301259
Total Silicon (Si)	mg/L	48.2	0.10	8301259	12.2	12.8	0.10	8301259
Total Silver (Ag)	mg/L	0.00325	0.000010	8301259	0.00174	0.00212	0.000010	8301259
Total Strontium (Sr)	mg/L	0.374	0.000050	8301259	0.169	0.175	0.000050	8301259
Total Thallium (Tl)	mg/L	0.000834	0.0000020	8301259	0.000149	0.000158	0.0000020	8301259
Total Tin (Sn)	mg/L	0.00052	0.00020	8301259	0.00083	0.00062	0.00020	8301259
Total Titanium (Ti)	mg/L	0.600	0.0050	8301259	0.251	0.250	0.0050	8301259
Total Uranium (U)	mg/L	0.0292	0.0000050	8301259	0.00360	0.00370	0.0000050	8301259
Total Vanadium (V)	mg/L	0.101	0.00050	8301259	0.0172	0.0176	0.00050	8301259
Total Zinc (Zn)	mg/L	2.89	0.0010	8301259	0.440	0.484	0.0010	8301259
RDL = Reportable Detection Limit								

Maxxam Job #: B647882  
Report Date: 2016/06/22

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		OV5411			OV5412	OV5414		
Sampling Date		2016/06/13 12:50			2016/06/13 15:30	2016/06/13 15:10		
COC Number		08423165			08423165	08423165		
	UNITS	BH95G-29	RDL	QC Batch	BH95G-22	DUP1	RDL	QC Batch
Total Zirconium (Zr)	mg/L	0.00313	0.00010	8301259	0.00112	0.00101	0.00010	8301259
Total Calcium (Ca)	mg/L	112	0.25	8299907	56.5	56.6	0.25	8299907
Total Magnesium (Mg)	mg/L	34.4	0.25	8299907	11.4	11.7	0.25	8299907
Total Potassium (K)	mg/L	10.9	0.25	8299907	2.88	3.00	0.25	8299907
Total Sodium (Na)	mg/L	1.13	0.25	8299907	0.82	0.81	0.25	8299907
Total Sulphur (S)	mg/L	18	15	8299907	<15	<15	15	8299907
RDL = Reportable Detection Limit								

Maxxam Job #: B647882  
Report Date: 2016/06/22

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** OV5408  
**Sample ID:** MW15-01  
**Matrix:** Water

**Collected:** 2016/06/13  
**Shipped:**  
**Received:** 2016/06/14

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8301670	N/A	2016/06/16	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8301105	2016/06/16	2016/06/16	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8302042	N/A	2016/06/16	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8303633	N/A	2016/06/17	Isabel Choi
Conductance - water	AT/ALK	8301103	N/A	2016/06/16	Maria Maclean
Fluoride	ISE/ISE	8301917	N/A	2016/06/16	Diana Cruz
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8300609	N/A	2016/06/17	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8300559	N/A	2016/06/17	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8301333	N/A	2016/06/16	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8301653	2016/06/16	2016/06/16	Edwin Lamigo
Ion Balance	CALC	8299902	N/A	2016/06/17	Automated Statchk
Sum of cations, anions	CALC	8299904	N/A	2016/06/17	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8299845	N/A	2016/06/17	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8301267	N/A	2016/06/16	Adnan Dzebic
Elements by ICPMS Digested LL (total)	ICP/CRCM	8301259	2016/06/16	2016/06/17	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8299907	N/A	2016/06/17	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8301565	N/A	2016/06/16	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8302073	N/A	2016/06/16	Diana Cruz
Nitrite (N) (low level)	TRAA/COL	8302076	N/A	2016/06/16	Diana Cruz
Nitrogen - Nitrate (as N)	CALC	8300282	N/A	2016/06/17	Automated Statchk
Filter and HNO <sub>3</sub> Preserve for Metals	ICP	8300992	N/A	2016/06/16	Lucy Luo
pH Water	AT/ALK	8301097	N/A	2016/06/16	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8302055	N/A	2016/06/16	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8302122	2016/06/16	2016/06/16	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8302121	N/A	2016/06/16	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8301206	2016/06/16	2016/06/17	Wendy Fong

**Maxxam ID:** OV5409  
**Sample ID:** BH95G-25D  
**Matrix:** Water

**Collected:** 2016/06/13  
**Shipped:**  
**Received:** 2016/06/14

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8301670	N/A	2016/06/16	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8301105	2016/06/16	2016/06/16	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8301998	N/A	2016/06/16	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8303633	N/A	2016/06/17	Isabel Choi
Conductance - water	AT/ALK	8301103	N/A	2016/06/16	Maria Maclean
Fluoride	ISE/ISE	8301917	N/A	2016/06/16	Diana Cruz
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8300609	N/A	2016/06/17	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8300559	N/A	2016/06/17	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8301333	N/A	2016/06/16	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8301653	2016/06/16	2016/06/16	Edwin Lamigo
Ion Balance	CALC	8299902	N/A	2016/06/17	Automated Statchk
Sum of cations, anions	CALC	8299904	N/A	2016/06/17	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8299845	N/A	2016/06/17	Automated Statchk

Maxxam Job #: B647882  
Report Date: 2016/06/22

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** OV5409  
**Sample ID:** BH95G-25D  
**Matrix:** Water

**Collected:** 2016/06/13  
**Shipped:**  
**Received:** 2016/06/14

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8301267	N/A	2016/06/16	Adnan Dzebic
Elements by ICPMS Digested LL (total)	ICP/CRCM	8301259	2016/06/16	2016/06/17	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8299907	N/A	2016/06/17	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8301565	N/A	2016/06/16	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8302073	N/A	2016/06/16	Diana Cruz
Nitrite (N) (low level)	TRAA/COL	8302076	N/A	2016/06/16	Diana Cruz
Nitrogen - Nitrate (as N)	CALC	8300282	N/A	2016/06/17	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8300992	N/A	2016/06/16	Lucy Luo
pH Water	AT/ALK	8301097	N/A	2016/06/16	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8302021	N/A	2016/06/16	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8302122	2016/06/16	2016/06/16	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8302121	N/A	2016/06/16	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8301206	2016/06/16	2016/06/17	Wendy Fong

**Maxxam ID:** OV5410  
**Sample ID:** BH95G-25S  
**Matrix:** Water

**Collected:** 2016/06/13  
**Shipped:**  
**Received:** 2016/06/14

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8301670	N/A	2016/06/16	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8301105	2016/06/16	2016/06/16	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8302042	N/A	2016/06/16	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8303633	N/A	2016/06/17	Isabel Choi
Conductance - water	AT/ALK	8301103	N/A	2016/06/16	Maria Maclean
Fluoride	ISE/ISE	8301917	N/A	2016/06/16	Diana Cruz
Hardness Total (calculated as CaCO3)	CALC	8300609	N/A	2016/06/17	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8300559	N/A	2016/06/17	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8301333	N/A	2016/06/16	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8301653	2016/06/16	2016/06/16	Edwin Lamigo
Ion Balance	CALC	8299902	N/A	2016/06/17	Automated Statchk
Sum of cations, anions	CALC	8299904	N/A	2016/06/17	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8299845	N/A	2016/06/17	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8301267	N/A	2016/06/16	Adnan Dzebic
Elements by ICPMS Digested LL (total)	ICP/CRCM	8301259	2016/06/16	2016/06/17	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8299907	N/A	2016/06/17	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8301565	N/A	2016/06/16	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8302073	N/A	2016/06/16	Diana Cruz
Nitrite (N) (low level)	TRAA/COL	8302076	N/A	2016/06/16	Diana Cruz
Nitrogen - Nitrate (as N)	CALC	8300282	N/A	2016/06/17	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8300992	N/A	2016/06/16	Lucy Luo
pH Water	AT/ALK	8301097	N/A	2016/06/16	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8302055	N/A	2016/06/16	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8302122	2016/06/16	2016/06/16	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8302121	N/A	2016/06/16	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8301206	2016/06/16	2016/06/17	Wendy Fong



Maxxam Job #: B647882  
Report Date: 2016/06/22

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** OV5411  
**Sample ID:** BH95G-29  
**Matrix:** Water

**Collected:** 2016/06/13  
**Shipped:**  
**Received:** 2016/06/14

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8301670	N/A	2016/06/16	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8301105	2016/06/16	2016/06/16	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8303653	N/A	2016/06/17	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8303633	N/A	2016/06/17	Isabel Choi
Conductance - water	AT/ALK	8301103	N/A	2016/06/16	Maria Maclean
Fluoride	ISE/ISE	8301917	N/A	2016/06/16	Diana Cruz
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8300609	N/A	2016/06/17	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8300559	N/A	2016/06/17	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8301333	N/A	2016/06/16	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8301653	2016/06/16	2016/06/16	Edwin Lamigo
Ion Balance	CALC	8299902	N/A	2016/06/17	Automated Statchk
Sum of cations, anions	CALC	8299904	N/A	2016/06/17	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8299845	N/A	2016/06/17	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8301267	N/A	2016/06/16	Adnan Dzebic
Elements by ICPMS Digested LL (total)	ICP/CRCM	8301259	2016/06/16	2016/06/17	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8299907	N/A	2016/06/17	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8301563	N/A	2016/06/16	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8302073	N/A	2016/06/16	Diana Cruz
Nitrite (N) (low level)	TRAA/COL	8302076	N/A	2016/06/16	Diana Cruz
Nitrogen - Nitrate (as N)	CALC	8300282	N/A	2016/06/17	Automated Statchk
Filter and HNO <sub>3</sub> Preserve for Metals	ICP	8300992	N/A	2016/06/16	Lucy Luo
pH Water	AT/ALK	8301097	N/A	2016/06/16	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8302021	N/A	2016/06/16	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8305552	2016/06/20	2016/06/20	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8302121	N/A	2016/06/16	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8301206	2016/06/16	2016/06/17	Wendy Fong

**Maxxam ID:** OV5411 Dup  
**Sample ID:** BH95G-29  
**Matrix:** Water

**Collected:** 2016/06/13  
**Shipped:**  
**Received:** 2016/06/14

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8301670	N/A	2016/06/16	Wilson Au Yueng
Fluoride	ISE/ISE	8301917	N/A	2016/06/16	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8302073	N/A	2016/06/16	Diana Cruz
Nitrite (N) (low level)	TRAA/COL	8302076	N/A	2016/06/16	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8302121	N/A	2016/06/16	Isabel Choi

**Maxxam ID:** OV5412  
**Sample ID:** BH95G-22  
**Matrix:** Water

**Collected:** 2016/06/13  
**Shipped:**  
**Received:** 2016/06/14

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8301670	N/A	2016/06/16	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8301105	2016/06/16	2016/06/16	Maria Maclean

Maxxam Job #: B647882  
Report Date: 2016/06/22

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** OV5412  
**Sample ID:** BH95G-22  
**Matrix:** Water

**Collected:** 2016/06/13  
**Shipped:**  
**Received:** 2016/06/14

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chloride by Automated Colourimetry	KONE/COL	8302042	N/A	2016/06/16	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8303633	N/A	2016/06/17	Isabel Choi
Conductance - water	AT/ALK	8301103	N/A	2016/06/16	Maria Maclean
Fluoride	ISE/ISE	8301917	N/A	2016/06/16	Diana Cruz
Hardness Total (calculated as CaCO3)	CALC	8300609	N/A	2016/06/17	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8300559	N/A	2016/06/17	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8301333	N/A	2016/06/16	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8301653	2016/06/16	2016/06/16	Edwin Lamigo
Ion Balance	CALC	8299902	N/A	2016/06/17	Automated Statchk
Sum of cations, anions	CALC	8299904	N/A	2016/06/17	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8299845	N/A	2016/06/17	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8301267	N/A	2016/06/16	Adnan Dzebic
Elements by ICPMS Digested LL (total)	ICP/CRCM	8301259	2016/06/16	2016/06/17	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8299907	N/A	2016/06/17	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8301565	N/A	2016/06/16	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8302073	N/A	2016/06/16	Diana Cruz
Nitrite (N) (low level)	TRAA/COL	8302076	N/A	2016/06/16	Diana Cruz
Nitrogen - Nitrate (as N)	CALC	8300282	N/A	2016/06/17	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8300992	N/A	2016/06/16	Lucy Luo
pH Water	AT/ALK	8301097	N/A	2016/06/16	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8303655	N/A	2016/06/17	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8302122	2016/06/16	2016/06/16	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8302121	N/A	2016/06/16	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8301206	2016/06/16	2016/06/17	Wendy Fong

**Maxxam ID:** OV5413  
**Sample ID:** BH95G-146  
**Matrix:** Water

**Collected:** 2016/06/12  
**Shipped:**  
**Received:** 2016/06/14

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8301670	N/A	2016/06/16	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8301105	2016/06/16	2016/06/16	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8302042	N/A	2016/06/16	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8303633	N/A	2016/06/17	Isabel Choi
Conductance - water	AT/ALK	8301103	N/A	2016/06/16	Maria Maclean
Fluoride	ISE/ISE	8301917	N/A	2016/06/16	Diana Cruz
Hardness Total (calculated as CaCO3)	CALC	8300609	N/A	2016/06/17	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8300559	N/A	2016/06/17	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8301333	N/A	2016/06/16	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8301653	2016/06/16	2016/06/16	Edwin Lamigo
Ion Balance	CALC	8299902	N/A	2016/06/17	Automated Statchk
Sum of cations, anions	CALC	8299904	N/A	2016/06/17	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8299845	N/A	2016/06/17	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8301267	N/A	2016/06/16	Adnan Dzebic
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8299907	N/A	2016/06/17	Automated Statchk

Maxxam Job #: B647882  
Report Date: 2016/06/22

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** OV5413  
**Sample ID:** BH95G-146  
**Matrix:** Water

**Collected:** 2016/06/12  
**Shipped:**  
**Received:** 2016/06/14

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Elements by ICPMS Low Level (total)	ICP/CRCM	8301426	N/A	2016/06/17	Andrew An
Ammonia-N (Preserved)	KONE/COL	8301565	N/A	2016/06/16	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8302073	N/A	2016/06/16	Diana Cruz
Nitrite (N) (low level)	TRAA/COL	8302076	N/A	2016/06/16	Diana Cruz
Nitrogen - Nitrate (as N)	CALC	8300282	N/A	2016/06/17	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8300992	N/A	2016/06/16	Lucy Luo
pH Water	AT/ALK	8301097	N/A	2016/06/16	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8302055	N/A	2016/06/16	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8302122	2016/06/16	2016/06/16	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8302121	N/A	2016/06/16	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8300731	2016/06/16	2016/06/17	Wendy Fong

**Maxxam ID:** OV5413 Dup  
**Sample ID:** BH95G-146  
**Matrix:** Water

**Collected:** 2016/06/12  
**Shipped:**  
**Received:** 2016/06/14

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8301267	N/A	2016/06/16	Adnan Dzebic

**Maxxam ID:** OV5414  
**Sample ID:** DUP1  
**Matrix:** Water

**Collected:** 2016/06/13  
**Shipped:**  
**Received:** 2016/06/14

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8301670	N/A	2016/06/16	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8301105	2016/06/16	2016/06/16	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8302042	N/A	2016/06/16	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8303633	N/A	2016/06/17	Isabel Choi
Conductance - water	AT/ALK	8301103	N/A	2016/06/16	Maria Maclean
Fluoride	ISE/ISE	8301917	N/A	2016/06/16	Diana Cruz
Hardness Total (calculated as CaCO3)	CALC	8300609	N/A	2016/06/17	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8300559	N/A	2016/06/17	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8301333	N/A	2016/06/16	Edwin Lamigo
Mercury (Total-LowLevel) by CVAF	CV/AF	8301653	2016/06/16	2016/06/16	Edwin Lamigo
Ion Balance	CALC	8299902	N/A	2016/06/17	Automated Statchk
Sum of cations, anions	CALC	8299904	N/A	2016/06/17	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8299845	N/A	2016/06/17	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8301267	N/A	2016/06/16	Adnan Dzebic
Elements by ICPMS Digested LL (total)	ICP/CRCM	8301259	2016/06/16	2016/06/17	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8299907	N/A	2016/06/17	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8301565	N/A	2016/06/16	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8302073	N/A	2016/06/16	Diana Cruz
Nitrite (N) (low level)	TRAA/COL	8302076	N/A	2016/06/16	Diana Cruz
Nitrogen - Nitrate (as N)	CALC	8300282	N/A	2016/06/17	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8300992	N/A	2016/06/16	Lucy Luo

Maxxam Job #: B647882  
Report Date: 2016/06/22

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**TEST SUMMARY**

**Maxxam ID:** OV5414  
**Sample ID:** DUP1  
**Matrix:** Water

**Collected:** 2016/06/13  
**Shipped:**  
**Received:** 2016/06/14

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
pH Water	AT/ALK	8301097	N/A	2016/06/16	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8302055	N/A	2016/06/16	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8302122	2016/06/16	2016/06/16	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8302121	N/A	2016/06/16	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8301206	2016/06/16	2016/06/17	Wendy Fong

Maxxam Job #: B647882  
Report Date: 2016/06/22

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**GENERAL COMMENTS**

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	7.7°C
Package 2	8.3°C
Package 3	7.3°C

Sample OV5408-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OV5409-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OV5410-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OV5411-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OV5412-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OV5414-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

**LL TOTAL METALS (DIGESTED) WITH CV HG Comments**

Sample OV5411-03 Elements by ICPMS Digested LL (total): RDL raised due to sample matrix interference.

Sample OV5411, Elements by ICPMS Digested LL (total): Test repeated.

**Results relate only to the items tested.**

Maxxam Job #: B647882  
Report Date: 2016/06/22

**QUALITY ASSURANCE REPORT**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8300731	Total Suspended Solids	2016/06/17			97	80 - 120	<1.0	mg/L		
8301097	pH	2016/06/16			102	97 - 103			0.15	N/A
8301103	Conductivity	2016/06/16			99	80 - 120	<1.0	uS/cm	0.37	20
8301105	Alkalinity (PP as CaCO3)	2016/06/16					<0.50	mg/L	NC	20
8301105	Alkalinity (Total as CaCO3)	2016/06/16	NC	80 - 120	98	80 - 120	<0.50	mg/L	0.63	20
8301105	Bicarbonate (HCO3)	2016/06/16					<0.50	mg/L	0.63	20
8301105	Carbonate (CO3)	2016/06/16					<0.50	mg/L	NC	20
8301105	Hydroxide (OH)	2016/06/16					<0.50	mg/L	NC	20
8301206	Total Suspended Solids	2016/06/17			99	80 - 120	<1.0	mg/L		
8301259	Total Aluminum (Al)	2016/06/17	117	80 - 120	115	80 - 120	<0.0030	mg/L		
8301259	Total Antimony (Sb)	2016/06/17	103	80 - 120	105	80 - 120	<0.000050	mg/L		
8301259	Total Arsenic (As)	2016/06/17	105	80 - 120	109	80 - 120	<0.000020	mg/L	13	20
8301259	Total Barium (Ba)	2016/06/17	NC	80 - 120	102	80 - 120	<0.00010	mg/L		
8301259	Total Beryllium (Be)	2016/06/17	104	80 - 120	104	80 - 120	<0.000010	mg/L	NC	20
8301259	Total Bismuth (Bi)	2016/06/17	102	80 - 120	103	80 - 120	<0.000020	mg/L		
8301259	Total Boron (B)	2016/06/17	105	80 - 120	101	80 - 120	<0.050	mg/L		
8301259	Total Cadmium (Cd)	2016/06/17	106	80 - 120	110	80 - 120	<0.0000050	mg/L		
8301259	Total Chromium (Cr)	2016/06/17	104	80 - 120	104	80 - 120	<0.00050	mg/L	NC	20
8301259	Total Cobalt (Co)	2016/06/17	102	80 - 120	106	80 - 120	<0.000010	mg/L	3.6	20
8301259	Total Copper (Cu)	2016/06/17	104	80 - 120	110	80 - 120	0.00035, RDL=0.00020	mg/L	NC	20
8301259	Total Iron (Fe)	2016/06/17	NC	80 - 120	112	80 - 120	<0.0050	mg/L	1.9	20
8301259	Total Lead (Pb)	2016/06/17	104	80 - 120	101	80 - 120	<0.000050	mg/L	NC	20
8301259	Total Lithium (Li)	2016/06/17	NC	80 - 120	98	80 - 120	<0.00050	mg/L	5.7	20
8301259	Total Manganese (Mn)	2016/06/17	NC	80 - 120	106	80 - 120	<0.00010	mg/L	1.9	20
8301259	Total Molybdenum (Mo)	2016/06/17	106	80 - 120	95	80 - 120	<0.000050	mg/L		
8301259	Total Nickel (Ni)	2016/06/17	99	80 - 120	105	80 - 120	<0.00010	mg/L	NC	20
8301259	Total Phosphorus (P)	2016/06/17					<0.010	mg/L		
8301259	Total Selenium (Se)	2016/06/17	101	80 - 120	107	80 - 120	<0.000040	mg/L	NC	20
8301259	Total Silicon (Si)	2016/06/17					<0.10	mg/L		
8301259	Total Silver (Ag)	2016/06/17	110	80 - 120	99	80 - 120	<0.000010	mg/L		

Maxxam Job #: B647882  
Report Date: 2016/06/22

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8301259	Total Strontium (Sr)	2016/06/17	NC	80 - 120	105	80 - 120	<0.000050	mg/L	0.42	20
8301259	Total Thallium (Tl)	2016/06/17	93	80 - 120	90	80 - 120	0.0000020, RDL=0.0000020	mg/L		
8301259	Total Tin (Sn)	2016/06/17	104	80 - 120	105	80 - 120	<0.00020	mg/L	NC	20
8301259	Total Titanium (Ti)	2016/06/17	101	80 - 120	105	80 - 120	<0.0050	mg/L		
8301259	Total Uranium (U)	2016/06/17	103	80 - 120	97	80 - 120	<0.0000050	mg/L	NC	20
8301259	Total Vanadium (V)	2016/06/17	110	80 - 120	109	80 - 120	<0.00050	mg/L		
8301259	Total Zinc (Zn)	2016/06/17	105	80 - 120	119	80 - 120	<0.0010	mg/L		
8301259	Total Zirconium (Zr)	2016/06/17					<0.00010	mg/L	NC	20
8301267	Dissolved Aluminum (Al)	2016/06/16	98	80 - 120	112	80 - 120	<0.00050	mg/L	NC	20
8301267	Dissolved Antimony (Sb)	2016/06/16	102	80 - 120	97	80 - 120	<0.000020	mg/L	NC	20
8301267	Dissolved Arsenic (As)	2016/06/16	104	80 - 120	98	80 - 120	<0.000020	mg/L	6.6	20
8301267	Dissolved Barium (Ba)	2016/06/16	NC	80 - 120	98	80 - 120	<0.000020	mg/L	4.3	20
8301267	Dissolved Beryllium (Be)	2016/06/16	99	80 - 120	100	80 - 120	<0.000010	mg/L	NC	20
8301267	Dissolved Bismuth (Bi)	2016/06/16	96	80 - 120	107	80 - 120	<0.0000050	mg/L	NC	20
8301267	Dissolved Boron (B)	2016/06/16	91	80 - 120	98	80 - 120	<0.010	mg/L	NC	20
8301267	Dissolved Cadmium (Cd)	2016/06/16	101	80 - 120	111	80 - 120	<0.0000050	mg/L	NC	20
8301267	Dissolved Chromium (Cr)	2016/06/16	100	80 - 120	99	80 - 120	<0.00010	mg/L	NC	20
8301267	Dissolved Cobalt (Co)	2016/06/16	97	80 - 120	102	80 - 120	<0.0000050	mg/L	NC	20
8301267	Dissolved Copper (Cu)	2016/06/16	97	80 - 120	105	80 - 120	<0.000050	mg/L	NC	20
8301267	Dissolved Iron (Fe)	2016/06/16	98	80 - 120	99	80 - 120	<0.0010	mg/L	NC	20
8301267	Dissolved Lead (Pb)	2016/06/16	95	80 - 120	106	80 - 120	<0.0000050	mg/L	NC	20
8301267	Dissolved Lithium (Li)	2016/06/16	NC	80 - 120	100	80 - 120	<0.00050	mg/L	1.2	20
8301267	Dissolved Manganese (Mn)	2016/06/16	NC	80 - 120	100	80 - 120	<0.000050	mg/L	1.3	20
8301267	Dissolved Molybdenum (Mo)	2016/06/16	96	80 - 120	98	80 - 120	<0.000050	mg/L	NC	20
8301267	Dissolved Nickel (Ni)	2016/06/16	93	80 - 120	100	80 - 120	<0.000020	mg/L	NC	20
8301267	Dissolved Phosphorus (P)	2016/06/16					<0.0020	mg/L	NC	20
8301267	Dissolved Selenium (Se)	2016/06/16	115	80 - 120	95	80 - 120	<0.000040	mg/L	NC	20
8301267	Dissolved Silicon (Si)	2016/06/16					<0.050	mg/L	4.2	20
8301267	Dissolved Silver (Ag)	2016/06/16	92	80 - 120	96	80 - 120	<0.0000050	mg/L	NC	20
8301267	Dissolved Strontium (Sr)	2016/06/16	NC	80 - 120	94	80 - 120	<0.000050	mg/L	3.6	20



Maxxam Job #: B647882  
Report Date: 2016/06/22

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8301267	Dissolved Thallium (Tl)	2016/06/16	88	80 - 120	101	80 - 120	<0.0000020	mg/L	NC	20
8301267	Dissolved Tin (Sn)	2016/06/16	98	80 - 120	91	80 - 120	<0.00020	mg/L	NC	20
8301267	Dissolved Titanium (Ti)	2016/06/16	99	80 - 120	97	80 - 120	<0.00050	mg/L	NC	20
8301267	Dissolved Uranium (U)	2016/06/16	99	80 - 120	106	80 - 120	<0.0000020	mg/L	0.50	20
8301267	Dissolved Vanadium (V)	2016/06/16	101	80 - 120	98	80 - 120	<0.00020	mg/L	NC	20
8301267	Dissolved Zinc (Zn)	2016/06/16	97	80 - 120	99	80 - 120	<0.00010	mg/L	2.6	20
8301267	Dissolved Zirconium (Zr)	2016/06/16					<0.00010	mg/L	NC	20
8301333	Dissolved Mercury (Hg)	2016/06/16	96	80 - 120	96	80 - 120	<0.0000020	mg/L	NC	20
8301426	Total Aluminum (Al)	2016/06/17	107	80 - 120	113	80 - 120	<0.00050	mg/L	NC	20
8301426	Total Antimony (Sb)	2016/06/17	93	80 - 120	102	80 - 120	<0.000020	mg/L	NC	20
8301426	Total Arsenic (As)	2016/06/17	97	80 - 120	106	80 - 120	<0.000020	mg/L	NC	20
8301426	Total Barium (Ba)	2016/06/17	92	80 - 120	102	80 - 120	<0.000020	mg/L	NC	20
8301426	Total Beryllium (Be)	2016/06/17	92	80 - 120	100	80 - 120	<0.000010	mg/L	NC	20
8301426	Total Bismuth (Bi)	2016/06/17	94	80 - 120	106	80 - 120	<0.0000050	mg/L	NC	20
8301426	Total Boron (B)	2016/06/17	93	80 - 120	103	80 - 120	<0.010	mg/L	NC	20
8301426	Total Cadmium (Cd)	2016/06/17	99	80 - 120	105	80 - 120	<0.0000050	mg/L	NC	20
8301426	Total Chromium (Cr)	2016/06/17	94	80 - 120	105	80 - 120	<0.00010	mg/L	NC	20
8301426	Total Cobalt (Co)	2016/06/17	95	80 - 120	106	80 - 120	<0.0000050	mg/L	NC	20
8301426	Total Copper (Cu)	2016/06/17	95	80 - 120	107	80 - 120	<0.000050	mg/L	NC	20
8301426	Total Iron (Fe)	2016/06/17	102	80 - 120	116	80 - 120	<0.0010	mg/L	NC	20
8301426	Total Lead (Pb)	2016/06/17	94	80 - 120	104	80 - 120	<0.0000050	mg/L	NC	20
8301426	Total Lithium (Li)	2016/06/17	89	80 - 120	94	80 - 120	<0.00050	mg/L	NC	20
8301426	Total Manganese (Mn)	2016/06/17	94	80 - 120	108	80 - 120	<0.000050	mg/L	NC	20
8301426	Total Molybdenum (Mo)	2016/06/17	91	80 - 120	101	80 - 120	<0.000050	mg/L	NC	20
8301426	Total Nickel (Ni)	2016/06/17	94	80 - 120	105	80 - 120	<0.000020	mg/L	NC	20
8301426	Total Phosphorus (P)	2016/06/17					<0.0020	mg/L		
8301426	Total Selenium (Se)	2016/06/17	97	80 - 120	100	80 - 120	<0.000040	mg/L	NC	20
8301426	Total Silicon (Si)	2016/06/17					<0.050	mg/L	NC	20
8301426	Total Silver (Ag)	2016/06/17	85	80 - 120	103	80 - 120	0.0000050, RDL=0.0000050	mg/L	NC	20
8301426	Total Strontium (Sr)	2016/06/17	92	80 - 120	110	80 - 120	<0.000050	mg/L	NC	20



Maxxam Job #: B647882  
Report Date: 2016/06/22

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8301426	Total Thallium (Tl)	2016/06/17	101	80 - 120	109	80 - 120	<0.0000020	mg/L	NC	20
8301426	Total Tin (Sn)	2016/06/17	94	80 - 120	103	80 - 120	<0.00020	mg/L	NC	20
8301426	Total Titanium (Ti)	2016/06/17	73 (1)	80 - 120	110	80 - 120	<0.00050	mg/L	NC	20
8301426	Total Uranium (U)	2016/06/17	90	80 - 120	99	80 - 120	<0.0000020	mg/L	NC	20
8301426	Total Vanadium (V)	2016/06/17	91	80 - 120	109	80 - 120	<0.00020	mg/L	NC	20
8301426	Total Zinc (Zn)	2016/06/17	103	80 - 120	109	80 - 120	<0.00010	mg/L	NC	20
8301426	Total Zirconium (Zr)	2016/06/17					<0.00010	mg/L	NC	20
8301563	Total Ammonia (N)	2016/06/16	103	80 - 120	96	80 - 120	<0.0050	mg/L	NC	20
8301565	Total Ammonia (N)	2016/06/16	100	80 - 120	99	80 - 120	<0.0050	mg/L	NC	20
8301653	Total Mercury (Hg)	2016/06/16	96	80 - 120	96	80 - 120	<0.0000020	mg/L	NC	20
8301670	Acidity (pH 4.5)	2016/06/16					<0.50	mg/L	NC	20
8301670	Acidity (pH 8.3)	2016/06/16			100	80 - 120	<0.50	mg/L	NC	20
8301917	Fluoride (F)	2016/06/16	99	80 - 120	100	80 - 120	0.016, RDL=0.010	mg/L	0	20
8301998	Dissolved Chloride (Cl)	2016/06/16	NC	80 - 120	99	80 - 120	<0.50	mg/L	0.65	20
8302021	Dissolved Sulphate (SO4)	2016/06/16	NC	80 - 120	97	80 - 120	<0.50	mg/L	3.8	20
8302042	Dissolved Chloride (Cl)	2016/06/16	116	80 - 120	102	80 - 120	<0.50	mg/L	NC	20
8302055	Dissolved Sulphate (SO4)	2016/06/16	111	80 - 120	93	80 - 120	0.74, RDL=0.50	mg/L	NC	20
8302073	Nitrate plus Nitrite (N)	2016/06/16	110	80 - 120	106	80 - 120	<0.0020	mg/L	NC	25
8302076	Nitrite (N)	2016/06/16	99	80 - 120	93	80 - 120	<0.0020	mg/L	NC	25
8302121	Total Phosphorus (P)	2016/06/16	NC	80 - 120	105	80 - 120	<0.0020	mg/L	2.0	20
8302122	Dissolved Phosphorus (P)	2016/06/16	94	80 - 120	104	80 - 120	<0.0020	mg/L	0.98	20
8303633	Dissolved Organic Carbon (C)	2016/06/17	NC	80 - 120	111	80 - 120	<0.50	mg/L	1.7	20
8303653	Dissolved Chloride (Cl)	2016/06/17	104	80 - 120	103	80 - 120	<0.50	mg/L	6.6	20
8303655	Dissolved Sulphate (SO4)	2016/06/17	119	80 - 120	96	80 - 120	<0.50	mg/L		
8305229	Total Molybdenum (Mo)	2016/06/20	NC	80 - 120	91	80 - 120	<0.000050	mg/L		

Maxxam Job #: B647882  
Report Date: 2016/06/22

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8305552	Dissolved Phosphorus (P)	2016/06/20			94	80 - 120	<0.0020	mg/L		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

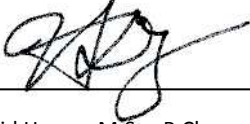
(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Maxxam Job #: B647882  
Report Date: 2016/06/22

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



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David Huang, M.Sc., P.Chem., QP, Scientific Services Manager

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

RECEIVED IN WHITEHORSE

BY: *Sydney@11637*

**Maxxam**  
A Bureau Veritas Group Company

TEMP: *7/8*

Burnaby: 2605 Canada Way, Burnaby, BC V5G 1X5. Toll Free (800) 665-8566

CHAIN OF CUSTODY REC

08423165

BBY FCD-00077/05

Page 1 2

COC #:

Invoice Information		Report Information (If differs from invoice)				Project Information (where applicable)										Turnaround Time (TAT) Required	
Company Name: <b>BMC MINERALS LTD.</b>		Company Name: <b>ALEXCO ENVIRONMENTAL</b>				Quotation #: <b>850743</b>										<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses)	
Contact Name:		Contact Name: <b>KAI WOLOSHYN</b>				P.O. #/ A/FER:										PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS	
Address: <b>530-1130 WEST PENDER ST</b>		Address: <b>UNIT 3 151 INDUSTRIAL RD.</b>				Project #: <b>BMC-15-01</b>										Rush TAT (Surcharges will be applied)	
Vancouver, BC PC: V6E 4A4		Whitehorse, YK PC: V1A 2V3				Site Location: <b>Kudz Ze Kayah</b>										<input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days	
Phone:		Phone: <b>(867) 668-6463</b>				Site #:										<input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days	
Email:		Email: <a href="mailto:kwoloshyn@alexcoresource.com">kwoloshyn@alexcoresource.com</a>				Sampled By:										Date Required:	
Regulatory Criteria		Special Instructions		Analysis Requested										Rush Confirmation #:			
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> BC CSR Water <input type="checkbox"/> CCME (Specify) <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC Water Quality		<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify) <b>USE SCENARIO # 12485</b>		TOTAL LOW LEVEL METALS INCL. MERCURY DISSOLVED LOW LEVEL METALS INCL. MERCURY LOW LEVEL TSS ANIONS (Cl, F, SO4, NO2, NO3) AMMONIA CONDUCTIVITY pH ALKALINITY & ACIDITY DIC TOTAL PHOSPHORUS - LOW LEVEL DISSOLVED PHOSPHORUS - LOW LEVEL										LABORATORY USE ONLY CUSTODY SEAL Y/N COOLER TEMPERATURES Present Intact HOLD - DO NOT ANALYZE # OF CONTAINERS SUBMITTED COOLING MEDIA PRESENT Y/N COMMENTS			
SAMPLES MUST BE KEPT COOL (-10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM																	
Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	TOTAL LOW LEVEL METALS INCL. MERCURY	DISSOLVED LOW LEVEL METALS INCL. MERCURY	LOW LEVEL TSS	ANIONS (Cl, F, SO4, NO2, NO3)	AMMONIA	CONDUCTIVITY	pH	ALKALINITY & ACIDITY	DIC	TOTAL PHOSPHORUS - LOW LEVEL	DISSOLVED PHOSPHORUS - LOW LEVEL	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE
1	MW15-01	13-Jun-16	16:46	Water	X	X	X	X	X	X	X	X	X	X	X	11	
3	BH95G-25D	13-Jun-16	14:35	Water	X	X	X	X	X	X	X	X	X	X	X	11	
4	BH95G-25S	13-Jun-16	14:10	Water	X	X	X	X	X	X	X	X	X	X	X	11	
5	BH95G-29	13-Jun-16	12:50	Water	X	X	X	X	X	X	X	X	X	X	X	11	
6	BH95G-22	13-Jun-16	15:30	Water	X	X	X	X	X	X	X	X	X	X	X	11	
7	BH95G-146	12-Jun-16	16:41	Water	X	X	X	X	X	X	X	X	X	X	X	11	
8	Dup1	13-Jun-16	15:10	Water	X	X	X	X	X	X	X	X	X	X	X	11	
9																	
10																	
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #									
<i>Leia Fougere</i>		14/06/2016	8:00	<i>HAIRI HARILAN</i>		2016/06/15	12:30	B647882									
<i>Judy Infante</i>		14/06/2016	16:00	<i>TRUANT</i>													

Your Project #: BMC-16-01  
 Site Location: KUDZ ZE KAYAH  
 Your C.O.C. #: 08423271, 08423272, 08423273

**Attention: KAI WOLOSHYN**

ALEXCO ENVIRONMENTAL GROUP INC.  
 Unit 3 Calcite Business Centre  
 151 Industrial Road  
 WHITEHORSE, YT  
 Canada Y1A 2V3

**Report Date: 2016/06/28**  
 Report #: R2207792  
 Version: 2 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**MAXXAM JOB #: B649077**

**Received: 2016/06/17, 15:30**

Sample Matrix: Water  
 # Samples Received: 23

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	23	N/A	2016/06/20	BBY6SOP-00037	SM 22 2310 B m
Alkalinity - Water	21	2016/06/20	2016/06/20	BBY6SOP-00026	SM 22 2320 B m
Alkalinity - Water	2	2016/06/24	2016/06/24	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry	21	N/A	2016/06/20	BBY6SOP-00011	SM 22 4500-Cl- E m
Chloride by Automated Colourimetry	2	N/A	2016/06/24	BBY6SOP-00011	SM 22 4500-Cl- E m
Carbon (DOC) - field filtered/preserved (1)	22	N/A	2016/06/20	BBY6SOP-00003	SM 22 5310 C m
Carbon (DOC) - unfiltered/unpreserved (1)	1	N/A	2016/06/20	BBY6SOP-00003	SM 22 5310 C m
Conductance - water	23	N/A	2016/06/20	BBY6SOP-00026	SM 22 2510 B m
Fluoride	23	N/A	2016/06/21	BBY6SOP-00048	SM 22 4500-F C m
Hardness Total (calculated as CaCO <sub>3</sub> )	8	N/A	2016/06/22	BBY WI-00033	Auto Calc
Hardness Total (calculated as CaCO <sub>3</sub> )	15	N/A	2016/06/23	BBY WI-00033	Auto Calc
Hardness (calculated as CaCO <sub>3</sub> )	1	N/A	2016/06/22	BBY WI-00033	Auto Calc
Hardness (calculated as CaCO <sub>3</sub> )	21	N/A	2016/06/23	BBY WI-00033	Auto Calc
Hardness (calculated as CaCO <sub>3</sub> )	1	N/A	2016/06/24	BBY WI-00033	Auto Calc
Mercury (Dissolved-LowLevel) by CVAf	23	N/A	2016/06/23	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total-LowLevel) by CVAf	23	2016/06/23	2016/06/23	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Ion Balance	1	N/A	2016/06/22	BBY WI-00033	SM 22 1030E
Ion Balance	20	N/A	2016/06/23	BBY WI-00033	SM 22 1030E
Ion Balance	2	N/A	2016/06/24	BBY WI-00033	SM 22 1030E
Sum of cations, anions	7	N/A	2016/06/22	Calc	
Sum of cations, anions	14	N/A	2016/06/23	Calc	
Sum of cations, anions	2	N/A	2016/06/24	Calc	
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	1	N/A	2016/06/22	BBY7SOP-00002	EPA 6020B R2 m
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	21	N/A	2016/06/23	BBY7SOP-00002	EPA 6020B R2 m
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	1	N/A	2016/06/24	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Low Level (dissolved)	12	N/A	2016/06/22	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Low Level (dissolved)	10	N/A	2016/06/23	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Low Level (dissolved)	1	N/A	2016/06/24	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Digested LL (total)	2	2016/06/21	2016/06/22	BBY7SOP-00003,	BCLM2005,EPA6020bR2m

Your Project #: BMC-16-01  
 Site Location: KUDZ ZE KAYAH  
 Your C.O.C. #: 08423271, 08423272, 08423273

**Attention: KAI WOLOSHYN**

ALEXCO ENVIRONMENTAL GROUP INC.  
 Unit 3 Calcite Business Centre  
 151 Industrial Road  
 WHITEHORSE, YT  
 Canada Y1A 2V3

**Report Date: 2016/06/28**  
 Report #: R2207792  
 Version: 2 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**MAXXAM JOB #: B649077**

**Received: 2016/06/17, 15:30**

Sample Matrix: Water  
 # Samples Received: 23

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
Elements by ICPMS Digested LL (total)	2	2016/06/21	2016/06/23	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Elements by ICPMS Digested LL (total)	6	2016/06/22	2016/06/22	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Elements by ICPMS Digested LL (total)	6	2016/06/22	2016/06/23	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Na, K, Ca, Mg, S by CRC ICPMS (total)	8	N/A	2016/06/22	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Na, K, Ca, Mg, S by CRC ICPMS (total)	15	N/A	2016/06/23	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Elements by ICPMS Low Level (total)	7	N/A	2016/06/21	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Ammonia-N (Unpreserved)	1	N/A	2016/06/20	BBY6SOP-00009	SM 22 4500-NH3- G m
Ammonia-N (Preserved)	22	N/A	2016/06/21	BBY6SOP-00009	SM 22 4500-NH3- G m
Nitrate+Nitrite (N) (low level)	23	N/A	2016/06/19	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) (low level)	23	N/A	2016/06/19	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N)	23	N/A	2016/06/21	BBY6SOP-00010	SM 22 4500-NO3- I m
Filter and HNO3 Preserve for Metals	22	N/A	2016/06/20	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (2)	23	N/A	2016/06/20	BBY6SOP-00026	SM 22 4500-H+ B m
Sulphate by Automated Colourimetry	20	N/A	2016/06/20	BBY6SOP-00017	SM 22 4500-SO42- E m
Sulphate by Automated Colourimetry	1	N/A	2016/06/21	BBY6SOP-00017	SM 22 4500-SO42- E m
Sulphate by Automated Colourimetry	2	N/A	2016/06/24	BBY6SOP-00017	SM 22 4500-SO42- E m
Phosphorus-P (LL Tot, dissolved) - UF/UP	22	2016/06/21	2016/06/21	BBY6SOP-00013	SM 22 4500-P E m
Phosphorus-P (LL Tot, dissolved) - UF/UP	1	2016/06/23	2016/06/23	BBY6SOP-00013	SM 22 4500-P E m
Total Phosphorus - unpreserved	22	N/A	2016/06/21	BBY6SOP-00013	SM 22 4500-P E m
Total Phosphorus - unpreserved	1	N/A	2016/06/23	BBY6SOP-00013	SM 22 4500-P E m
Total Suspended Solids-Low Level	23	2016/06/20	2016/06/21	BBY6SOP-00034	SM 22 2540 D

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) DOC present in the sample should be considered as non-purgeable DOC.

(2) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Your Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Your C.O.C. #: 08423271, 08423272, 08423273

**Attention:KAI WOLOSHYN**

ALEXCO ENVIRONMENTAL GROUP INC.  
Unit 3 Calcite Business Centre  
151 Industrial Road  
WHITEHORSE, YT  
Canada Y1A 2V3

**Report Date: 2016/06/28**  
Report #: R2207792  
Version: 2 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**MAXXAM JOB #: B649077**  
**Received: 2016/06/17, 15:30**

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.  
Morgan Melnychuk, Burnaby Project Manager  
Email: MMelnychuk@maxxam.ca  
Phone# (604)638-8034 Ext:8034

=====  
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

### RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		OW1917		OW1936		OW1937	OW1938	OW1939		
Sampling Date		2016/06/14 10:00		2016/06/14 13:30		2016/06/14 11:55	2016/06/14 09:10	2016/06/14 11:55		
COC Number		08423271		08423271		08423271	08423271	08423271		
	<b>UNITS</b>	<b>DUP 2</b>	<b>QC Batch</b>	<b>MW15-06</b>	<b>QC Batch</b>	<b>BH95G-31</b>	<b>BH95G-2</b>	<b>BH95G-33D</b>	<b>RDL</b>	<b>QC Batch</b>

Calculated Parameters										
Anion Sum	meq/L	5.1	8304169	4.1	8309781	3.3	5.0	5.0	N/A	8304169
Cation Sum	meq/L	5.3	8304169	4.3	8309781	3.1	4.8	5.0	N/A	8304169
Filter and HNO3 Preservation	N/A	LAB	8304808	LAB	8304808	LAB	LAB	LAB	N/A	8304808
Ion Balance	N/A	1.0	8304168	1.0	8309780	0.96	0.96	1.0	0.010	8304168
Nitrate (N)	mg/L	0.370	8304029	0.307	8304029	0.161	0.372	0.193	0.0020	8304029

Misc. Inorganics										
Fluoride (F)	mg/L	0.050	8306756	0.120	8306756	0.090	0.049	0.054	0.010	8306756
Dissolved Organic Carbon (C)	mg/L	3.33	8306427	1.06	8306427	0.91	3.08	1.11	0.50	8306427
Acidity (pH 4.5)	mg/L	<0.50	8305190	<0.50	8305190	<0.50	<0.50	<0.50	0.50	8305190
Alkalinity (Total as CaCO3)	mg/L	220	8305343	180	8310177	135	217	175	0.50	8305343
Acidity (pH 8.3)	mg/L	<0.50	8305190	<0.50	8305190	<0.50	<0.50	1.00	0.50	8305190
Alkalinity (PP as CaCO3)	mg/L	1.94	8305343	<0.50	8310177	<0.50	<0.50	<0.50	0.50	8305343
Bicarbonate (HCO3)	mg/L	264	8305343	220	8310177	165	265	214	0.50	8305343
Carbonate (CO3)	mg/L	2.33	8305343	<0.50	8310177	<0.50	<0.50	<0.50	0.50	8305343
Hydroxide (OH)	mg/L	<0.50	8305343	<0.50	8310177	<0.50	<0.50	<0.50	0.50	8305343

Anions										
Dissolved Sulphate (SO4)	mg/L	30.0	8305561	23.1	8310615	24.2	29.5	68.4	0.50	8305561
Dissolved Chloride (Cl)	mg/L	0.97	8305558	0.81	8310614	0.81	1.1	0.95	0.50	8305558

Nutrients										
Dissolved Phosphorus (P)	mg/L	0.0213 (1)	8306812	0.0115 (1)	8306812	0.0144 (1)	0.0194 (1)	0.0062 (1)	0.0020	8306812
Total Ammonia (N)	mg/L	0.033	8305698	0.075	8305698	0.044	0.025	0.055	0.0050	8305698
Nitrate plus Nitrite (N)	mg/L	0.374 (1)	8306263	0.313 (1)	8306263	0.163 (1)	0.377 (1)	0.195 (1)	0.0020	8306263
Nitrite (N)	mg/L	0.0042 (1)	8306266	0.0062 (1)	8306266	0.0020 (1)	0.0050 (1)	0.0024 (1)	0.0020	8306266
Total Phosphorus (P)	mg/L	0.0198 (1)	8306889	0.0271 (1)	8306889	0.0129 (1)	0.0173 (1)	0.0068 (1)	0.0020	8306889

Physical Properties										
Conductivity	uS/cm	439	8305346	366	8305346	297	434	447	1.0	8305346
pH	pH	8.32	8305345	8.22	8305345	8.25	8.25	8.15		8305345

Physical Properties										
Total Suspended Solids	mg/L	476	8304524	8760	8304524	180	538	561	1.0	8304524

RDL = Reportable Detection Limit  
N/A = Not Applicable  
(1) Sample analysed past recommended hold time.



Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		OW1940		OW1941			OW1942		
Sampling Date		2016/06/14 11:00		2016/06/14 10:03			2016/06/14 17:25		
COC Number		08423271		08423271			08423271		
	UNITS	MW15-04D	QC Batch	MW15-04S	RDL	QC Batch	BH95G-131	RDL	QC Batch
<b>Calculated Parameters</b>									
Anion Sum	meq/L	3.2	8304169	2.7	N/A	8304169	13	N/A	8304169
Cation Sum	meq/L	3.2	8304169	2.7	N/A	8304169	13	N/A	8304169
Filter and HNO3 Preservation	N/A	LAB	8304808	LAB	N/A	8304808	LAB	N/A	8304808
Ion Balance	N/A	1.0	8304168	0.99	0.010	8304168	1.0	0.010	8304168
Nitrate (N)	mg/L	0.0087	8304029	0.179	0.0020	8304029	<0.0020	0.0020	8304029
<b>Misc. Inorganics</b>									
Fluoride (F)	mg/L	0.210	8306756	0.086	0.010	8306753	0.075	0.010	8306756
Dissolved Organic Carbon (C)	mg/L	0.60	8306427	0.86	0.50	8306427	1.23	0.50	8306427
Acidity (pH 4.5)	mg/L	<0.50	8305190	<0.50	0.50	8305190	<0.50	0.50	8305190
Alkalinity (Total as CaCO3)	mg/L	139	8305343	121	0.50	8305343	419	0.50	8305343
Acidity (pH 8.3)	mg/L	<0.50	8305190	<0.50	0.50	8305190	12.1	0.50	8305190
Alkalinity (PP as CaCO3)	mg/L	<0.50	8305343	<0.50	0.50	8305343	<0.50	0.50	8305343
Bicarbonate (HCO3)	mg/L	170	8305343	148	0.50	8305343	511	0.50	8305343
Carbonate (CO3)	mg/L	<0.50	8305343	<0.50	0.50	8305343	<0.50	0.50	8305343
Hydroxide (OH)	mg/L	<0.50	8305343	<0.50	0.50	8305343	<0.50	0.50	8305343
<b>Anions</b>									
Dissolved Sulphate (SO4)	mg/L	20.0	8307212	10.0	0.50	8305561	227 (1)	5.0	8305561
Dissolved Chloride (Cl)	mg/L	0.93	8305558	0.82	0.50	8305558	1.3	0.50	8305558
<b>Nutrients</b>									
Dissolved Phosphorus (P)	mg/L	0.0063 (2)	8306812	0.0038 (2)	0.0020	8306812	0.0118 (2)	0.0020	8306812
Total Ammonia (N)	mg/L	0.046	8305698	0.056	0.0050	8305698	0.035	0.0050	8305698
Nitrate plus Nitrite (N)	mg/L	0.0087 (2)	8306263	0.184 (2)	0.0020	8306263	<0.0020 (2)	0.0020	8306263
Nitrite (N)	mg/L	<0.0020 (2)	8306266	0.0057 (2)	0.0020	8306266	<0.0020 (2)	0.0020	8306266
Total Phosphorus (P)	mg/L	0.0066 (2)	8306889	0.0188 (2)	0.0020	8306889	0.0134 (2)	0.0020	8306889
<b>Physical Properties</b>									
Conductivity	uS/cm	293	8305346	242	1.0	8305346	1110	1.0	8305346
pH	pH	8.25	8305345	8.22		8305345	7.90		8305345
<b>Physical Properties</b>									
Total Suspended Solids	mg/L	22.9	8304524	1140	1.0	8304524	44.2	1.0	8304524
RDL = Reportable Detection Limit N/A = Not Applicable (1) Detection limits raised due to dilution to bring analyte within the calibrated range. (2) Sample analysed past recommended hold time.									

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		OW1943		OW1944		OW1945		OW1946		
Sampling Date		2016/06/14 09:01		2016/06/15 09:15		2016/06/15 11:45		2016/06/15 12:20		
COC Number		08423271		08423272		08423272		08423272		
	UNITS	MW15-03D	QC Batch	MW15-03S	QC Batch	MW15-07D	QC Batch	MW15-07S	RDL	QC Batch

Calculated Parameters										
Anion Sum	meq/L	4.4	8304169	2.8	8304169	4.5	8304169	4.2	N/A	8304169
Cation Sum	meq/L	4.4	8304169	2.6	8304169	4.5	8304169	4.4	N/A	8304169
Filter and HNO3 Preservation	N/A	LAB	8304808	LAB	8304808	LAB	8304808	LAB	N/A	8304808
Ion Balance	N/A	1.0	8304168	0.91	8304168	1.0	8304168	1.0	0.010	8304168
Nitrate (N)	mg/L	<0.0020	8304029	0.131	8304029	<0.0020	8304029	<0.0020	0.0020	8304029

Misc. Inorganics										
Fluoride (F)	mg/L	0.160	8306753	0.069	8306753	0.330	8306753	0.290	0.010	8306753
Dissolved Organic Carbon (C)	mg/L	0.56	8306427	1.23	8306427	1.13	8306427	<0.50	0.50	8306427
Acidity (pH 4.5)	mg/L	<0.50	8305186	<0.50	8305186	<0.50	8305186	<0.50	0.50	8305186
Alkalinity (Total as CaCO3)	mg/L	194	8305327	128	8305343	194	8305327	174	0.50	8305343
Acidity (pH 8.3)	mg/L	<0.50	8305186	<0.50	8305186	<0.50	8305186	0.50	0.50	8305186
Alkalinity (PP as CaCO3)	mg/L	2.75	8305327	<0.50	8305343	<0.50	8305327	<0.50	0.50	8305343
Bicarbonate (HCO3)	mg/L	231	8305327	156	8305343	237	8305327	212	0.50	8305343
Carbonate (CO3)	mg/L	3.30	8305327	<0.50	8305343	<0.50	8305327	<0.50	0.50	8305343
Hydroxide (OH)	mg/L	<0.50	8305327	<0.50	8305343	<0.50	8305327	<0.50	0.50	8305343

Anions										
Dissolved Sulphate (SO4)	mg/L	22.6	8305561	11.3	8305561	30.2	8305551	33.1	0.50	8305561
Dissolved Chloride (Cl)	mg/L	0.97	8305558	0.77	8305558	0.74	8305541	0.82	0.50	8305558

Nutrients										
Dissolved Phosphorus (P)	mg/L	0.0033 (1)	8306812	0.0159 (1)	8306812	0.0021 (1)	8306812	0.0071 (1)	0.0020	8306812
Total Ammonia (N)	mg/L	0.087	8305698	0.044	8305698	0.059	8305697	0.026	0.0050	8305698
Nitrate plus Nitrite (N)	mg/L	<0.0020 (1)	8306256	0.137 (1)	8306263	<0.0020 (1)	8306256	<0.0020 (1)	0.0020	8306263
Nitrite (N)	mg/L	<0.0020 (1)	8306259	0.0056 (1)	8306266	<0.0020 (1)	8306259	<0.0020 (1)	0.0020	8306266
Total Phosphorus (P)	mg/L	0.0039 (1)	8306889	0.0144 (1)	8306889	0.0034 (1)	8306889	0.0103 (1)	0.0020	8306889

Physical Properties										
Conductivity	uS/cm	386	8305333	255	8305346	404	8305333	376	1.0	8305346
pH	pH	8.37	8305331	8.21	8305345	8.23	8305331	8.11		8305345

Physical Properties										
Total Suspended Solids	mg/L	4.0	8304524	3740	8304524	5.0	8304524	154	1.0	8304524

RDL = Reportable Detection Limit  
N/A = Not Applicable  
(1) Sample analysed past recommended hold time.

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		OW1947	OW1948		OW1949		OW1950		
Sampling Date		2016/06/15 12:00	2016/06/15 13:25		2016/06/16 13:35		2016/06/16 17:45		
COC Number		08423272	08423272		08423272		08423272		
	UNITS	DUP3	MW15-08S	QC Batch	MW15-FB	QC Batch	BH95G-32	RDL	QC Batch
<b>Calculated Parameters</b>									
Anion Sum	meq/L	4.6	4.3	8304169	0.012	8304169	4.4	N/A	8304169
Cation Sum	meq/L	4.4	4.4	8304169	0.0032	8304169	4.6	N/A	8304169
Filter and HNO3 Preservation	N/A	LAB	LAB	8304808	LAB	8304808	LAB	N/A	8304808
Ion Balance	N/A	0.96	1.0	8304168	0.27	8304168	1.0	0.010	8304168
Nitrate (N)	mg/L	0.0023	0.253	8304029	0.0024	8304029	0.0490	0.0020	8304029
<b>Misc. Inorganics</b>									
Fluoride (F)	mg/L	0.330	0.084	8306753	<0.010	8306753	0.038	0.010	8306753
Dissolved Organic Carbon (C)	mg/L	1.03	1.58	8306427	<0.50	8306427	<0.50	0.50	8306425
Acidity (pH 4.5)	mg/L	<0.50	<0.50	8305186	<0.50	8305186	<0.50	0.50	8305186
Alkalinity (Total as CaCO3)	mg/L	194	182	8305327	0.59	8305327	181	0.50	8305327
Acidity (pH 8.3)	mg/L	<0.50	0.70	8305186	<0.50	8305186	2.90	0.50	8305186
Alkalinity (PP as CaCO3)	mg/L	<0.50	<0.50	8305327	<0.50	8305327	<0.50	0.50	8305327
Bicarbonate (HCO3)	mg/L	237	222	8305327	0.72	8305327	220	0.50	8305327
Carbonate (CO3)	mg/L	<0.50	<0.50	8305327	<0.50	8305327	<0.50	0.50	8305327
Hydroxide (OH)	mg/L	<0.50	<0.50	8305327	<0.50	8305327	<0.50	0.50	8305327
<b>Anions</b>									
Dissolved Sulphate (SO4)	mg/L	31.5	28.2	8305551	<0.50	8305551	36.5	0.50	8305551
Dissolved Chloride (Cl)	mg/L	0.73	0.82	8305541	<0.50	8305541	0.79	0.50	8305541
<b>Nutrients</b>									
Dissolved Phosphorus (P)	mg/L	<0.0020 (1)	0.0084 (1)	8306812	<0.0020 (1)	8306812	0.0106 (1)	0.0020	8306782
Total Ammonia (N)	mg/L	0.066	0.080	8305697	0.012	8305698	0.034	0.0050	8305697
Nitrate plus Nitrite (N)	mg/L	0.0023 (1)	0.258 (1)	8306256	0.0024 (1)	8306256	0.0490 (1)	0.0020	8306256
Nitrite (N)	mg/L	<0.0020 (1)	0.0048 (1)	8306259	<0.0020 (1)	8306259	<0.0020 (1)	0.0020	8306259
Total Phosphorus (P)	mg/L	0.0037 (1)	0.0167 (1)	8306889	<0.0020 (1)	8306821	0.0100 (1)	0.0020	8306821
<b>Physical Properties</b>									
Conductivity	uS/cm	403	382	8305333	1.5	8305333	398	1.0	8305333
pH	pH	8.19	8.12	8305331	5.62	8305331	7.90		8305331
<b>Physical Properties</b>									
Total Suspended Solids	mg/L	4.2	3300	8304524	<1.0	8305103	114	1.0	8305103
RDL = Reportable Detection Limit N/A = Not Applicable (1) Sample analysed past recommended hold time.									

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		OW1951			OW1952		OW1953		OW1954		
Sampling Date		2016/06/16 12:40			2016/06/16 11:20		2016/06/16 15:45		2016/06/16 12:10		
COC Number		08423272			08423272		08423272		08423273		
	UNITS	MW15-10D	RDL	QC Batch	MW15-09S	QC Batch	BH95G-30	QC Batch	MW15-10S	RDL	QC Batch

**Calculated Parameters**

Anion Sum	meq/L	35	N/A	8304169	4.7	8304169	4.4	8304169	7.0	N/A	8309781
Cation Sum	meq/L	35	N/A	8304169	5.0	8304169	4.4	8304169	7.9	N/A	8309781
Filter and HNO3 Preservation	N/A	LAB	N/A	8304808	LAB	8304808	LAB	8304808	LAB	N/A	8304808
Ion Balance	N/A	1.0	0.010	8304168	1.1	8304168	1.0	8304168	1.1	0.010	8309780
Nitrate (N)	mg/L	<0.020	0.020	8304029	0.0447	8304029	0.291	8304029	0.125	0.0020	8304029

**Misc. Inorganics**

Fluoride (F)	mg/L	1.20	0.010	8306753	0.220	8306753	0.140	8306753	0.200	0.010	8306753
Dissolved Organic Carbon (C)	mg/L	<0.50	0.50	8306425	0.97	8306427	3.32	8306425	0.64	0.50	8306427
Acidity (pH 4.5)	mg/L	<0.50	0.50	8305186	<0.50	8305186	<0.50	8305186	<0.50	0.50	8305186
Alkalinity (Total as CaCO3)	mg/L	1730	0.50	8305327	214	8305327	189	8305327	313	0.50	8310177
Acidity (pH 8.3)	mg/L	302	0.50	8305186	<0.50	8305186	0.95	8305186	74.0	0.50	8305186
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8305327	<0.50	8305327	<0.50	8305327	<0.50	0.50	8310177
Bicarbonate (HCO3)	mg/L	2110	0.50	8305327	260	8305327	230	8305327	381	0.50	8310177
Carbonate (CO3)	mg/L	<0.50	0.50	8305327	<0.50	8305327	<0.50	8305327	<0.50	0.50	8310177
Hydroxide (OH)	mg/L	<0.50	0.50	8305327	<0.50	8305327	<0.50	8305327	<0.50	0.50	8310177

**Anions**

Dissolved Sulphate (SO4)	mg/L	1.76	0.50	8305551	18.8	8305551	26.4	8305551	31.8	0.50	8310615
Dissolved Chloride (Cl)	mg/L	3.4	0.50	8305541	1.2	8305541	0.93	8305541	1.0	0.50	8310614

**Nutrients**

Dissolved Phosphorus (P)	mg/L	0.0128 (1)	0.0020	8306782	0.0064 (1)	8306782	0.0030 (1)	8309076	0.0054 (1)	0.0020	8306782
Total Ammonia (N)	mg/L	0.24	0.0050	8305697	0.039	8305697	0.024	8305697	0.67	0.0050	8305697
Nitrate plus Nitrite (N)	mg/L	<0.020 (2)	0.020	8306256	0.0519 (1)	8306256	0.296 (1)	8306256	0.132 (1)	0.0020	8306256
Nitrite (N)	mg/L	<0.020 (2)	0.020	8306259	0.0072 (1)	8306259	0.0052 (1)	8306259	0.0069 (1)	0.0020	8306259
Total Phosphorus (P)	mg/L	0.0141 (1)	0.0020	8306821	0.0063 (1)	8306821	0.0043 (1)	8309077	0.0208 (1)	0.0020	8306821

**Physical Properties**

Conductivity	uS/cm	2780	1.0	8305333	402	8305333	387	8305333	620	1.0	8305333
pH	pH	6.87		8305331	8.24	8305331	8.18	8305331	6.62		8305331

RDL = Reportable Detection Limit

N/A = Not Applicable

(1) Sample analysed past recommended hold time.

(2) Sample analysed past recommended hold time. RDL raised due to sample matrix interference.

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		OW1951			OW1952		OW1953		OW1954		
<b>Sampling Date</b>		2016/06/16 12:40			2016/06/16 11:20		2016/06/16 15:45		2016/06/16 12:10		
<b>COC Number</b>		08423272			08423272		08423272		08423273		
	<b>UNITS</b>	<b>MW15-10D</b>	<b>RDL</b>	<b>QC Batch</b>	<b>MW15-09S</b>	<b>QC Batch</b>	<b>BH95G-30</b>	<b>QC Batch</b>	<b>MW15-10S</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Physical Properties</b>											
Total Suspended Solids	mg/L	177 (1)	2.0	8305103	920	8305103	13.3	8305103	19900	1.0	8305103

RDL = Reportable Detection Limit

(1) RDL raised due to high concentration of solids in the sample.

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		OW1955		OW1956		OW1957		
Sampling Date		2016/06/16		2016/06/16 14:15		2016/06/17 09:00		
COC Number		08423273		08423273		08423273		
	UNITS	TRIP BLANK	QC Batch	MW15-05D	QC Batch	BH95G-129	RDL	QC Batch
<b>Calculated Parameters</b>								
Anion Sum	meq/L	0.0000	8304169	4.2	8304169	3.9	N/A	8304169
Cation Sum	meq/L	0.00080	8304169	4.1	8304169	3.8	N/A	8304169
Filter and HNO3 Preservation	N/A		8304808	LAB	8304808	LAB	N/A	8304808
Ion Balance	N/A	NC	8304168	0.96	8304168	0.99	0.010	8304168
Nitrate (N)	mg/L	<0.0020	8304029	0.202	8304029	<0.0020	0.0020	8304029
<b>Misc. Inorganics</b>								
Fluoride (F)	mg/L	<0.010	8306753	0.130	8306753	0.220	0.010	8306753
Dissolved Organic Carbon (C)	mg/L	0.89	8306417	<0.50	8306425	0.70	0.50	8306425
Acidity (pH 4.5)	mg/L	<0.50	8305186	<0.50	8305186	<0.50	0.50	8305186
Alkalinity (Total as CaCO3)	mg/L	<0.50	8305327	177	8305327	144	0.50	8305327
Acidity (pH 8.3)	mg/L	<0.50	8305186	1.67	8305186	0.52	0.50	8305186
Alkalinity (PP as CaCO3)	mg/L	<0.50	8305327	<0.50	8305327	<0.50	0.50	8305327
Bicarbonate (HCO3)	mg/L	<0.50	8305327	217	8305327	176	0.50	8305327
Carbonate (CO3)	mg/L	<0.50	8305327	<0.50	8305327	<0.50	0.50	8305327
Hydroxide (OH)	mg/L	<0.50	8305327	<0.50	8305327	<0.50	0.50	8305327
<b>Anions</b>								
Dissolved Sulphate (SO4)	mg/L	<0.50	8305551	31.4	8305551	45.2	0.50	8305551
Dissolved Chloride (Cl)	mg/L	<0.50	8305541	<0.50	8305541	0.84	0.50	8305541
<b>Nutrients</b>								
Dissolved Phosphorus (P)	mg/L	<0.0020	8306782	0.0054 (1)	8306782	0.0095 (1)	0.0020	8306812
Total Ammonia (N)	mg/L	<0.0050	8304810	0.026	8305697	0.048	0.0050	8305697
Nitrate plus Nitrite (N)	mg/L	<0.0020	8306256	0.205 (1)	8306256	<0.0020 (1)	0.0020	8306256
Nitrite (N)	mg/L	<0.0020	8306259	0.0034 (1)	8306259	<0.0020 (1)	0.0020	8306259
Total Phosphorus (P)	mg/L	<0.0020	8306821	0.0032 (1)	8306821	0.0105 (1)	0.0020	8306821
<b>Physical Properties</b>								
Conductivity	uS/cm	1.1	8305333	377	8305333	353	1.0	8305333
pH	pH	6.11	8305331	8.02	8305331	8.12		8305331
<b>Physical Properties</b>								
Total Suspended Solids	mg/L	<1.0	8305103	496	8305103	1.9	1.0	8305103
RDL = Reportable Detection Limit N/A = Not Applicable (1) Sample analysed past recommended hold time.								

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		OW1917		OW1936		OW1937		
Sampling Date		2016/06/14 10:00		2016/06/14 13:30		2016/06/14 11:55		
COC Number		08423271		08423271		08423271		
	UNITS	DUP 2	QC Batch	MW15-06	QC Batch	BH95G-31	RDL	QC Batch
<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO <sub>3</sub> )	mg/L	262	8303851	209	8308734	151	0.50	8303851
<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	<0.0000020	8309009	<0.0000020	8309009	<0.0000020	0.0000020	8309009
<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	0.00239	8305350	0.00255	8310131	0.00284	0.00050	8305350
Dissolved Antimony (Sb)	mg/L	0.000023	8305350	0.000046	8310131	<0.000020	0.000020	8305350
Dissolved Arsenic (As)	mg/L	0.000101	8305350	0.000102	8310131	0.000210	0.000020	8305350
Dissolved Barium (Ba)	mg/L	0.0222	8305350	0.0895	8310131	0.131	0.000020	8305350
Dissolved Beryllium (Be)	mg/L	<0.000010	8305350	<0.000010	8310131	<0.000010	0.000010	8305350
Dissolved Bismuth (Bi)	mg/L	<0.0000050	8305350	<0.0000050	8310131	<0.0000050	0.0000050	8305350
Dissolved Boron (B)	mg/L	<0.010	8305350	<0.010	8310131	<0.010	0.010	8305350
Dissolved Cadmium (Cd)	mg/L	0.00147	8305350	0.000135	8310131	0.0000180	0.0000050	8305350
Dissolved Chromium (Cr)	mg/L	<0.00010	8305350	0.00011	8310131	<0.00010	0.00010	8305350
Dissolved Cobalt (Co)	mg/L	0.0000280	8305350	0.0000180	8310131	0.0000160	0.0000050	8305350
Dissolved Copper (Cu)	mg/L	0.00229	8305350	0.000593	8310131	0.000437	0.000050	8305350
Dissolved Iron (Fe)	mg/L	0.0033	8305350	<0.0010	8310131	0.0013	0.0010	8305350
Dissolved Lead (Pb)	mg/L	0.0000310	8305350	0.0000170	8310131	0.0000210	0.0000050	8305350
Dissolved Lithium (Li)	mg/L	0.00115	8305350	0.00237	8310131	0.00111	0.00050	8305350
Dissolved Manganese (Mn)	mg/L	0.00243	8305350	0.00168	8310131	0.000426	0.000050	8305350
Dissolved Molybdenum (Mo)	mg/L	0.00147	8305350	0.00336	8310131	0.00150	0.000050	8305350
Dissolved Nickel (Ni)	mg/L	0.000678	8305350	0.000643	8310131	0.000444	0.000020	8305350
Dissolved Phosphorus (P)	mg/L	<0.0020	8305350	0.0061	8310131	0.0022	0.0020	8305350
Dissolved Selenium (Se)	mg/L	0.00367	8305350	0.00238	8310131	0.00139	0.000040	8305350
Dissolved Silicon (Si)	mg/L	2.50	8305350	3.16	8310131	2.65	0.050	8305350
Dissolved Silver (Ag)	mg/L	0.0000080	8305350	<0.0000050	8310131	0.0000050	0.0000050	8305350
Dissolved Strontium (Sr)	mg/L	0.200	8305350	0.235	8310131	0.193	0.000050	8305350
Dissolved Thallium (Tl)	mg/L	0.0000060	8305350	0.0000040	8310131	0.0000080	0.0000020	8305350
Dissolved Tin (Sn)	mg/L	<0.00020	8305350	<0.00020	8310131	<0.00020	0.00020	8305350
Dissolved Titanium (Ti)	mg/L	<0.00050	8305350	<0.00050	8310131	<0.00050	0.00050	8305350
Dissolved Uranium (U)	mg/L	0.00168	8305350	0.00300	8310131	0.00101	0.0000020	8305350
Dissolved Vanadium (V)	mg/L	<0.00020	8305350	<0.00020	8310131	<0.00020	0.00020	8305350
RDL = Reportable Detection Limit								

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		OW1917		OW1936		OW1937		
Sampling Date		2016/06/14 10:00		2016/06/14 13:30		2016/06/14 11:55		
COC Number		08423271		08423271		08423271		
	UNITS	DUP 2	QC Batch	MW15-06	QC Batch	BH95G-31	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	0.0169	8305350	0.00177	8310131	0.00038	0.00010	8305350
Dissolved Zirconium (Zr)	mg/L	<0.00010	8305350	<0.00010	8310131	<0.00010	0.00010	8305350
Dissolved Calcium (Ca)	mg/L	67.0	8303852	73.1	8308936	56.0	0.050	8303852
Dissolved Magnesium (Mg)	mg/L	23.0	8303852	6.41	8308936	2.79	0.050	8303852
Dissolved Potassium (K)	mg/L	0.399	8303852	1.87	8308936	2.72	0.050	8303852
Dissolved Sodium (Na)	mg/L	0.556	8303852	1.89	8308936	0.883	0.050	8303852
Dissolved Sulphur (S)	mg/L	8.7	8303852	6.9	8308936	6.8	3.0	8303852
RDL = Reportable Detection Limit								



Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		OW1938	OW1939	OW1940	OW1941	OW1942		
Sampling Date		2016/06/14 09:10	2016/06/14 11:55	2016/06/14 11:00	2016/06/14 10:03	2016/06/14 17:25		
COC Number		08423271	08423271	08423271	08423271	08423271		
	<b>UNITS</b>	<b>BH95G-2</b>	<b>BH95G-33D</b>	<b>MW15-04D</b>	<b>MW15-04S</b>	<b>BH95G-131</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO3)	mg/L	239	247	155	129	665	0.50	8303851
<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000020	8309009
<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	0.00268	0.00145	0.00175	0.00570	<0.00050	0.00050	8305350
Dissolved Antimony (Sb)	mg/L	0.000025	0.000024	<0.000020	<0.000020	0.00117	0.000020	8305350
Dissolved Arsenic (As)	mg/L	0.000106	0.000758	0.00121	0.000339	0.00166	0.000020	8305350
Dissolved Barium (Ba)	mg/L	0.0215	0.0882	0.0552	0.0811	0.0179	0.000020	8305350
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000010	8305350
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8305350
Dissolved Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	8305350
Dissolved Cadmium (Cd)	mg/L	0.00135	<0.0000050	0.0000050	<0.0000050	0.0000340	0.0000050	8305350
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	<0.00010	0.00029	<0.00010	0.00010	8305350
Dissolved Cobalt (Co)	mg/L	0.0000180	<0.0000050	0.000196	0.0000060	0.0000290	0.0000050	8305350
Dissolved Copper (Cu)	mg/L	0.00219	0.000152	<0.000050	0.000313	0.000163	0.000050	8305350
Dissolved Iron (Fe)	mg/L	0.0035	<0.0010	<0.0010	<0.0010	0.0017	0.0010	8305350
Dissolved Lead (Pb)	mg/L	0.0000350	0.0000060	<0.0000050	<0.0000050	0.000310	0.0000050	8305350
Dissolved Lithium (Li)	mg/L	0.00124	0.00099	0.00094	<0.00050	0.0155	0.00050	8305350
Dissolved Manganese (Mn)	mg/L	0.00119	0.000853	0.190	0.00129	0.166	0.000050	8305350
Dissolved Molybdenum (Mo)	mg/L	0.00141	0.00152	0.00168	0.00120	0.000065	0.000050	8305350
Dissolved Nickel (Ni)	mg/L	0.000614	0.00122	0.000255	0.000196	0.000115	0.000020	8305350
Dissolved Phosphorus (P)	mg/L	0.0055	0.0030	0.0025	0.0039	0.0058	0.0020	8305350
Dissolved Selenium (Se)	mg/L	0.00316	0.00432	<0.000040	0.000703	<0.000040	0.000040	8305350
Dissolved Silicon (Si)	mg/L	2.47	2.80	2.79	3.10	13.0	0.050	8305350
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000130	0.0000050	8305350
Dissolved Strontium (Sr)	mg/L	0.193	0.252	0.213	0.167	0.882	0.000050	8305350
Dissolved Thallium (Tl)	mg/L	0.0000030	0.0000050	0.0000030	0.0000030	0.0000080	0.0000020	8305350
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8305350
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	8305350
Dissolved Uranium (U)	mg/L	0.00170	0.00464	0.000743	0.000644	0.0148	0.0000020	8305350
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8305350

RDL = Reportable Detection Limit

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		OW1938	OW1939	OW1940	OW1941	OW1942		
Sampling Date		2016/06/14 09:10	2016/06/14 11:55	2016/06/14 11:00	2016/06/14 10:03	2016/06/14 17:25		
COC Number		08423271	08423271	08423271	08423271	08423271		
	UNITS	BH95G-2	BH95G-33D	MW15-04D	MW15-04S	BH95G-131	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	0.0154	0.00024	0.00016	0.00060	0.00296	0.00010	8305350
Dissolved Zirconium (Zr)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	0.00363	0.00010	8305350
Dissolved Calcium (Ca)	mg/L	58.0	84.0	53.2	46.0	170	0.050	8303852
Dissolved Magnesium (Mg)	mg/L	22.9	9.06	5.34	3.34	58.4	0.050	8303852
Dissolved Potassium (K)	mg/L	0.401	0.962	2.29	1.33	3.89	0.050	8303852
Dissolved Sodium (Na)	mg/L	0.556	0.741	1.36	1.02	1.90	0.050	8303852
Dissolved Sulphur (S)	mg/L	8.7	19.8	5.8	3.2	74.4	3.0	8303852
RDL = Reportable Detection Limit								

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		OW1943	OW1944	OW1945		OW1946		
Sampling Date		2016/06/14 09:01	2016/06/15 09:15	2016/06/15 11:45		2016/06/15 12:20		
COC Number		08423271	08423272	08423272		08423272		
	UNITS	MW15-03D	MW15-03S	MW15-07D	QC Batch	MW15-07S	RDL	QC Batch
<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO3)	mg/L	211	121	215	8303851	209	0.50	8303851
<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	8309009	<0.0000020	0.0000020	8309009
<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	0.00132	0.00623	0.00067	8305350	0.00258	0.00050	8305355
Dissolved Antimony (Sb)	mg/L	0.000053	0.000028	<0.000020	8305350	<0.000020	0.000020	8305355
Dissolved Arsenic (As)	mg/L	0.00106	0.000217	<0.000020	8305350	0.00174	0.000020	8305355
Dissolved Barium (Ba)	mg/L	0.0465	0.0401	0.0378	8305350	0.0356	0.000020	8305355
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	8305350	<0.000010	0.000010	8305355
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	8305350	<0.0000050	0.0000050	8305355
Dissolved Boron (B)	mg/L	<0.010	<0.010	<0.010	8305350	<0.010	0.010	8305355
Dissolved Cadmium (Cd)	mg/L	<0.0000050	0.0000130	<0.0000050	8305350	0.0000100	0.0000050	8305355
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	<0.00010	8305350	<0.00010	0.00010	8305355
Dissolved Cobalt (Co)	mg/L	0.0000410	0.0000950	<0.0000050	8305350	0.000885	0.0000050	8305355
Dissolved Copper (Cu)	mg/L	<0.000050	0.000391	<0.000050	8305350	0.000191	0.000050	8305355
Dissolved Iron (Fe)	mg/L	0.0037	0.0017	0.0058	8305350	<0.0010	0.0010	8305355
Dissolved Lead (Pb)	mg/L	0.0000050	<0.0000050	<0.0000050	8305350	<0.0000050	0.0000050	8305355
Dissolved Lithium (Li)	mg/L	0.00637	0.00105	0.0114	8305350	0.00706	0.00050	8305355
Dissolved Manganese (Mn)	mg/L	0.0589	0.0291	0.0548	8305350	0.156	0.000050	8305355
Dissolved Molybdenum (Mo)	mg/L	0.00328	0.00686	<0.000050	8305350	0.000328	0.000050	8305355
Dissolved Nickel (Ni)	mg/L	0.000203	0.00133	<0.000020	8305350	0.00290	0.000020	8305355
Dissolved Phosphorus (P)	mg/L	0.0038	0.0045	0.0038	8305350	0.0040	0.0020	8305355
Dissolved Selenium (Se)	mg/L	<0.000040	0.000219	<0.000040	8305350	0.000126	0.000040	8305355
Dissolved Silicon (Si)	mg/L	4.43	2.79	7.62	8305350	6.55	0.050	8305355
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	<0.0000050	8305350	0.0000080	0.0000050	8305355
Dissolved Strontium (Sr)	mg/L	0.268	0.137	0.332	8305350	0.307	0.000050	8305355
Dissolved Thallium (Tl)	mg/L	0.0000020	0.0000120	0.0000020	8305350	0.0000020	0.0000020	8305355
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	8305350	<0.00020	0.00020	8305355
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	<0.00050	8305350	<0.00050	0.00050	8305355
Dissolved Uranium (U)	mg/L	0.00252	0.000737	0.000966	8305350	0.00177	0.0000020	8305355
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	8305350	<0.00020	0.00020	8305355
RDL = Reportable Detection Limit								

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		OW1943	OW1944	OW1945		OW1946		
Sampling Date		2016/06/14 09:01	2016/06/15 09:15	2016/06/15 11:45		2016/06/15 12:20		
COC Number		08423271	08423272	08423272		08423272		
	UNITS	MW15-03D	MW15-03S	MW15-07D	QC Batch	MW15-07S	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	0.00031	0.00018	0.00020	8305350	0.00028	0.00010	8305355
Dissolved Zirconium (Zr)	mg/L	0.00012	<0.00010	<0.00010	8305350	<0.00010	0.00010	8305355
Dissolved Calcium (Ca)	mg/L	58.7	41.1	64.3	8303852	65.8	0.050	8303852
Dissolved Magnesium (Mg)	mg/L	15.7	4.35	13.2	8303852	10.8	0.050	8303852
Dissolved Potassium (K)	mg/L	2.52	1.23	1.60	8303852	1.56	0.050	8303852
Dissolved Sodium (Na)	mg/L	2.05	3.07	4.30	8303852	3.96	0.050	8303852
Dissolved Sulphur (S)	mg/L	6.6	3.8	8.8	8303852	10.9	3.0	8303852
RDL = Reportable Detection Limit								

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		OW1947	OW1948	OW1949	OW1950	OW1951		
Sampling Date		2016/06/15 12:00	2016/06/15 13:25	2016/06/16 13:35	2016/06/16 17:45	2016/06/16 12:40		
COC Number		08423272	08423272	08423272	08423272	08423272		
	<b>UNITS</b>	<b>DUP3</b>	<b>MW15-08S</b>	<b>MW15-FB</b>	<b>BH95G-32</b>	<b>MW15-10D</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO3)	mg/L	209	212	<0.50	221	1710	0.50	8303851
<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000020	8309009
<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	0.00072	0.00408	<0.00050	0.00653	0.00948	0.00050	8305355
Dissolved Antimony (Sb)	mg/L	<0.000020	0.000032	<0.000020	0.000041	<0.000020	0.000020	8305355
Dissolved Arsenic (As)	mg/L	<0.000020	0.000439	<0.000020	0.000239	0.000234	0.000020	8305355
Dissolved Barium (Ba)	mg/L	0.0374	0.114	<0.000020	0.187	0.227	0.000020	8305355
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	0.000355	0.000010	8305355
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8305355
Dissolved Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	0.013	0.010	8305355
Dissolved Cadmium (Cd)	mg/L	<0.0000050	0.000116	<0.0000050	0.0000800	0.0000320	0.0000050	8305355
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	8305355
Dissolved Cobalt (Co)	mg/L	<0.0000050	0.000130	<0.0000050	0.000252	0.000192	0.0000050	8305355
Dissolved Copper (Cu)	mg/L	<0.000050	0.000910	<0.000050	0.000269	0.000053	0.000050	8305355
Dissolved Iron (Fe)	mg/L	0.0141	0.0011	<0.0010	0.0027	0.198	0.0010	8305355
Dissolved Lead (Pb)	mg/L	<0.0000050	0.0000960	<0.0000050	0.0000120	0.0000290	0.0000050	8305355
Dissolved Lithium (Li)	mg/L	0.0117	0.00204	<0.00050	0.00125	0.201	0.00050	8305355
Dissolved Manganese (Mn)	mg/L	0.0541	0.00258	<0.000050	0.0782	4.62	0.000050	8305355
Dissolved Molybdenum (Mo)	mg/L	<0.000050	0.00219	<0.000050	0.000664	0.000363	0.000050	8305355
Dissolved Nickel (Ni)	mg/L	<0.000020	0.00168	<0.000020	0.000918	0.000598	0.000020	8305355
Dissolved Phosphorus (P)	mg/L	0.0032	0.0029	<0.0020	0.0024	0.0064	0.0020	8305355
Dissolved Selenium (Se)	mg/L	<0.000040	0.00162	<0.000040	0.000806	<0.000040	0.000040	8305355
Dissolved Silicon (Si)	mg/L	7.36	3.23	<0.050	2.40	28.3	0.050	8305355
Dissolved Silver (Ag)	mg/L	0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000090	0.0000050	8305355
Dissolved Strontium (Sr)	mg/L	0.325	0.269	<0.000050	0.293	2.59	0.000050	8305355
Dissolved Thallium (Tl)	mg/L	<0.0000020	0.0000100	<0.0000020	0.0000080	0.0000030	0.0000020	8305355
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8305355
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	8305355
Dissolved Uranium (U)	mg/L	0.000967	0.00256	<0.0000020	0.00119	0.000247	0.0000020	8305355
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8305355

RDL = Reportable Detection Limit

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		OW1947	OW1948	OW1949	OW1950	OW1951		
Sampling Date		2016/06/15 12:00	2016/06/15 13:25	2016/06/16 13:35	2016/06/16 17:45	2016/06/16 12:40		
COC Number		08423272	08423272	08423272	08423272	08423272		
	UNITS	DUP3	MW15-08S	MW15-FB	BH95G-32	MW15-10D	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	0.00016	0.00174	<0.00010	0.00048	0.00197	0.00010	8305355
Dissolved Zirconium (Zr)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	0.00189	0.00010	8305355
Dissolved Calcium (Ca)	mg/L	61.8	73.9	<0.050	81.4	579	0.050	8303852
Dissolved Magnesium (Mg)	mg/L	13.2	6.72	<0.050	4.22	64.2	0.050	8303852
Dissolved Potassium (K)	mg/L	1.61	1.81	<0.050	4.71	7.95	0.050	8303852
Dissolved Sodium (Na)	mg/L	4.35	1.39	<0.050	0.693	19.0	0.050	8303852
Dissolved Sulphur (S)	mg/L	8.7	9.0	<3.0	10.9	<3.0	3.0	8303852
RDL = Reportable Detection Limit								

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		OW1952		OW1953	OW1954	OW1955		
<b>Sampling Date</b>		2016/06/16 11:20		2016/06/16 15:45	2016/06/16 12:10	2016/06/16		
<b>COC Number</b>		08423272		08423272	08423273	08423273		
	<b>UNITS</b>	<b>MW15-09S</b>	<b>QC Batch</b>	<b>BH95G-30</b>	<b>MW15-10S</b>	<b>TRIP BLANK</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO3)	mg/L	223	8303851	214	365	<0.50	0.50	8303851
<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	<0.0000020	8309019	<0.0000020	<0.0000020	<0.0000020	0.0000020	8309019
<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	1.51	8305355	0.00076	0.00427	<0.00050	0.00050	8305355
Dissolved Antimony (Sb)	mg/L	0.000110	8305355	<0.000020	0.000300	<0.000020	0.000020	8305355
Dissolved Arsenic (As)	mg/L	0.00177	8305355	0.000040	0.00488	<0.000020	0.000020	8305355
Dissolved Barium (Ba)	mg/L	0.265	8305355	0.0734	0.148	<0.000020	0.000020	8305355
Dissolved Beryllium (Be)	mg/L	0.000492	8305355	<0.000010	0.000022	<0.000010	0.000010	8305355
Dissolved Bismuth (Bi)	mg/L	0.000114	8305355	<0.0000050	<0.0000050	<0.0000050	0.0000050	8305355
Dissolved Boron (B)	mg/L	<0.010	8305355	<0.010	<0.010	<0.010	0.010	8305355
Dissolved Cadmium (Cd)	mg/L	0.000544	8305355	0.000106	0.00133	<0.000050	0.000050	8305355
Dissolved Chromium (Cr)	mg/L	0.00575	8305355	<0.00010	<0.00010	<0.00010	0.00010	8305355
Dissolved Cobalt (Co)	mg/L	0.00254	8305355	0.0000080	0.0122	<0.000050	0.000050	8305355
Dissolved Copper (Cu)	mg/L	0.0207	8305355	0.000262	0.00285	<0.000050	0.000050	8305355
Dissolved Iron (Fe)	mg/L	3.89	8305355	<0.0010	0.0036	<0.0010	0.0010	8305355
Dissolved Lead (Pb)	mg/L	0.0177	8305355	0.0000160	0.000187	<0.000050	0.000050	8305355
Dissolved Lithium (Li)	mg/L	0.00421	8305355	0.00158	0.00583	<0.00050	0.00050	8305355
Dissolved Manganese (Mn)	mg/L	0.251	8305355	0.000293	1.56	<0.000050	0.000050	8305355
Dissolved Molybdenum (Mo)	mg/L	0.00467	8305355	0.00242	0.00416	<0.000050	0.000050	8305355
Dissolved Nickel (Ni)	mg/L	0.00501	8305355	0.00106	0.0204	<0.000020	0.000020	8305355
Dissolved Phosphorus (P)	mg/L	0.243	8310131	0.0050	0.0052	<0.0020	0.0020	8305355
Dissolved Selenium (Se)	mg/L	0.000625	8305355	0.00234	0.00195	<0.000040	0.000040	8305355
Dissolved Silicon (Si)	mg/L	5.87	8305355	3.12	4.44	<0.050	0.050	8305355
Dissolved Silver (Ag)	mg/L	0.000595	8305355	0.0000100 (1)	0.0000080	<0.000050	0.000050	8305355
Dissolved Strontium (Sr)	mg/L	0.323	8305355	0.244	0.605	<0.000050	0.000050	8305355
Dissolved Thallium (Tl)	mg/L	0.0000350	8305355	<0.0000020	0.0000100	<0.0000020	0.0000020	8305355
Dissolved Tin (Sn)	mg/L	<0.00020	8305355	<0.00020	<0.00020	<0.00020	0.00020	8305355
Dissolved Titanium (Ti)	mg/L	0.0291	8305355	<0.00050	<0.00050	<0.00050	0.00050	8305355
Dissolved Uranium (U)	mg/L	0.00453	8305355	0.00275	0.00317	<0.0000020	0.0000020	8305355

RDL = Reportable Detection Limit

(1) Matrix Spike outside acceptance criteria (10% of analytes failure allowed).

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		OW1952		OW1953	OW1954	OW1955		
Sampling Date		2016/06/16 11:20		2016/06/16 15:45	2016/06/16 12:10	2016/06/16		
COC Number		08423272		08423272	08423273	08423273		
	UNITS	MW15-09S	QC Batch	BH95G-30	MW15-10S	TRIP BLANK	RDL	QC Batch
Dissolved Vanadium (V)	mg/L	0.00592	8305355	<0.00020	<0.00020	<0.00020	0.00020	8305355
Dissolved Zinc (Zn)	mg/L	0.0284	8305355	0.00780	0.0191	<0.00010	0.00010	8305355
Dissolved Zirconium (Zr)	mg/L	0.00032	8305355	<0.00010	<0.00010	<0.00010	0.00010	8305355
Dissolved Calcium (Ca)	mg/L	72.0	8303852	74.6	133	<0.050	0.050	8303852
Dissolved Magnesium (Mg)	mg/L	10.5	8303852	6.61	8.06	<0.050	0.050	8303852
Dissolved Potassium (K)	mg/L	2.07	8303852	1.76	2.37	<0.050	0.050	8303852
Dissolved Sodium (Na)	mg/L	3.13	8303852	1.29	10.7	<0.050	0.050	8303852
Dissolved Sulphur (S)	mg/L	5.3	8303852	7.4	8.7	<3.0	3.0	8303852
RDL = Reportable Detection Limit								



Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		OW1956	OW1957		
Sampling Date		2016/06/16 14:15	2016/06/17 09:00		
COC Number		08423273	08423273		
	UNITS	MW15-05D	BH95G-129	RDL	QC Batch
<b>Misc. Inorganics</b>					
Dissolved Hardness (CaCO3)	mg/L	197	185	0.50	8303851
<b>Elements</b>					
Dissolved Mercury (Hg)	mg/L	<0.0000020	<0.0000020	0.0000020	8309019
<b>Dissolved Metals by ICPMS</b>					
Dissolved Aluminum (Al)	mg/L	0.00750	0.00055	0.00050	8305355
Dissolved Antimony (Sb)	mg/L	0.000027	0.000163	0.000020	8305355
Dissolved Arsenic (As)	mg/L	0.000185	0.00291	0.000020	8305355
Dissolved Barium (Ba)	mg/L	0.0493	0.0369	0.000020	8305355
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	0.000010	8305355
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	0.0000050	8305355
Dissolved Boron (B)	mg/L	<0.010	<0.010	0.010	8305355
Dissolved Cadmium (Cd)	mg/L	0.0000480	<0.0000050	0.0000050	8305355
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	0.00010	8305355
Dissolved Cobalt (Co)	mg/L	0.0000080	0.000131	0.0000050	8305355
Dissolved Copper (Cu)	mg/L	0.000568	<0.000050	0.000050	8305355
Dissolved Iron (Fe)	mg/L	<0.0010	0.0023	0.0010	8305355
Dissolved Lead (Pb)	mg/L	0.0000540	<0.0000050	0.0000050	8305355
Dissolved Lithium (Li)	mg/L	0.00153	0.00603	0.00050	8305355
Dissolved Manganese (Mn)	mg/L	0.00139	0.105	0.000050	8305355
Dissolved Molybdenum (Mo)	mg/L	0.000893	0.000979	0.000050	8305355
Dissolved Nickel (Ni)	mg/L	0.000385	0.000255	0.000020	8305355
Dissolved Phosphorus (P)	mg/L	0.0035	0.0034	0.0020	8305355
Dissolved Selenium (Se)	mg/L	0.00154	<0.000040	0.000040	8305355
Dissolved Silicon (Si)	mg/L	2.42	4.21	0.050	8305355
Dissolved Silver (Ag)	mg/L	0.0000060	<0.0000050	0.0000050	8305355
Dissolved Strontium (Sr)	mg/L	0.266	0.170	0.000050	8305355
Dissolved Thallium (Tl)	mg/L	0.0000020	<0.0000020	0.0000020	8305355
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	0.00020	8305355
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	0.00050	8305355
Dissolved Uranium (U)	mg/L	0.00209	0.00902	0.0000020	8305355
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	0.00020	8305355
RDL = Reportable Detection Limit					

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		OW1956	OW1957		
Sampling Date		2016/06/16 14:15	2016/06/17 09:00		
COC Number		08423273	08423273		
	UNITS	MW15-05D	BH95G-129	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	0.00194	0.00045	0.00010	8305355
Dissolved Zirconium (Zr)	mg/L	<0.00010	<0.00010	0.00010	8305355
Dissolved Calcium (Ca)	mg/L	67.6	59.2	0.050	8303852
Dissolved Magnesium (Mg)	mg/L	6.76	9.16	0.050	8303852
Dissolved Potassium (K)	mg/L	1.56	1.95	0.050	8303852
Dissolved Sodium (Na)	mg/L	1.94	1.06	0.050	8303852
Dissolved Sulphur (S)	mg/L	8.8	13.7	3.0	8303852
RDL = Reportable Detection Limit					

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		OW1943	OW1945	OW1947	OW1949		
Sampling Date		2016/06/14 09:01	2016/06/15 11:45	2016/06/15 12:00	2016/06/16 13:35		
COC Number		08423271	08423272	08423272	08423272		
	UNITS	MW15-03D	MW15-07D	DUP3	MW15-FB	RDL	QC Batch
<b>Calculated Parameters</b>							
Total Hardness (CaCO3)	mg/L	204	207	209	<0.50	0.50	8303881
<b>Elements</b>							
Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000020	8309050
<b>Total Metals by ICPMS</b>							
Total Aluminum (Al)	mg/L	0.0180	0.0489	0.0594	<0.00050	0.00050	8306148
Total Antimony (Sb)	mg/L	0.000064	<0.000020	<0.000020	<0.000020	0.000020	8306148
Total Arsenic (As)	mg/L	0.00171	0.000024	<0.000020	<0.000020	0.000020	8306148
Total Barium (Ba)	mg/L	0.0448	0.0380	0.0382	<0.000020	0.000020	8306148
Total Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	0.000010	8306148
Total Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8306148
Total Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	0.010	8306148
Total Cadmium (Cd)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8306148
Total Chromium (Cr)	mg/L	<0.00010	0.00015	0.00021	<0.00010	0.00010	8306148
Total Cobalt (Co)	mg/L	0.0000730	0.0000300	0.0000350	<0.0000050	0.0000050	8306148
Total Copper (Cu)	mg/L	0.000676	0.000101	0.000191	<0.000050	0.000050	8306148
Total Iron (Fe)	mg/L	0.887	0.559	0.569	<0.0010	0.0010	8306148
Total Lead (Pb)	mg/L	0.0000930	0.0000900	0.000132	<0.0000050	0.0000050	8306148
Total Lithium (Li)	mg/L	0.00540	0.0109	0.0109	<0.00050	0.00050	8306148
Total Manganese (Mn)	mg/L	0.0586	0.0542	0.0547	<0.000050	0.000050	8306148
Total Molybdenum (Mo)	mg/L	0.00322	<0.000050	<0.000050	<0.000050	0.000050	8306148
Total Nickel (Ni)	mg/L	0.000427	0.000069	0.000084	<0.000020	0.000020	8306148
Total Phosphorus (P)	mg/L	0.0083	0.0057	0.0111	0.0022	0.0020	8306148
Total Selenium (Se)	mg/L	<0.000040	<0.000040	<0.000040	<0.000040	0.000040	8306148
Total Silicon (Si)	mg/L	4.34	7.23	7.35	<0.050	0.050	8306148
Total Silver (Ag)	mg/L	0.0000100	0.0000070	0.0000120	<0.0000050	0.0000050	8306148
Total Strontium (Sr)	mg/L	0.243	0.304	0.303	<0.000050	0.000050	8306148
Total Thallium (Tl)	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000020	8306148
Total Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8306148
Total Titanium (Ti)	mg/L	0.00167	0.00135	0.00144	<0.00050	0.00050	8306148
Total Uranium (U)	mg/L	0.00230	0.000913	0.000954	<0.0000020	0.0000020	8306148
Total Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	0.00026	0.00020	8306148
RDL = Reportable Detection Limit							

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		OW1943	OW1945	OW1947	OW1949		
Sampling Date		2016/06/14 09:01	2016/06/15 11:45	2016/06/15 12:00	2016/06/16 13:35		
COC Number		08423271	08423272	08423272	08423272		
	UNITS	MW15-03D	MW15-07D	DUP3	MW15-FB	RDL	QC Batch
Total Zinc (Zn)	mg/L	0.00097	0.00119	0.00203	0.00012	0.00010	8306148
Total Zirconium (Zr)	mg/L	0.00099	0.00030	0.00030	<0.00010	0.00010	8306148
Total Calcium (Ca)	mg/L	55.4	61.2	61.4	<0.050	0.050	8304042
Total Magnesium (Mg)	mg/L	16.0	13.1	13.4	<0.050	0.050	8304042
Total Potassium (K)	mg/L	2.35	1.48	1.52	<0.050	0.050	8304042
Total Sodium (Na)	mg/L	2.00	4.14	4.29	<0.050	0.050	8304042
Total Sulphur (S)	mg/L	7.0	9.3	9.9	<3.0	3.0	8304042
RDL = Reportable Detection Limit							

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		OW1953	OW1955	OW1957		
Sampling Date		2016/06/16 15:45	2016/06/16	2016/06/17 09:00		
COC Number		08423272	08423273	08423273		
	UNITS	BH95G-30	TRIP BLANK	BH95G-129	RDL	QC Batch
<b>Calculated Parameters</b>						
Total Hardness (CaCO3)	mg/L	206	<0.50	181	0.50	8303881
<b>Elements</b>						
Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	0.0000020	8309051
<b>Total Metals by ICPMS</b>						
Total Aluminum (Al)	mg/L	0.125	<0.00050	0.00449	0.00050	8306148
Total Antimony (Sb)	mg/L	0.000025	<0.000020	0.000230	0.000020	8306148
Total Arsenic (As)	mg/L	0.000078	<0.000020	0.00518	0.000020	8306148
Total Barium (Ba)	mg/L	0.0708	<0.000020	0.0368	0.000020	8306148
Total Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	0.000010	8306148
Total Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	0.0000050	8306148
Total Boron (B)	mg/L	<0.010	<0.010	<0.010	0.010	8306148
Total Cadmium (Cd)	mg/L	0.000120	<0.0000050	0.0000050	0.0000050	8306148
Total Chromium (Cr)	mg/L	0.00022	<0.00010	<0.00010	0.00010	8306148
Total Cobalt (Co)	mg/L	0.0000750	<0.0000050	0.000135	0.0000050	8306148
Total Copper (Cu)	mg/L	0.000769	<0.000050	0.000146	0.000050	8306148
Total Iron (Fe)	mg/L	0.126	<0.0010	0.632	0.0010	8306148
Total Lead (Pb)	mg/L	0.000265	<0.0000050	0.000152	0.0000050	8306148
Total Lithium (Li)	mg/L	0.00107	<0.00050	0.00534	0.00050	8306148
Total Manganese (Mn)	mg/L	0.00203	<0.000050	0.103	0.000050	8306148
Total Molybdenum (Mo)	mg/L	0.00237	<0.000050	0.00101	0.000050	8306148
Total Nickel (Ni)	mg/L	0.00126	<0.000020	0.000262	0.000020	8306148
Total Phosphorus (P)	mg/L	0.0088	<0.0020	0.0136	0.0020	8306148
Total Selenium (Se)	mg/L	0.00240	<0.000040	<0.000040	0.000040	8306148
Total Silicon (Si)	mg/L	3.29	<0.050	4.07	0.050	8306148
Total Silver (Ag)	mg/L	0.0000330	<0.0000050	<0.0000050	0.0000050	8306148
Total Strontium (Sr)	mg/L	0.239	<0.000050	0.160	0.000050	8306148
Total Thallium (Tl)	mg/L	0.0000020	<0.0000020	<0.0000020	0.0000020	8306148
Total Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	0.00020	8306148
Total Titanium (Ti)	mg/L	0.00322	<0.00050	<0.00050	0.00050	8306148
Total Uranium (U)	mg/L	0.00273	<0.0000020	0.00853	0.0000020	8306148
Total Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	0.00020	8306148
RDL = Reportable Detection Limit						

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		OW1953	OW1955	OW1957		
Sampling Date		2016/06/16 15:45	2016/06/16	2016/06/17 09:00		
COC Number		08423272	08423273	08423273		
	UNITS	BH95G-30	TRIP BLANK	BH95G-129	RDL	QC Batch
Total Zinc (Zn)	mg/L	0.0101	<0.00010	0.00163	0.00010	8306148
Total Zirconium (Zr)	mg/L	0.00032	<0.00010	0.00039	0.00010	8306148
Total Calcium (Ca)	mg/L	70.9	<0.050	56.9	0.050	8304042
Total Magnesium (Mg)	mg/L	7.02	<0.050	9.36	0.050	8304042
Total Potassium (K)	mg/L	1.74	<0.050	1.89	0.050	8304042
Total Sodium (Na)	mg/L	1.43	<0.050	1.12	0.050	8304042
Total Sulphur (S)	mg/L	8.0	<3.0	15.0	3.0	8304042
RDL = Reportable Detection Limit						

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LL TOTAL METALS (DIGESTED) WITH CV HG**

<b>Maxxam ID</b>		OW1917	OW1936	OW1937	OW1938	OW1939		
<b>Sampling Date</b>		2016/06/14 10:00	2016/06/14 13:30	2016/06/14 11:55	2016/06/14 09:10	2016/06/14 11:55		
<b>COC Number</b>		08423271	08423271	08423271	08423271	08423271		
	<b>UNITS</b>	<b>DUP 2</b>	<b>MW15-06</b>	<b>BH95G-31</b>	<b>BH95G-2</b>	<b>BH95G-33D</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Calculated Parameters</b>								
Total Hardness (CaCO3)	mg/L	260	306	193	261	264	0.50	8303881

<b>Elements</b>								
Total Mercury (Hg)	mg/L	0.0000036	<0.0000020	<0.0000020	0.0000037	0.0000026	0.0000020	8309050

<b>Total Metals by ICPMS</b>								
Total Aluminum (Al)	mg/L	3.81	30.4	8.75	3.46	9.33	0.0030	8307302
Total Antimony (Sb)	mg/L	0.000600	0.000590	0.000255	0.000504	0.000335	0.000050	8307302
Total Arsenic (As)	mg/L	0.0186	0.0163	0.0263	0.0153	0.0271	0.000020	8307302
Total Barium (Ba)	mg/L	0.0912	0.741	0.526	0.0872	0.260	0.00010	8307302
Total Beryllium (Be)	mg/L	0.000216	0.00120	0.000253	0.000190	0.000509	0.000010	8307302
Total Bismuth (Bi)	mg/L	0.000134	0.000838	0.000380	0.000115	0.000160	0.000020	8307302
Total Boron (B)	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	8307302
Total Cadmium (Cd)	mg/L	0.00896	0.00600	0.00128	0.00868	0.000134	0.0000050	8307302
Total Chromium (Cr)	mg/L	0.00977	0.0806	0.0276	0.00861	0.0115	0.00050	8307302
Total Cobalt (Co)	mg/L	0.0126	0.0389	0.0506	0.0114	0.0145	0.000010	8307302
Total Copper (Cu)	mg/L	0.118	0.259	0.242	0.105	0.0385	0.00020	8307302
Total Iron (Fe)	mg/L	23.0	69.1	45.6	18.5	27.9	0.0050	8307302
Total Lead (Pb)	mg/L	0.0426	0.106	0.123	0.0404	0.0117	0.000050	8307302
Total Lithium (Li)	mg/L	0.00407	0.0326	0.00648	0.00398	0.00723	0.00050	8307302
Total Manganese (Mn)	mg/L	0.248	1.03	0.668	0.228	1.47	0.00010	8307302
Total Molybdenum (Mo)	mg/L	0.0125	0.00637	0.00225	0.00999	0.00731	0.000050	8307302
Total Nickel (Ni)	mg/L	0.0887	0.125	0.0748	0.0740	0.0630	0.00010	8307302
Total Phosphorus (P)	mg/L	1.43	3.76	0.430	1.37	0.369	0.010	8307302
Total Selenium (Se)	mg/L	0.00562	0.00395	0.00210	0.00498	0.00475	0.000040	8307302
Total Silicon (Si)	mg/L	7.61	39.6	16.7	6.92	13.3	0.10	8307302
Total Silver (Ag)	mg/L	0.00194	0.00208	0.00267	0.00111	0.000369	0.000010	8307302
Total Strontium (Sr)	mg/L	0.204	0.317	0.216	0.199	0.272	0.000050	8307302
Total Thallium (Tl)	mg/L	0.000107	0.000601	0.000149	0.0000970	0.000105	0.0000020	8307302
Total Tin (Sn)	mg/L	0.00043	0.00157	0.00085	0.00038	0.00078	0.00020	8307302
Total Titanium (Ti)	mg/L	0.0896	1.08	0.528	0.0781	0.187	0.0050	8307302
Total Uranium (U)	mg/L	0.00274	0.00752	0.00163	0.00266	0.00744	0.0000050	8307302
Total Vanadium (V)	mg/L	0.0280	0.113	0.0605	0.0240	0.0245	0.00050	8307302

RDL = Reportable Detection Limit

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		OW1917	OW1936	OW1937	OW1938	OW1939		
Sampling Date		2016/06/14 10:00	2016/06/14 13:30	2016/06/14 11:55	2016/06/14 09:10	2016/06/14 11:55		
COC Number		08423271	08423271	08423271	08423271	08423271		
	UNITS	DUP 2	MW15-06	BH95G-31	BH95G-2	BH95G-33D	RDL	QC Batch
Total Zinc (Zn)	mg/L	1.10	0.676	0.135	0.957	0.117	0.0010	8307302
Total Zirconium (Zr)	mg/L	0.00760	0.00752	0.00574	0.00496	0.00860	0.00010	8307302
Total Calcium (Ca)	mg/L	63.7	85.5	63.9	64.0	85.9	0.25	8304042
Total Magnesium (Mg)	mg/L	24.5	22.6	8.20	24.5	12.1	0.25	8304042
Total Potassium (K)	mg/L	1.37	7.69	4.44	1.28	1.98	0.25	8304042
Total Sodium (Na)	mg/L	0.56	1.73	0.90	0.55	0.80	0.25	8304042
Total Sulphur (S)	mg/L	<15	<15	<15	<15	21	15	8304042
RDL = Reportable Detection Limit								



Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		OW1940	OW1941	OW1942	OW1944	OW1946		
Sampling Date		2016/06/14 11:00	2016/06/14 10:03	2016/06/14 17:25	2016/06/15 09:15	2016/06/15 12:20		
COC Number		08423271	08423271	08423271	08423272	08423272		
	<b>UNITS</b>	<b>MW15-04D</b>	<b>MW15-04S</b>	<b>BH95G-131</b>	<b>MW15-03S</b>	<b>MW15-07S</b>	<b>RDL</b>	<b>QC Batch</b>

**Calculated Parameters**

Total Hardness (CaCO3)	mg/L	145	222	658	243	211	0.50	8303881
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**Elements**

Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000020	8309050
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**Total Metals by ICPMS**

Total Aluminum (Al)	mg/L	0.262	19.3	0.291	27.1	3.94	0.0030	8307302
Total Antimony (Sb)	mg/L	<0.000050	0.000230	0.00766	0.000709	<0.000050	0.000050	8307302
Total Arsenic (As)	mg/L	0.00254	0.0201	0.0291	0.0440	0.00565	0.000020	8307302
Total Barium (Ba)	mg/L	0.0653	0.478	0.0268	0.393	0.0727	0.00010	8307302
Total Beryllium (Be)	mg/L	0.000018	0.000559	0.000041	0.00103	0.000119	0.000010	8307302
Total Bismuth (Bi)	mg/L	<0.000020	0.000361	0.000051	0.000696	0.000023	0.000020	8307302
Total Boron (B)	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	8307302
Total Cadmium (Cd)	mg/L	0.0000300	0.000902	0.000371	0.00156	0.0000790	0.000050	8307302
Total Chromium (Cr)	mg/L	0.00139	0.0472	0.00067	0.115	0.0167	0.00050	8307302
Total Cobalt (Co)	mg/L	0.000868	0.0314	0.000203	0.0438	0.00635	0.000010	8307302
Total Copper (Cu)	mg/L	0.00212	0.134	0.00384	0.187	0.0254	0.00020	8307302
Total Iron (Fe)	mg/L	1.25	44.6	4.89	85.1	9.43	0.0050	8307302
Total Lead (Pb)	mg/L	0.000559	0.0399	0.110	0.0892	0.00318	0.000050	8307302
Total Lithium (Li)	mg/L	0.00111	0.0132	0.0158	0.0301	0.00950	0.00050	8307302
Total Manganese (Mn)	mg/L	0.193	1.50	0.226	1.54	0.272	0.00010	8307302
Total Molybdenum (Mo)	mg/L	0.00162	0.00264	0.000117	0.0107	0.000446	0.000050	8307302
Total Nickel (Ni)	mg/L	0.00177	0.0548	0.00056	0.118	0.0162	0.00010	8307302
Total Phosphorus (P)	mg/L	0.024	2.32	0.068	2.09	0.152	0.010	8307302
Total Selenium (Se)	mg/L	0.000084	0.000809	0.000072	0.000631	0.000305	0.000040	8307302
Total Silicon (Si)	mg/L	3.17	26.3	13.7	37.1	11.7	0.10	8307302
Total Silver (Ag)	mg/L	0.000044	0.00385	0.000302 (1)	0.0272	0.000321	0.000010	8307302
Total Strontium (Sr)	mg/L	0.192	0.250	0.980	0.220	0.268	0.000050	8307302
Total Thallium (Tl)	mg/L	0.0000050	0.000288	0.0000240	0.000544	0.0000300	0.0000020	8307302
Total Tin (Sn)	mg/L	<0.00020	0.00055	0.00070	0.00164	0.00024	0.00020	8307302
Total Titanium (Ti)	mg/L	0.0091	0.590	0.0156	1.07	0.0720	0.0050	8307302
Total Uranium (U)	mg/L	0.000727	0.00191	0.0144	0.00325	0.00200	0.0000050	8307302

RDL = Reportable Detection Limit

(1) Matrix Spike outside acceptance criteria (10% of analytes failure allowed).

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		OW1940	OW1941	OW1942	OW1944	OW1946		
Sampling Date		2016/06/14 11:00	2016/06/14 10:03	2016/06/14 17:25	2016/06/15 09:15	2016/06/15 12:20		
COC Number		08423271	08423271	08423271	08423272	08423272		
	UNITS	MW15-04D	MW15-04S	BH95G-131	MW15-03S	MW15-07S	RDL	QC Batch
Total Vanadium (V)	mg/L	0.00058	0.0754	0.00096	0.0952	0.0147	0.00050	8307302
Total Zinc (Zn)	mg/L	0.0031	0.156	0.0705	0.262	0.0291	0.0010	8307302
Total Zirconium (Zr)	mg/L	0.00096	0.00562	0.0408	0.00611	0.00542	0.00010	8307302
Total Calcium (Ca)	mg/L	49.7	66.0	153	62.4	65.9	0.25	8304042
Total Magnesium (Mg)	mg/L	5.15	13.8	66.8	21.2	11.2	0.25	8304042
Total Potassium (K)	mg/L	2.09	4.53	4.31	6.34	1.69	0.25	8304042
Total Sodium (Na)	mg/L	1.26	1.08	2.18	2.91	3.29	0.25	8304042
Total Sulphur (S)	mg/L	<15	<15	88	<15	<15	15	8304042
RDL = Reportable Detection Limit								

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		OW1948	OW1950		OW1951		
Sampling Date		2016/06/15 13:25	2016/06/16 17:45		2016/06/16 12:40		
COC Number		08423272	08423272		08423272		
	UNITS	MW15-08S	BH95G-32	QC Batch	MW15-10D	RDL	QC Batch
<b>Calculated Parameters</b>							
Total Hardness (CaCO3)	mg/L	527	213	8303881	1810	0.50	8303881
<b>Elements</b>							
Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	8309050	<0.0000020	0.0000020	8309050
<b>Total Metals by ICPMS</b>							
Total Aluminum (Al)	mg/L	61.1	3.95	8307302	1.46	0.0030	8306504
Total Antimony (Sb)	mg/L	0.000608	0.000133	8307302	<0.000050	0.000050	8306504
Total Arsenic (As)	mg/L	0.0513	0.00375	8307302	0.00101	0.000020	8306504
Total Barium (Ba)	mg/L	1.10	0.302	8307302	0.378	0.00010	8306504
Total Beryllium (Be)	mg/L	0.00146	0.000221	8307302	0.00108	0.000010	8306504
Total Bismuth (Bi)	mg/L	0.000873	0.000118	8307302	0.000202	0.000020	8306504
Total Boron (B)	mg/L	<0.050	<0.050	8307302	<0.050	0.050	8306504
Total Cadmium (Cd)	mg/L	0.00489	0.000263	8307302	0.00108	0.0000050	8306504
Total Chromium (Cr)	mg/L	0.144	0.00924	8307302	0.00398	0.00050	8306504
Total Cobalt (Co)	mg/L	0.0786	0.00340	8307302	0.00160	0.000010	8306504
Total Copper (Cu)	mg/L	0.330	0.0115	8307302	0.00715	0.00020	8306504
Total Iron (Fe)	mg/L	136	7.58	8307302	28.5	0.0050	8306504
Total Lead (Pb)	mg/L	0.275	0.0117	8307302	0.0129	0.000050	8306504
Total Lithium (Li)	mg/L	0.0492	0.00264	8307302	0.237	0.00050	8306504
Total Manganese (Mn)	mg/L	1.78	0.257	8307302	5.00	0.00010	8306504
Total Molybdenum (Mo)	mg/L	0.00441	0.000728	8307302	0.000933	0.000050	8306504
Total Nickel (Ni)	mg/L	0.167	0.00559	8307302	0.00249	0.00010	8306504
Total Phosphorus (P)	mg/L	3.18	0.126	8307302	0.095	0.010	8306504
Total Selenium (Se)	mg/L	0.00468	0.000922	8307302	0.000153	0.000040	8306504
Total Silicon (Si)	mg/L	68.6	9.59	8307302	33.7	0.10	8306504
Total Silver (Ag)	mg/L	0.00850	0.000131	8307302	0.000694	0.000010	8306504
Total Strontium (Sr)	mg/L	0.478	0.290	8307302	2.82	0.000050	8306504
Total Thallium (Tl)	mg/L	0.000710	0.0000330	8307302	0.0000120	0.0000020	8306504
Total Tin (Sn)	mg/L	0.00166	0.00024	8307302	<0.00020	0.00020	8306504
Total Titanium (Ti)	mg/L	2.27	0.389	8307302	0.0592	0.0050	8306504
Total Uranium (U)	mg/L	0.00579	0.00157	8307302	0.000371	0.0000050	8306504
Total Vanadium (V)	mg/L	0.231	0.0202	8307302	0.00524	0.00050	8306504
RDL = Reportable Detection Limit							

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		OW1948	OW1950		OW1951		
Sampling Date		2016/06/15 13:25	2016/06/16 17:45		2016/06/16 12:40		
COC Number		08423272	08423272		08423272		
	UNITS	MW15-08S	BH95G-32	QC Batch	MW15-10D	RDL	QC Batch
Total Zinc (Zn)	mg/L	1.14	0.0275	8307302	0.0095	0.0010	8306504
Total Zirconium (Zr)	mg/L	0.00789	0.00199	8307302	0.00245	0.00010	8306504
Total Calcium (Ca)	mg/L	139	76.1	8304042	613	0.25	8304042
Total Magnesium (Mg)	mg/L	43.9	5.44	8304042	66.8	0.25	8304042
Total Potassium (K)	mg/L	9.50	4.55	8304042	8.34	0.25	8304042
Total Sodium (Na)	mg/L	1.54	0.84	8304042	20.0	0.25	8304042
Total Sulphur (S)	mg/L	<15	<15	8304042	<15	15	8304042
RDL = Reportable Detection Limit							

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		OW1952		OW1954		OW1956		
Sampling Date		2016/06/16 11:20		2016/06/16 12:10		2016/06/16 14:15		
COC Number		08423272		08423273		08423273		
	UNITS	MW15-09S	RDL	MW15-10S	RDL	MW15-05D	RDL	QC Batch
<b>Calculated Parameters</b>								
Total Hardness (CaCO3)	mg/L	230	0.50	577	0.50	228	0.50	8303881
<b>Elements</b>								
Total Mercury (Hg)	mg/L	<0.000020	0.000020	<0.000020	0.000020	<0.000020	0.000020	8309051
<b>Total Metals by ICPMS</b>								
Total Aluminum (Al)	mg/L	4.86	0.0030	40.6	0.015	4.09	0.0030	8306504
Total Antimony (Sb)	mg/L	0.000285	0.000050	0.00046	0.00025	0.000084	0.000050	8306504
Total Arsenic (As)	mg/L	0.00355	0.000020	0.0653	0.00010	0.00465	0.000020	8306504
Total Barium (Ba)	mg/L	0.276	0.00010	1.81	0.00050	0.137	0.00010	8306504
Total Beryllium (Be)	mg/L	0.000556	0.000010	0.00354	0.000050	0.000507	0.000010	8306504
Total Bismuth (Bi)	mg/L	0.000219	0.000020	0.00089	0.00010	0.000171	0.000020	8306504
Total Boron (B)	mg/L	<0.050	0.050	<0.25	0.25	<0.050	0.050	8306504
Total Cadmium (Cd)	mg/L	0.000572	0.0000050	0.0117	0.000025	0.000580	0.0000050	8306504
Total Chromium (Cr)	mg/L	0.0128	0.00050	0.159	0.0025	0.00473	0.00050	8306504
Total Cobalt (Co)	mg/L	0.00439	0.000010	0.108	0.000050	0.00554	0.000010	8306504
Total Copper (Cu)	mg/L	0.0262	0.00020	0.565	0.0010	0.0315	0.00020	8306504
Total Iron (Fe)	mg/L	8.80	0.0050	126	0.025	9.71	0.0050	8306504
Total Lead (Pb)	mg/L	0.0179	0.000050	0.423	0.00025	0.0353	0.000050	8306504
Total Lithium (Li)	mg/L	0.00626	0.00050	0.0399	0.0025	0.00326	0.00050	8306504
Total Manganese (Mn)	mg/L	0.274	0.00010	5.62	0.00050	0.408	0.00010	8306504
Total Molybdenum (Mo)	mg/L	0.00600	0.000050	0.00828	0.00025	0.00150	0.000050	8306504
Total Nickel (Ni)	mg/L	0.0102	0.00010	0.222	0.00050	0.00728	0.00010	8306504
Total Phosphorus (P)	mg/L	0.256	0.010	10.5	0.050	0.222	0.010	8306504
Total Selenium (Se)	mg/L	0.000946	0.000040	0.00232	0.00020	0.00217	0.000040	8306504
Total Silicon (Si)	mg/L	10.8	0.10	40.1	0.50	8.27	0.10	8306504
Total Silver (Ag)	mg/L	0.00207	0.000010	0.00773	0.000050	0.00360	0.000010	8306504
Total Strontium (Sr)	mg/L	0.310	0.000050	0.814	0.00025	0.286	0.000050	8306504
Total Thallium (Tl)	mg/L	0.0000840	0.0000020	0.000458	0.000010	0.0000580	0.0000020	8306504
Total Tin (Sn)	mg/L	0.00044	0.00020	<0.0010	0.0010	0.00051	0.00020	8306504
Total Titanium (Ti)	mg/L	0.118	0.0050	0.578	0.025	0.0311	0.0050	8306504
Total Uranium (U)	mg/L	0.00472	0.0000050	0.0193	0.000025	0.00300	0.0000050	8306504
Total Vanadium (V)	mg/L	0.0132	0.00050	0.172	0.0025	0.00533	0.00050	8306504
RDL = Reportable Detection Limit								

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		OW1952		OW1954		OW1956		
Sampling Date		2016/06/16 11:20		2016/06/16 12:10		2016/06/16 14:15		
COC Number		08423272		08423273		08423273		
	UNITS	MW15-09S	RDL	MW15-10S	RDL	MW15-05D	RDL	QC Batch
Total Zinc (Zn)	mg/L	0.0486	0.0010	1.04	0.0050	0.0615	0.0010	8306504
Total Zirconium (Zr)	mg/L	0.00121	0.00010	0.00492	0.00050	0.00296	0.00010	8306504
Total Calcium (Ca)	mg/L	72.9	0.25	179	1.3	77.8	0.25	8304042
Total Magnesium (Mg)	mg/L	11.7	0.25	31.4	1.3	8.24	0.25	8304042
Total Potassium (K)	mg/L	2.53	0.25	7.2	1.3	2.20	0.25	8304042
Total Sodium (Na)	mg/L	3.33	0.25	10.8	1.3	1.89	0.25	8304042
Total Sulphur (S)	mg/L	<15	15	<75	75	<15	15	8304042
RDL = Reportable Detection Limit								

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

### TEST SUMMARY

**Maxxam ID:** OW1917  
**Sample ID:** DUP 2  
**Matrix:** Water

**Collected:** 2016/06/14  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8305190	N/A	2016/06/20	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8305343	2016/06/20	2016/06/20	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8305558	N/A	2016/06/20	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8306427	N/A	2016/06/20	Isabel Choi
Conductance - water	AT/ALK	8305346	N/A	2016/06/20	Wilson Au Yueng
Fluoride	ISE/ISE	8306756	N/A	2016/06/21	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8303881	N/A	2016/06/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8303851	N/A	2016/06/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8309009	N/A	2016/06/23	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8309050	2016/06/23	2016/06/23	Rob McClelland
Ion Balance	CALC	8304168	N/A	2016/06/23	Automated Statchk
Sum of cations, anions	CALC	8304169	N/A	2016/06/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8303852	N/A	2016/06/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8305350	N/A	2016/06/23	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8307302	2016/06/22	2016/06/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8304042	N/A	2016/06/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8305698	N/A	2016/06/21	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8306263	N/A	2016/06/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8306266	N/A	2016/06/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8304029	N/A	2016/06/21	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8304808	N/A	2016/06/20	Lucy Luo
pH Water	AT/ALK	8305345	N/A	2016/06/20	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8305561	N/A	2016/06/20	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8306812	2016/06/21	2016/06/21	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8306889	N/A	2016/06/21	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8304524	2016/06/20	2016/06/21	Prabhleen Sodhi

**Maxxam ID:** OW1936  
**Sample ID:** MW15-06  
**Matrix:** Water

**Collected:** 2016/06/14  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8305190	N/A	2016/06/20	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8310177	2016/06/24	2016/06/24	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8310614	N/A	2016/06/24	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8306427	N/A	2016/06/20	Isabel Choi
Conductance - water	AT/ALK	8305346	N/A	2016/06/20	Wilson Au Yueng
Fluoride	ISE/ISE	8306756	N/A	2016/06/21	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8303881	N/A	2016/06/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8308734	N/A	2016/06/24	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8309009	N/A	2016/06/23	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8309050	2016/06/23	2016/06/23	Rob McClelland
Ion Balance	CALC	8309780	N/A	2016/06/24	David Huang
Sum of cations, anions	CALC	8309781	N/A	2016/06/24	David Huang

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

### TEST SUMMARY

**Maxxam ID:** OW1936  
**Sample ID:** MW15-06  
**Matrix:** Water

**Collected:** 2016/06/14  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8308936	N/A	2016/06/24	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8310131	N/A	2016/06/24	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8307302	2016/06/22	2016/06/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8304042	N/A	2016/06/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8305698	N/A	2016/06/21	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8306263	N/A	2016/06/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8306266	N/A	2016/06/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8304029	N/A	2016/06/21	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8304808	N/A	2016/06/20	Lucy Luo
pH Water	AT/ALK	8305345	N/A	2016/06/20	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8310615	N/A	2016/06/24	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8306812	2016/06/21	2016/06/21	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8306889	N/A	2016/06/21	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8304524	2016/06/20	2016/06/21	Prabhleen Sodhi

**Maxxam ID:** OW1937  
**Sample ID:** BH95G-31  
**Matrix:** Water

**Collected:** 2016/06/14  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8305190	N/A	2016/06/20	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8305343	2016/06/20	2016/06/20	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8305558	N/A	2016/06/20	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8306427	N/A	2016/06/20	Isabel Choi
Conductance - water	AT/ALK	8305346	N/A	2016/06/20	Wilson Au Yueng
Fluoride	ISE/ISE	8306756	N/A	2016/06/21	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8303881	N/A	2016/06/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8303851	N/A	2016/06/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8309009	N/A	2016/06/23	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8309050	2016/06/23	2016/06/23	Rob McClelland
Ion Balance	CALC	8304168	N/A	2016/06/23	Automated Statchk
Sum of cations, anions	CALC	8304169	N/A	2016/06/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8303852	N/A	2016/06/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8305350	N/A	2016/06/23	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8307302	2016/06/22	2016/06/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8304042	N/A	2016/06/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8305698	N/A	2016/06/21	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8306263	N/A	2016/06/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8306266	N/A	2016/06/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8304029	N/A	2016/06/21	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8304808	N/A	2016/06/20	Lucy Luo
pH Water	AT/ALK	8305345	N/A	2016/06/20	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8305561	N/A	2016/06/20	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8306812	2016/06/21	2016/06/21	Isabel Choi



Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

### TEST SUMMARY

**Maxxam ID:** OW1937  
**Sample ID:** BH95G-31  
**Matrix:** Water

**Collected:** 2016/06/14  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Phosphorus - unpreserved	KONE/COL	8306889	N/A	2016/06/21	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8304524	2016/06/20	2016/06/21	Prabhleen Sodhi

**Maxxam ID:** OW1937 Dup  
**Sample ID:** BH95G-31  
**Matrix:** Water

**Collected:** 2016/06/14  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Water	AT/ALK	8305343	2016/06/20	2016/06/20	Wilson Au Yueng
Conductance - water	AT/ALK	8305346	N/A	2016/06/20	Wilson Au Yueng
pH Water	AT/ALK	8305345	N/A	2016/06/20	Wilson Au Yueng

**Maxxam ID:** OW1938  
**Sample ID:** BH95G-2  
**Matrix:** Water

**Collected:** 2016/06/14  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8305190	N/A	2016/06/20	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8305343	2016/06/20	2016/06/20	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8305558	N/A	2016/06/20	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8306427	N/A	2016/06/20	Isabel Choi
Conductance - water	AT/ALK	8305346	N/A	2016/06/20	Wilson Au Yueng
Fluoride	ISE/ISE	8306756	N/A	2016/06/21	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8303881	N/A	2016/06/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8303851	N/A	2016/06/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8309009	N/A	2016/06/23	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8309050	2016/06/23	2016/06/23	Rob McClelland
Ion Balance	CALC	8304168	N/A	2016/06/23	Automated Statchk
Sum of cations, anions	CALC	8304169	N/A	2016/06/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8303852	N/A	2016/06/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8305350	N/A	2016/06/23	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8307302	2016/06/22	2016/06/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8304042	N/A	2016/06/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8305698	N/A	2016/06/21	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8306263	N/A	2016/06/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8306266	N/A	2016/06/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8304029	N/A	2016/06/21	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8304808	N/A	2016/06/20	Lucy Luo
pH Water	AT/ALK	8305345	N/A	2016/06/20	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8305561	N/A	2016/06/20	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8306812	2016/06/21	2016/06/21	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8306889	N/A	2016/06/21	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8304524	2016/06/20	2016/06/21	Prabhleen Sodhi

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

### TEST SUMMARY

**Maxxam ID:** OW1938 Dup  
**Sample ID:** BH95G-2  
**Matrix:** Water

**Collected:** 2016/06/14  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chloride by Automated Colourimetry	KONE/COL	8305558	N/A	2016/06/20	Balwinder Bassi
Sulphate by Automated Colourimetry	KONE/COL	8305561	N/A	2016/06/20	Balwinder Bassi

**Maxxam ID:** OW1939  
**Sample ID:** BH95G-33D  
**Matrix:** Water

**Collected:** 2016/06/14  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8305190	N/A	2016/06/20	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8305343	2016/06/20	2016/06/20	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8305558	N/A	2016/06/20	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8306427	N/A	2016/06/20	Isabel Choi
Conductance - water	AT/ALK	8305346	N/A	2016/06/20	Wilson Au Yueng
Fluoride	ISE/ISE	8306756	N/A	2016/06/21	Isaac Wang
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8303881	N/A	2016/06/23	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8303851	N/A	2016/06/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8309009	N/A	2016/06/23	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8309050	2016/06/23	2016/06/23	Rob McClelland
Ion Balance	CALC	8304168	N/A	2016/06/23	Automated Statchk
Sum of cations, anions	CALC	8304169	N/A	2016/06/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8303852	N/A	2016/06/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8305350	N/A	2016/06/23	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8307302	2016/06/22	2016/06/22	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8304042	N/A	2016/06/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8305698	N/A	2016/06/21	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8306263	N/A	2016/06/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8306266	N/A	2016/06/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8304029	N/A	2016/06/21	Automated Statchk
Filter and HNO <sub>3</sub> Preserve for Metals	ICP	8304808	N/A	2016/06/20	Lucy Luo
pH Water	AT/ALK	8305345	N/A	2016/06/20	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8305561	N/A	2016/06/20	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8306812	2016/06/21	2016/06/21	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8306889	N/A	2016/06/21	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8304524	2016/06/20	2016/06/21	Prabhleen Sodhi

**Maxxam ID:** OW1940  
**Sample ID:** MW15-04D  
**Matrix:** Water

**Collected:** 2016/06/14  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8305190	N/A	2016/06/20	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8305343	2016/06/20	2016/06/20	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8305558	N/A	2016/06/20	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8306427	N/A	2016/06/20	Isabel Choi

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**TEST SUMMARY**

**Maxxam ID:** OW1940  
**Sample ID:** MW15-04D  
**Matrix:** Water

**Collected:** 2016/06/14  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductance - water	AT/ALK	8305346	N/A	2016/06/20	Wilson Au Yueng
Fluoride	ISE/ISE	8306756	N/A	2016/06/21	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8303881	N/A	2016/06/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8303851	N/A	2016/06/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8309009	N/A	2016/06/23	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8309050	2016/06/23	2016/06/23	Rob McClelland
Ion Balance	CALC	8304168	N/A	2016/06/23	Automated Statchk
Sum of cations, anions	CALC	8304169	N/A	2016/06/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8303852	N/A	2016/06/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8305350	N/A	2016/06/23	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8307302	2016/06/22	2016/06/22	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8304042	N/A	2016/06/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8305698	N/A	2016/06/21	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8306263	N/A	2016/06/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8306266	N/A	2016/06/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8304029	N/A	2016/06/21	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8304808	N/A	2016/06/20	Lucy Luo
pH Water	AT/ALK	8305345	N/A	2016/06/20	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8307212	N/A	2016/06/21	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8306812	2016/06/21	2016/06/21	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8306889	N/A	2016/06/21	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8304524	2016/06/20	2016/06/21	Prabhleen Sodhi

**Maxxam ID:** OW1940 Dup  
**Sample ID:** MW15-04D  
**Matrix:** Water

**Collected:** 2016/06/14  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Fluoride	ISE/ISE	8306756	N/A	2016/06/21	Isaac Wang
Total Phosphorus - unpreserved	KONE/COL	8306889	N/A	2016/06/21	Isabel Choi

**Maxxam ID:** OW1941  
**Sample ID:** MW15-04S  
**Matrix:** Water

**Collected:** 2016/06/14  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8305190	N/A	2016/06/20	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8305343	2016/06/20	2016/06/20	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8305558	N/A	2016/06/20	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8306427	N/A	2016/06/20	Isabel Choi
Conductance - water	AT/ALK	8305346	N/A	2016/06/20	Wilson Au Yueng
Fluoride	ISE/ISE	8306753	N/A	2016/06/21	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8303881	N/A	2016/06/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8303851	N/A	2016/06/23	Automated Statchk

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

### TEST SUMMARY

**Maxxam ID:** OW1941  
**Sample ID:** MW15-04S  
**Matrix:** Water

**Collected:** 2016/06/14  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8309009	N/A	2016/06/23	Rob McClelland
Mercury (Total-LowLevel) by CVAF	CV/AF	8309050	2016/06/23	2016/06/23	Rob McClelland
Ion Balance	CALC	8304168	N/A	2016/06/23	Automated Statchk
Sum of cations, anions	CALC	8304169	N/A	2016/06/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8303852	N/A	2016/06/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8305350	N/A	2016/06/23	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8307302	2016/06/22	2016/06/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8304042	N/A	2016/06/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8305698	N/A	2016/06/21	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8306263	N/A	2016/06/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8306266	N/A	2016/06/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8304029	N/A	2016/06/21	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8304808	N/A	2016/06/20	Lucy Luo
pH Water	AT/ALK	8305345	N/A	2016/06/20	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8305561	N/A	2016/06/20	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8306812	2016/06/21	2016/06/21	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8306889	N/A	2016/06/21	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8304524	2016/06/20	2016/06/21	Prabhleen Sodhi

**Maxxam ID:** OW1941 Dup  
**Sample ID:** MW15-04S  
**Matrix:** Water

**Collected:** 2016/06/14  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8306812	2016/06/21	2016/06/21	Isabel Choi

**Maxxam ID:** OW1942  
**Sample ID:** BH95G-131  
**Matrix:** Water

**Collected:** 2016/06/14  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8305190	N/A	2016/06/20	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8305343	2016/06/20	2016/06/20	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8305558	N/A	2016/06/20	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8306427	N/A	2016/06/20	Isabel Choi
Conductance - water	AT/ALK	8305346	N/A	2016/06/20	Wilson Au Yueng
Fluoride	ISE/ISE	8306756	N/A	2016/06/21	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8303881	N/A	2016/06/22	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8303851	N/A	2016/06/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8309009	N/A	2016/06/23	Rob McClelland
Mercury (Total-LowLevel) by CVAF	CV/AF	8309050	2016/06/23	2016/06/23	Rob McClelland
Ion Balance	CALC	8304168	N/A	2016/06/23	Automated Statchk
Sum of cations, anions	CALC	8304169	N/A	2016/06/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8303852	N/A	2016/06/23	Automated Statchk

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

### TEST SUMMARY

**Maxxam ID:** OW1942  
**Sample ID:** BH95G-131  
**Matrix:** Water

**Collected:** 2016/06/14  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8305350	N/A	2016/06/23	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8307302	2016/06/22	2016/06/22	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8304042	N/A	2016/06/22	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8305698	N/A	2016/06/21	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8306263	N/A	2016/06/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8306266	N/A	2016/06/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8304029	N/A	2016/06/21	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8304808	N/A	2016/06/20	Lucy Luo
pH Water	AT/ALK	8305345	N/A	2016/06/20	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8305561	N/A	2016/06/20	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8306812	2016/06/21	2016/06/21	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8306889	N/A	2016/06/21	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8304524	2016/06/20	2016/06/21	Prabhleen Sodhi

**Maxxam ID:** OW1942 Dup  
**Sample ID:** BH95G-131  
**Matrix:** Water

**Collected:** 2016/06/14  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8305190	N/A	2016/06/20	Wilson Au Yueng
Elements by ICPMS Digested LL (total)	ICP/CRCM	8307302	2016/06/22	2016/06/22	Andrew An

**Maxxam ID:** OW1943  
**Sample ID:** MW15-03D  
**Matrix:** Water

**Collected:** 2016/06/14  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8305186	N/A	2016/06/20	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8305327	2016/06/20	2016/06/20	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8305558	N/A	2016/06/20	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8306427	N/A	2016/06/20	Isabel Choi
Conductance - water	AT/ALK	8305333	N/A	2016/06/20	Wilson Au Yueng
Fluoride	ISE/ISE	8306753	N/A	2016/06/21	Isaac Wang
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8303881	N/A	2016/06/22	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8303851	N/A	2016/06/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8309009	N/A	2016/06/23	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8309050	2016/06/23	2016/06/23	Rob McClelland
Ion Balance	CALC	8304168	N/A	2016/06/23	Automated Statchk
Sum of cations, anions	CALC	8304169	N/A	2016/06/22	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8303852	N/A	2016/06/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8305350	N/A	2016/06/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8304042	N/A	2016/06/22	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8306148	N/A	2016/06/21	Andrew An
Ammonia-N (Preserved)	KONE/COL	8305698	N/A	2016/06/21	Clare Kwok

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

### TEST SUMMARY

**Maxxam ID:** OW1943  
**Sample ID:** MW15-03D  
**Matrix:** Water

**Collected:** 2016/06/14  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrate+Nitrite (N) (low level)	TRAA/COL	8306256	N/A	2016/06/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8306259	N/A	2016/06/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8304029	N/A	2016/06/21	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8304808	N/A	2016/06/20	Lucy Luo
pH Water	AT/ALK	8305331	N/A	2016/06/20	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8305561	N/A	2016/06/20	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8306812	2016/06/21	2016/06/21	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8306889	N/A	2016/06/21	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8304524	2016/06/20	2016/06/21	Prabhleen Sodhi

**Maxxam ID:** OW1944  
**Sample ID:** MW15-03S  
**Matrix:** Water

**Collected:** 2016/06/15  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8305186	N/A	2016/06/20	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8305343	2016/06/20	2016/06/20	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8305558	N/A	2016/06/20	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8306427	N/A	2016/06/20	Isabel Choi
Conductance - water	AT/ALK	8305346	N/A	2016/06/20	Wilson Au Yueng
Fluoride	ISE/ISE	8306753	N/A	2016/06/21	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8303881	N/A	2016/06/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8303851	N/A	2016/06/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8309009	N/A	2016/06/23	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8309050	2016/06/23	2016/06/23	Rob McClelland
Ion Balance	CALC	8304168	N/A	2016/06/23	Automated Statchk
Sum of cations, anions	CALC	8304169	N/A	2016/06/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8303852	N/A	2016/06/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8305350	N/A	2016/06/23	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8307302	2016/06/22	2016/06/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8304042	N/A	2016/06/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8305698	N/A	2016/06/21	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8306263	N/A	2016/06/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8306266	N/A	2016/06/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8304029	N/A	2016/06/21	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8304808	N/A	2016/06/20	Lucy Luo
pH Water	AT/ALK	8305345	N/A	2016/06/20	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8305561	N/A	2016/06/20	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8306812	2016/06/21	2016/06/21	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8306889	N/A	2016/06/21	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8304524	2016/06/20	2016/06/21	Prabhleen Sodhi



Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

### TEST SUMMARY

**Maxxam ID:** OW1945  
**Sample ID:** MW15-07D  
**Matrix:** Water

**Collected:** 2016/06/15  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8305186	N/A	2016/06/20	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8305327	2016/06/20	2016/06/20	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8305541	N/A	2016/06/20	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8306427	N/A	2016/06/20	Isabel Choi
Conductance - water	AT/ALK	8305333	N/A	2016/06/20	Wilson Au Yueng
Fluoride	ISE/ISE	8306753	N/A	2016/06/21	Isaac Wang
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8303881	N/A	2016/06/22	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8303851	N/A	2016/06/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8309009	N/A	2016/06/23	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8309050	2016/06/23	2016/06/23	Rob McClelland
Ion Balance	CALC	8304168	N/A	2016/06/23	Automated Statchk
Sum of cations, anions	CALC	8304169	N/A	2016/06/22	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8303852	N/A	2016/06/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8305350	N/A	2016/06/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8304042	N/A	2016/06/22	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8306148	N/A	2016/06/21	Andrew An
Ammonia-N (Preserved)	KONE/COL	8305697	N/A	2016/06/21	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8306256	N/A	2016/06/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8306259	N/A	2016/06/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8304029	N/A	2016/06/21	Automated Statchk
Filter and HNO <sub>3</sub> Preserve for Metals	ICP	8304808	N/A	2016/06/20	Lucy Luo
pH Water	AT/ALK	8305331	N/A	2016/06/20	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8305551	N/A	2016/06/20	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8306812	2016/06/21	2016/06/21	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8306889	N/A	2016/06/21	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8304524	2016/06/20	2016/06/21	Prabhleen Sodhi

**Maxxam ID:** OW1946  
**Sample ID:** MW15-07S  
**Matrix:** Water

**Collected:** 2016/06/15  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8305186	N/A	2016/06/20	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8305343	2016/06/20	2016/06/20	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8305558	N/A	2016/06/20	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8306427	N/A	2016/06/20	Isabel Choi
Conductance - water	AT/ALK	8305346	N/A	2016/06/20	Wilson Au Yueng
Fluoride	ISE/ISE	8306753	N/A	2016/06/21	Isaac Wang
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8303881	N/A	2016/06/23	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8303851	N/A	2016/06/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8309009	N/A	2016/06/23	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8309050	2016/06/23	2016/06/23	Rob McClelland
Ion Balance	CALC	8304168	N/A	2016/06/23	Automated Statchk
Sum of cations, anions	CALC	8304169	N/A	2016/06/23	Automated Statchk

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

### TEST SUMMARY

**Maxxam ID:** OW1946  
**Sample ID:** MW15-07S  
**Matrix:** Water

**Collected:** 2016/06/15  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8303852	N/A	2016/06/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8305355	N/A	2016/06/22	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8307302	2016/06/22	2016/06/22	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8304042	N/A	2016/06/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8305698	N/A	2016/06/21	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8306263	N/A	2016/06/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8306266	N/A	2016/06/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8304029	N/A	2016/06/21	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8304808	N/A	2016/06/20	Lucy Luo
pH Water	AT/ALK	8305345	N/A	2016/06/20	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8305561	N/A	2016/06/20	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8306812	2016/06/21	2016/06/21	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8306889	N/A	2016/06/21	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8304524	2016/06/20	2016/06/21	Prabhleen Sodhi

**Maxxam ID:** OW1946 Dup  
**Sample ID:** MW15-07S  
**Matrix:** Water

**Collected:** 2016/06/15  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrate+Nitrite (N) (low level)	TRAA/COL	8306263	N/A	2016/06/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8306266	N/A	2016/06/19	Isaac Wang

**Maxxam ID:** OW1947  
**Sample ID:** DUP3  
**Matrix:** Water

**Collected:** 2016/06/15  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8305186	N/A	2016/06/20	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8305327	2016/06/20	2016/06/20	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8305541	N/A	2016/06/20	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8306427	N/A	2016/06/20	Isabel Choi
Conductance - water	AT/ALK	8305333	N/A	2016/06/20	Wilson Au Yueng
Fluoride	ISE/ISE	8306753	N/A	2016/06/21	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8303881	N/A	2016/06/22	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8303851	N/A	2016/06/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8309009	N/A	2016/06/23	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8309050	2016/06/23	2016/06/23	Rob McClelland
Ion Balance	CALC	8304168	N/A	2016/06/23	Automated Statchk
Sum of cations, anions	CALC	8304169	N/A	2016/06/22	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8303852	N/A	2016/06/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8305355	N/A	2016/06/22	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8304042	N/A	2016/06/22	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8306148	N/A	2016/06/21	Andrew An



Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

### TEST SUMMARY

**Maxxam ID:** OW1947  
**Sample ID:** DUP3  
**Matrix:** Water

**Collected:** 2016/06/15  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Ammonia-N (Preserved)	KONE/COL	8305697	N/A	2016/06/21	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8306256	N/A	2016/06/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8306259	N/A	2016/06/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8304029	N/A	2016/06/21	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8304808	N/A	2016/06/20	Lucy Luo
pH Water	AT/ALK	8305331	N/A	2016/06/20	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8305551	N/A	2016/06/20	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8306812	2016/06/21	2016/06/21	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8306889	N/A	2016/06/21	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8304524	2016/06/20	2016/06/21	Prabhleen Sodhi

**Maxxam ID:** OW1948  
**Sample ID:** MW15-08S  
**Matrix:** Water

**Collected:** 2016/06/15  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8305186	N/A	2016/06/20	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8305327	2016/06/20	2016/06/20	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8305541	N/A	2016/06/20	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8306427	N/A	2016/06/20	Isabel Choi
Conductance - water	AT/ALK	8305333	N/A	2016/06/20	Wilson Au Yueng
Fluoride	ISE/ISE	8306753	N/A	2016/06/21	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8303881	N/A	2016/06/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8303851	N/A	2016/06/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8309009	N/A	2016/06/23	Rob McClelland
Mercury (Total-LowLevel) by CVAF	CV/AF	8309050	2016/06/23	2016/06/23	Rob McClelland
Ion Balance	CALC	8304168	N/A	2016/06/23	Automated Statchk
Sum of cations, anions	CALC	8304169	N/A	2016/06/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8303852	N/A	2016/06/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8305355	N/A	2016/06/22	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8307302	2016/06/22	2016/06/22	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8304042	N/A	2016/06/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8305697	N/A	2016/06/21	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8306256	N/A	2016/06/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8306259	N/A	2016/06/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8304029	N/A	2016/06/21	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8304808	N/A	2016/06/20	Lucy Luo
pH Water	AT/ALK	8305331	N/A	2016/06/20	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8305551	N/A	2016/06/20	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8306812	2016/06/21	2016/06/21	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8306889	N/A	2016/06/21	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8304524	2016/06/20	2016/06/21	Prabhleen Sodhi

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

### TEST SUMMARY

**Maxxam ID:** OW1948 Dup  
**Sample ID:** MW15-08S  
**Matrix:** Water

**Collected:** 2016/06/15  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbon (DOC) - field filtered/preserved	TRAA/COL	8306427	N/A	2016/06/20	Isabel Choi
Ammonia-N (Preserved)	KONE/COL	8305697	N/A	2016/06/21	Clare Kwok

**Maxxam ID:** OW1949  
**Sample ID:** MW15-FB  
**Matrix:** Water

**Collected:** 2016/06/16  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8305186	N/A	2016/06/20	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8305327	2016/06/20	2016/06/20	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8305541	N/A	2016/06/20	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8306427	N/A	2016/06/20	Isabel Choi
Conductance - water	AT/ALK	8305333	N/A	2016/06/20	Wilson Au Yueng
Fluoride	ISE/ISE	8306753	N/A	2016/06/21	Isaac Wang
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8303881	N/A	2016/06/22	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8303851	N/A	2016/06/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8309009	N/A	2016/06/23	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8309050	2016/06/23	2016/06/23	Rob McClelland
Ion Balance	CALC	8304168	N/A	2016/06/23	Automated Statchk
Sum of cations, anions	CALC	8304169	N/A	2016/06/22	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8303852	N/A	2016/06/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8305355	N/A	2016/06/22	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8304042	N/A	2016/06/22	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8306148	N/A	2016/06/21	Andrew An
Ammonia-N (Preserved)	KONE/COL	8305698	N/A	2016/06/21	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8306256	N/A	2016/06/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8306259	N/A	2016/06/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8304029	N/A	2016/06/21	Automated Statchk
Filter and HNO <sub>3</sub> Preserve for Metals	ICP	8304808	N/A	2016/06/20	Lucy Luo
pH Water	AT/ALK	8305331	N/A	2016/06/20	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8305551	N/A	2016/06/20	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8306812	2016/06/21	2016/06/21	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8306821	N/A	2016/06/21	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8305103	2016/06/20	2016/06/21	Prabhleen Sodhi

**Maxxam ID:** OW1950  
**Sample ID:** BH95G-32  
**Matrix:** Water

**Collected:** 2016/06/16  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8305186	N/A	2016/06/20	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8305327	2016/06/20	2016/06/20	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8305541	N/A	2016/06/20	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8306425	N/A	2016/06/20	Isabel Choi

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**TEST SUMMARY**

**Maxxam ID:** OW1950  
**Sample ID:** BH95G-32  
**Matrix:** Water

**Collected:** 2016/06/16  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductance - water	AT/ALK	8305333	N/A	2016/06/20	Wilson Au Yueng
Fluoride	ISE/ISE	8306753	N/A	2016/06/21	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8303881	N/A	2016/06/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8303851	N/A	2016/06/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8309009	N/A	2016/06/23	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8309050	2016/06/23	2016/06/23	Rob McClelland
Ion Balance	CALC	8304168	N/A	2016/06/23	Automated Statchk
Sum of cations, anions	CALC	8304169	N/A	2016/06/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8303852	N/A	2016/06/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8305355	N/A	2016/06/22	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8307302	2016/06/22	2016/06/22	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8304042	N/A	2016/06/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8305697	N/A	2016/06/21	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8306256	N/A	2016/06/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8306259	N/A	2016/06/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8304029	N/A	2016/06/21	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8304808	N/A	2016/06/20	Lucy Luo
pH Water	AT/ALK	8305331	N/A	2016/06/20	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8305551	N/A	2016/06/20	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8306782	2016/06/21	2016/06/21	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8306821	N/A	2016/06/21	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8305103	2016/06/20	2016/06/21	Prabhleen Sodhi

**Maxxam ID:** OW1951  
**Sample ID:** MW15-10D  
**Matrix:** Water

**Collected:** 2016/06/16  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8305186	N/A	2016/06/20	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8305327	2016/06/20	2016/06/20	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8305541	N/A	2016/06/20	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8306425	N/A	2016/06/20	Isabel Choi
Conductance - water	AT/ALK	8305333	N/A	2016/06/20	Wilson Au Yueng
Fluoride	ISE/ISE	8306753	N/A	2016/06/21	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8303881	N/A	2016/06/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8303851	N/A	2016/06/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8309009	N/A	2016/06/23	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8309050	2016/06/23	2016/06/23	Rob McClelland
Ion Balance	CALC	8304168	N/A	2016/06/23	Automated Statchk
Sum of cations, anions	CALC	8304169	N/A	2016/06/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8303852	N/A	2016/06/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8305355	N/A	2016/06/22	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8306504	2016/06/21	2016/06/22	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8304042	N/A	2016/06/23	Automated Statchk

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

### TEST SUMMARY

**Maxxam ID:** OW1951  
**Sample ID:** MW15-10D  
**Matrix:** Water

**Collected:** 2016/06/16  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Ammonia-N (Preserved)	KONE/COL	8305697	N/A	2016/06/21	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8306256	N/A	2016/06/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8306259	N/A	2016/06/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8304029	N/A	2016/06/21	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8304808	N/A	2016/06/20	Lucy Luo
pH Water	AT/ALK	8305331	N/A	2016/06/20	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8305551	N/A	2016/06/20	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8306782	2016/06/21	2016/06/21	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8306821	N/A	2016/06/21	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8305103	2016/06/20	2016/06/21	Prabhleen Sodhi

**Maxxam ID:** OW1952  
**Sample ID:** MW15-09S  
**Matrix:** Water

**Collected:** 2016/06/16  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8305186	N/A	2016/06/20	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8305327	2016/06/20	2016/06/20	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8305541	N/A	2016/06/20	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8306427	N/A	2016/06/20	Isabel Choi
Conductance - water	AT/ALK	8305333	N/A	2016/06/20	Wilson Au Yueng
Fluoride	ISE/ISE	8306753	N/A	2016/06/21	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8303881	N/A	2016/06/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8303851	N/A	2016/06/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8309019	N/A	2016/06/23	Rob McClelland
Mercury (Total-LowLevel) by CVAF	CV/AF	8309051	2016/06/23	2016/06/23	Rob McClelland
Ion Balance	CALC	8304168	N/A	2016/06/23	Automated Statchk
Sum of cations, anions	CALC	8304169	N/A	2016/06/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8303852	N/A	2016/06/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8305355	N/A	2016/06/22	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8306504	2016/06/21	2016/06/22	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8304042	N/A	2016/06/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8305697	N/A	2016/06/21	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8306256	N/A	2016/06/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8306259	N/A	2016/06/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8304029	N/A	2016/06/21	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8304808	N/A	2016/06/20	Lucy Luo
pH Water	AT/ALK	8305331	N/A	2016/06/20	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8305551	N/A	2016/06/20	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8306782	2016/06/21	2016/06/21	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8306821	N/A	2016/06/21	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8305103	2016/06/20	2016/06/21	Prabhleen Sodhi

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

### TEST SUMMARY

**Maxxam ID:** OW1952 Dup  
**Sample ID:** MW15-09S  
**Matrix:** Water

**Collected:** 2016/06/16  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8309019	N/A	2016/06/23	Rob McClelland

**Maxxam ID:** OW1953  
**Sample ID:** BH95G-30  
**Matrix:** Water

**Collected:** 2016/06/16  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8305186	N/A	2016/06/20	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8305327	2016/06/20	2016/06/20	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8305541	N/A	2016/06/20	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8306425	N/A	2016/06/20	Isabel Choi
Conductance - water	AT/ALK	8305333	N/A	2016/06/20	Wilson Au Yueng
Fluoride	ISE/ISE	8306753	N/A	2016/06/21	Isaac Wang
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8303881	N/A	2016/06/22	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8303851	N/A	2016/06/22	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8309019	N/A	2016/06/23	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8309051	2016/06/23	2016/06/23	Rob McClelland
Ion Balance	CALC	8304168	N/A	2016/06/22	Automated Statchk
Sum of cations, anions	CALC	8304169	N/A	2016/06/22	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8303852	N/A	2016/06/22	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8305355	N/A	2016/06/22	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8304042	N/A	2016/06/22	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8306148	N/A	2016/06/21	Andrew An
Ammonia-N (Preserved)	KONE/COL	8305697	N/A	2016/06/21	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8306256	N/A	2016/06/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8306259	N/A	2016/06/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8304029	N/A	2016/06/21	Automated Statchk
Filter and HNO <sub>3</sub> Preserve for Metals	ICP	8304808	N/A	2016/06/20	Lucy Luo
pH Water	AT/ALK	8305331	N/A	2016/06/20	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8305551	N/A	2016/06/20	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8309076	2016/06/23	2016/06/23	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8309077	N/A	2016/06/23	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8305103	2016/06/20	2016/06/21	Prabhleen Sodhi

**Maxxam ID:** OW1953 Dup  
**Sample ID:** BH95G-30  
**Matrix:** Water

**Collected:** 2016/06/16  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8305355	N/A	2016/06/22	Andrew An

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

### TEST SUMMARY

**Maxxam ID:** OW1954  
**Sample ID:** MW15-10S  
**Matrix:** Water

**Collected:** 2016/06/16  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8305186	N/A	2016/06/20	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8310177	2016/06/24	2016/06/24	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8310614	N/A	2016/06/24	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8306427	N/A	2016/06/20	Isabel Choi
Conductance - water	AT/ALK	8305333	N/A	2016/06/20	Wilson Au Yueng
Fluoride	ISE/ISE	8306753	N/A	2016/06/21	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8303881	N/A	2016/06/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8303851	N/A	2016/06/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8309019	N/A	2016/06/23	Rob McClelland
Mercury (Total-LowLevel) by CVAF	CV/AF	8309051	2016/06/23	2016/06/23	Rob McClelland
Ion Balance	CALC	8309780	N/A	2016/06/24	David Huang
Sum of cations, anions	CALC	8309781	N/A	2016/06/24	David Huang
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8303852	N/A	2016/06/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8305355	N/A	2016/06/22	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8306504	2016/06/21	2016/06/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8304042	N/A	2016/06/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8305697	N/A	2016/06/21	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8306256	N/A	2016/06/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8306259	N/A	2016/06/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8304029	N/A	2016/06/21	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8304808	N/A	2016/06/20	Lucy Luo
pH Water	AT/ALK	8305331	N/A	2016/06/20	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8310615	N/A	2016/06/24	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8306782	2016/06/21	2016/06/21	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8306821	N/A	2016/06/21	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8305103	2016/06/20	2016/06/21	Prabhleen Sodhi

**Maxxam ID:** OW1955  
**Sample ID:** TRIP BLANK  
**Matrix:** Water

**Collected:** 2016/06/16  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8305186	N/A	2016/06/20	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8305327	2016/06/20	2016/06/20	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8305541	N/A	2016/06/20	Balwinder Bassi
Carbon (DOC) - unfiltered/unpreserved	TRAA/COL	8306417	N/A	2016/06/20	Isabel Choi
Conductance - water	AT/ALK	8305333	N/A	2016/06/20	Wilson Au Yueng
Fluoride	ISE/ISE	8306753	N/A	2016/06/21	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8303881	N/A	2016/06/22	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8303851	N/A	2016/06/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8309019	N/A	2016/06/23	Rob McClelland
Mercury (Total-LowLevel) by CVAF	CV/AF	8309051	2016/06/23	2016/06/23	Rob McClelland
Ion Balance	CALC	8304168	N/A	2016/06/23	Automated Statchk
Sum of cations, anions	CALC	8304169	N/A	2016/06/22	Automated Statchk



Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

### TEST SUMMARY

**Maxxam ID:** OW1955  
**Sample ID:** TRIP BLANK  
**Matrix:** Water

**Collected:** 2016/06/16  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8303852	N/A	2016/06/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8305355	N/A	2016/06/22	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8304042	N/A	2016/06/22	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8306148	N/A	2016/06/21	Andrew An
Ammonia-N (Unpreserved)	KONE/COL	8304810	N/A	2016/06/20	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8306256	N/A	2016/06/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8306259	N/A	2016/06/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8304029	N/A	2016/06/21	Automated Statchk
pH Water	AT/ALK	8305331	N/A	2016/06/20	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8305551	N/A	2016/06/20	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8306782	2016/06/21	2016/06/21	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8306821	N/A	2016/06/21	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8305103	2016/06/20	2016/06/21	Prabhleen Sodhi

**Maxxam ID:** OW1956  
**Sample ID:** MW15-05D  
**Matrix:** Water

**Collected:** 2016/06/16  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8305186	N/A	2016/06/20	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8305327	2016/06/20	2016/06/20	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8305541	N/A	2016/06/20	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8306425	N/A	2016/06/20	Isabel Choi
Conductance - water	AT/ALK	8305333	N/A	2016/06/20	Wilson Au Yueng
Fluoride	ISE/ISE	8306753	N/A	2016/06/21	Isaac Wang
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8303881	N/A	2016/06/23	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8303851	N/A	2016/06/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8309019	N/A	2016/06/23	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8309051	2016/06/23	2016/06/23	Rob McClelland
Ion Balance	CALC	8304168	N/A	2016/06/23	Automated Statchk
Sum of cations, anions	CALC	8304169	N/A	2016/06/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8303852	N/A	2016/06/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8305355	N/A	2016/06/22	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8306504	2016/06/21	2016/06/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8304042	N/A	2016/06/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8305697	N/A	2016/06/21	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8306256	N/A	2016/06/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8306259	N/A	2016/06/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8304029	N/A	2016/06/21	Automated Statchk
Filter and HNO <sub>3</sub> Preserve for Metals	ICP	8304808	N/A	2016/06/20	Lucy Luo
pH Water	AT/ALK	8305331	N/A	2016/06/20	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8305551	N/A	2016/06/20	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8306782	2016/06/21	2016/06/21	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8306821	N/A	2016/06/21	Isabel Choi

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

### TEST SUMMARY

**Maxxam ID:** OW1956  
**Sample ID:** MW15-05D  
**Matrix:** Water

**Collected:** 2016/06/16  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Suspended Solids-Low Level	BAL/BAL	8305103	2016/06/20	2016/06/21	Prabhleen Sodhi

**Maxxam ID:** OW1957  
**Sample ID:** BH95G-129  
**Matrix:** Water

**Collected:** 2016/06/17  
**Shipped:**  
**Received:** 2016/06/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8305186	N/A	2016/06/20	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8305327	2016/06/20	2016/06/20	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8305541	N/A	2016/06/20	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8306425	N/A	2016/06/20	Isabel Choi
Conductance - water	AT/ALK	8305333	N/A	2016/06/20	Wilson Au Yueng
Fluoride	ISE/ISE	8306753	N/A	2016/06/21	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8303881	N/A	2016/06/22	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8303851	N/A	2016/06/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8309019	N/A	2016/06/23	Rob McClelland
Mercury (Total-LowLevel) by CVAF	CV/AF	8309051	2016/06/23	2016/06/23	Rob McClelland
Ion Balance	CALC	8304168	N/A	2016/06/23	Automated Statchk
Sum of cations, anions	CALC	8304169	N/A	2016/06/22	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8303852	N/A	2016/06/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8305355	N/A	2016/06/22	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8304042	N/A	2016/06/22	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8306148	N/A	2016/06/21	Andrew An
Ammonia-N (Preserved)	KONE/COL	8305697	N/A	2016/06/21	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8306256	N/A	2016/06/19	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8306259	N/A	2016/06/19	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8304029	N/A	2016/06/21	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8304808	N/A	2016/06/20	Lucy Luo
pH Water	AT/ALK	8305331	N/A	2016/06/20	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8305551	N/A	2016/06/20	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8306812	2016/06/21	2016/06/21	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8306821	N/A	2016/06/21	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8305103	2016/06/20	2016/06/21	Prabhleen Sodhi



Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**GENERAL COMMENTS**

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	4.0°C
Package 2	7.3°C
Package 3	6.7°C
Package 4	7.3°C
Package 5	7.3°C

Sample OW1917-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OW1936-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OW1937-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OW1938-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OW1939-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OW1940-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OW1941-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OW1942-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OW1944-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OW1946-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OW1948-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OW1950-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OW1951-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OW1952-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OW1954-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

### GENERAL COMMENTS

Sample OW1955-01 : Ion Balance: NC = Not Calculable due to low ion sum [ $< 0.4$  meq/L].

Sample OW1956-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

#### **LL TOTAL METALS (DIGESTED) WITH CV HG Comments**

Sample OW1954-06 Elements by ICPMS Digested LL (total): RDL raised due to sample matrix interference.

Sample OW1952, Elements by ICPMS Low Level (dissolved): Test repeated.

**Results relate only to the items tested.**

Maxxam Job #: B649077  
Report Date: 2016/06/28

**QUALITY ASSURANCE REPORT**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8304524	Total Suspended Solids	2016/06/21			100	N/A	<1.0	mg/L		
8304810	Total Ammonia (N)	2016/06/20	90	80 - 120	96	80 - 120	<0.0050	mg/L	NC	20
8305103	Total Suspended Solids	2016/06/21			92	80 - 120	<1.0	mg/L		
8305186	Acidity (pH 4.5)	2016/06/20					<0.50	mg/L	NC	20
8305186	Acidity (pH 8.3)	2016/06/20			103	80 - 120	<0.50	mg/L	NC	20
8305190	Acidity (pH 4.5)	2016/06/20					<0.50	mg/L	NC	20
8305190	Acidity (pH 8.3)	2016/06/20			100	80 - 120	<0.50	mg/L	13	20
8305327	Alkalinity (PP as CaCO3)	2016/06/20					<0.50	mg/L	NC	20
8305327	Alkalinity (Total as CaCO3)	2016/06/20	NC	80 - 120	97	80 - 120	<0.50	mg/L	4.7	20
8305327	Bicarbonate (HCO3)	2016/06/20					<0.50	mg/L	4.7	20
8305327	Carbonate (CO3)	2016/06/20					<0.50	mg/L	NC	20
8305327	Hydroxide (OH)	2016/06/20					<0.50	mg/L	NC	20
8305331	pH	2016/06/20			101	97 - 103			0.26	N/A
8305333	Conductivity	2016/06/20			99	80 - 120	<1.0	uS/cm	0.81	20
8305343	Alkalinity (PP as CaCO3)	2016/06/20					<0.50	mg/L	NC	20
8305343	Alkalinity (Total as CaCO3)	2016/06/20	NC	80 - 120	98	80 - 120	0.61, RDL=0.50	mg/L	0.30	20
8305343	Bicarbonate (HCO3)	2016/06/20					0.74, RDL=0.50	mg/L	0.30	20
8305343	Carbonate (CO3)	2016/06/20					<0.50	mg/L	NC	20
8305343	Hydroxide (OH)	2016/06/20					<0.50	mg/L	NC	20
8305345	pH	2016/06/20			101	97 - 103			0.36	N/A
8305346	Conductivity	2016/06/20			100	80 - 120	<1.0	uS/cm	1.4	20
8305350	Dissolved Aluminum (Al)	2016/06/23	106	80 - 120	107	80 - 120	<0.00050	mg/L	0.25	20
8305350	Dissolved Antimony (Sb)	2016/06/23	100	80 - 120	93	80 - 120	<0.000020	mg/L	2.0	20
8305350	Dissolved Arsenic (As)	2016/06/23	108	80 - 120	99	80 - 120	<0.000020	mg/L	4.0	20
8305350	Dissolved Barium (Ba)	2016/06/23	NC	80 - 120	101	80 - 120	<0.000020	mg/L	0.21	20
8305350	Dissolved Beryllium (Be)	2016/06/23	103	80 - 120	97	80 - 120	<0.000010	mg/L	NC	20
8305350	Dissolved Bismuth (Bi)	2016/06/23	97	80 - 120	105	80 - 120	<0.0000050	mg/L	NC	20
8305350	Dissolved Boron (B)	2016/06/23	NC	80 - 120	101	80 - 120	<0.010	mg/L	2.2	20
8305350	Dissolved Cadmium (Cd)	2016/06/23	100	80 - 120	100	80 - 120	<0.0000050	mg/L	NC	20
8305350	Dissolved Chromium (Cr)	2016/06/23	96	80 - 120	98	80 - 120	<0.00010	mg/L	NC	20
8305350	Dissolved Cobalt (Co)	2016/06/23	97	80 - 120	99	80 - 120	<0.0000050	mg/L	11	20

Maxxam Job #: B649077  
Report Date: 2016/06/28

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8305350	Dissolved Copper (Cu)	2016/06/23	95	80 - 120	100	80 - 120	<0.000050	mg/L	7.7	20
8305350	Dissolved Iron (Fe)	2016/06/23	NC	80 - 120	104	80 - 120	<0.0010	mg/L	17	20
8305350	Dissolved Lead (Pb)	2016/06/23	90	80 - 120	104	80 - 120	<0.0000050	mg/L		
8305350	Dissolved Lithium (Li)	2016/06/23	NC	80 - 120	95	80 - 120	<0.00050	mg/L	3.2	20
8305350	Dissolved Manganese (Mn)	2016/06/23	98	80 - 120	102	80 - 120	<0.000050	mg/L	6.4	20
8305350	Dissolved Molybdenum (Mo)	2016/06/23	NC	80 - 120	95	80 - 120	<0.000050	mg/L	0.21	20
8305350	Dissolved Nickel (Ni)	2016/06/23	91	80 - 120	99	80 - 120	<0.000020	mg/L	4.5	20
8305350	Dissolved Phosphorus (P)	2016/06/23					<0.0020	mg/L		
8305350	Dissolved Selenium (Se)	2016/06/23	101	80 - 120	97	80 - 120	<0.000040	mg/L	13	20
8305350	Dissolved Silicon (Si)	2016/06/23					<0.050	mg/L	0.17	20
8305350	Dissolved Silver (Ag)	2016/06/23	110	80 - 120	105	80 - 120	<0.0000050	mg/L	NC	20
8305350	Dissolved Strontium (Sr)	2016/06/23	NC	80 - 120	99	80 - 120	<0.000050	mg/L	3.0	20
8305350	Dissolved Thallium (Tl)	2016/06/23	78 (1)	80 - 120	114	80 - 120	0.0000020, RDL=0.0000020	mg/L	7.4	20
8305350	Dissolved Tin (Sn)	2016/06/23	102	80 - 120	95	80 - 120	<0.00020	mg/L	NC	20
8305350	Dissolved Titanium (Ti)	2016/06/23	99	80 - 120	105	80 - 120	<0.00050	mg/L	NC	20
8305350	Dissolved Uranium (U)	2016/06/23	101	80 - 120	105	80 - 120	<0.0000020	mg/L	3.8	20
8305350	Dissolved Vanadium (V)	2016/06/23	100	80 - 120	96	80 - 120	<0.00020	mg/L	NC	20
8305350	Dissolved Zinc (Zn)	2016/06/23	111	80 - 120	124 (2)	80 - 120	<0.00010	mg/L	NC	20
8305350	Dissolved Zirconium (Zr)	2016/06/23					<0.00010	mg/L	NC	20
8305355	Dissolved Aluminum (Al)	2016/06/22	106	80 - 120	109	80 - 120	<0.00050	mg/L	NC	20
8305355	Dissolved Antimony (Sb)	2016/06/22	94	80 - 120	97	80 - 120	<0.000020	mg/L	NC	20
8305355	Dissolved Arsenic (As)	2016/06/22	101	80 - 120	100	80 - 120	<0.000020	mg/L	NC	20
8305355	Dissolved Barium (Ba)	2016/06/22	NC	80 - 120	102	80 - 120	<0.000020	mg/L	0.49	20
8305355	Dissolved Beryllium (Be)	2016/06/22	97	80 - 120	98	80 - 120	<0.000010	mg/L	NC	20
8305355	Dissolved Bismuth (Bi)	2016/06/22	98	80 - 120	102	80 - 120	<0.0000050	mg/L	NC	20
8305355	Dissolved Boron (B)	2016/06/22	102	80 - 120	104	80 - 120	<0.010	mg/L	NC	20
8305355	Dissolved Cadmium (Cd)	2016/06/22	96	80 - 120	126 (2)	80 - 120	<0.0000050	mg/L	2.8	20
8305355	Dissolved Chromium (Cr)	2016/06/22	97	80 - 120	99	80 - 120	<0.00010	mg/L	NC	20
8305355	Dissolved Cobalt (Co)	2016/06/22	95	80 - 120	101	80 - 120	<0.0000050	mg/L	NC	20
8305355	Dissolved Copper (Cu)	2016/06/22	95	80 - 120	102	80 - 120	<0.000050	mg/L	1.5	20

Maxxam Job #: B649077  
Report Date: 2016/06/28

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8305355	Dissolved Iron (Fe)	2016/06/22	108	80 - 120	104	80 - 120	<0.0010	mg/L	NC	20
8305355	Dissolved Lead (Pb)	2016/06/22	99	80 - 120	101	80 - 120	<0.0000050	mg/L	NC	20
8305355	Dissolved Lithium (Li)	2016/06/22	89	80 - 120	94	80 - 120	<0.00050	mg/L	NC	20
8305355	Dissolved Manganese (Mn)	2016/06/22	97	80 - 120	100	80 - 120	<0.000050	mg/L	2.8	20
8305355	Dissolved Molybdenum (Mo)	2016/06/22	NC	80 - 120	98	80 - 120	<0.000050	mg/L	2.4	20
8305355	Dissolved Nickel (Ni)	2016/06/22	93	80 - 120	101	80 - 120	<0.000020	mg/L	0.66	20
8305355	Dissolved Phosphorus (P)	2016/06/22					0.0026, RDL=0.0020	mg/L	NC	20
8305355	Dissolved Selenium (Se)	2016/06/22	99	80 - 120	97	80 - 120	<0.000040	mg/L	2.0	20
8305355	Dissolved Silicon (Si)	2016/06/22					<0.050	mg/L	0.56	20
8305355	Dissolved Silver (Ag)	2016/06/22	123 (1)	80 - 120	110	80 - 120	<0.0000050	mg/L	NC	20
8305355	Dissolved Strontium (Sr)	2016/06/22	NC	80 - 120	101	80 - 120	<0.000050	mg/L	1.8	20
8305355	Dissolved Thallium (Tl)	2016/06/22	109	80 - 120	111	80 - 120	<0.0000020	mg/L	NC	20
8305355	Dissolved Tin (Sn)	2016/06/22	97	80 - 120	99	80 - 120	<0.00020	mg/L	NC	20
8305355	Dissolved Titanium (Ti)	2016/06/22	101	80 - 120	108	80 - 120	<0.00050	mg/L	NC	20
8305355	Dissolved Uranium (U)	2016/06/22	101	80 - 120	101	80 - 120	<0.0000020	mg/L	0.87	20
8305355	Dissolved Vanadium (V)	2016/06/22	97	80 - 120	101	80 - 120	<0.00020	mg/L	NC	20
8305355	Dissolved Zinc (Zn)	2016/06/22	NC	80 - 120	124 (2)	80 - 120	<0.00010	mg/L	1.6	20
8305355	Dissolved Zirconium (Zr)	2016/06/22					<0.00010	mg/L	NC	20
8305541	Dissolved Chloride (Cl)	2016/06/20	117	80 - 120	97	80 - 120	0.59, RDL=0.50	mg/L	3.0	20
8305551	Dissolved Sulphate (SO4)	2016/06/20	NC	80 - 120	102	80 - 120	<0.50	mg/L	0.36	20
8305558	Dissolved Chloride (Cl)	2016/06/20	95	80 - 120	100	80 - 120	<0.50	mg/L	NC	20
8305561	Dissolved Sulphate (SO4)	2016/06/20	NC	80 - 120	98	80 - 120	<0.50	mg/L	1.9	20
8305697	Total Ammonia (N)	2016/06/21	NC	80 - 120	98	80 - 120	<0.0050	mg/L	2.0	20
8305698	Total Ammonia (N)	2016/06/21	105	80 - 120	101	80 - 120	<0.0050	mg/L	NC	20
8306148	Total Aluminum (Al)	2016/06/21	106	80 - 120	104	80 - 120	<0.00050	mg/L		
8306148	Total Antimony (Sb)	2016/06/21	96	80 - 120	96	80 - 120	<0.000020	mg/L		
8306148	Total Arsenic (As)	2016/06/21	95	80 - 120	97	80 - 120	<0.000020	mg/L		
8306148	Total Barium (Ba)	2016/06/21	99	80 - 120	98	80 - 120	<0.000020	mg/L		
8306148	Total Beryllium (Be)	2016/06/21	94	80 - 120	97	80 - 120	<0.000010	mg/L		
8306148	Total Bismuth (Bi)	2016/06/21	97	80 - 120	100	80 - 120	<0.0000050	mg/L		

Maxxam Job #: B649077  
Report Date: 2016/06/28

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8306148	Total Boron (B)	2016/06/21	100	80 - 120	99	80 - 120	<0.010	mg/L		
8306148	Total Cadmium (Cd)	2016/06/21	95	80 - 120	98	80 - 120	<0.0000050	mg/L		
8306148	Total Chromium (Cr)	2016/06/21	97	80 - 120	100	80 - 120	<0.00010	mg/L		
8306148	Total Cobalt (Co)	2016/06/21	97	80 - 120	99	80 - 120	<0.0000050	mg/L		
8306148	Total Copper (Cu)	2016/06/21	98	80 - 120	99	80 - 120	<0.000050	mg/L	4.6	20
8306148	Total Iron (Fe)	2016/06/21	101	80 - 120	105	80 - 120	<0.0010	mg/L		
8306148	Total Lead (Pb)	2016/06/21	97	80 - 120	100	80 - 120	<0.0000050	mg/L		
8306148	Total Lithium (Li)	2016/06/21	92	80 - 120	94	80 - 120	<0.00050	mg/L		
8306148	Total Manganese (Mn)	2016/06/21	98	80 - 120	99	80 - 120	<0.000050	mg/L		
8306148	Total Molybdenum (Mo)	2016/06/21	92	80 - 120	95	80 - 120	<0.000050	mg/L		
8306148	Total Nickel (Ni)	2016/06/21	97	80 - 120	100	80 - 120	<0.000020	mg/L		
8306148	Total Phosphorus (P)	2016/06/21					<0.0020	mg/L		
8306148	Total Selenium (Se)	2016/06/21	92	80 - 120	95	80 - 120	<0.000040	mg/L		
8306148	Total Silicon (Si)	2016/06/21					<0.050	mg/L		
8306148	Total Silver (Ag)	2016/06/21	106	80 - 120	99	80 - 120	<0.0000050	mg/L		
8306148	Total Strontium (Sr)	2016/06/21	95	80 - 120	98	80 - 120	<0.000050	mg/L		
8306148	Total Thallium (Tl)	2016/06/21	104	80 - 120	108	80 - 120	<0.0000020	mg/L		
8306148	Total Tin (Sn)	2016/06/21	99	80 - 120	104	80 - 120	<0.00020	mg/L		
8306148	Total Titanium (Ti)	2016/06/21	94	80 - 120	101	80 - 120	<0.00050	mg/L		
8306148	Total Uranium (U)	2016/06/21	97	80 - 120	100	80 - 120	<0.0000020	mg/L		
8306148	Total Vanadium (V)	2016/06/21	100	80 - 120	101	80 - 120	<0.00020	mg/L		
8306148	Total Zinc (Zn)	2016/06/21	97	80 - 120	99	80 - 120	<0.00010	mg/L	4.3	20
8306148	Total Zirconium (Zr)	2016/06/21					<0.00010	mg/L		
8306256	Nitrate plus Nitrite (N)	2016/06/19	99	80 - 120	89	80 - 120	<0.0020	mg/L	4.6	25
8306259	Nitrite (N)	2016/06/19	98	80 - 120	97	80 - 120	<0.0020	mg/L	NC	25
8306263	Nitrate plus Nitrite (N)	2016/06/19	100	80 - 120	95	80 - 120	<0.0020	mg/L	NC	25
8306266	Nitrite (N)	2016/06/19	97	80 - 120	98	80 - 120	<0.0020	mg/L	NC	25
8306417	Dissolved Organic Carbon (C)	2016/06/20	100	80 - 120	109	80 - 120	<0.50	mg/L	NC	20
8306425	Dissolved Organic Carbon (C)	2016/06/20	106	80 - 120	109	80 - 120	<0.50	mg/L	7.9	20
8306427	Dissolved Organic Carbon (C)	2016/06/20	99	80 - 120	102	80 - 120	<0.50	mg/L	NC	20
8306504	Total Aluminum (Al)	2016/06/22	NC	80 - 120	114	80 - 120	<0.0030	mg/L	3.2	20

Maxxam Job #: B649077  
Report Date: 2016/06/28

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8306504	Total Antimony (Sb)	2016/06/22	98	80 - 120	101	80 - 120	<0.000050	mg/L	NC	20
8306504	Total Arsenic (As)	2016/06/22	96	80 - 120	104	80 - 120	<0.000020	mg/L	1.2	20
8306504	Total Barium (Ba)	2016/06/22	NC	80 - 120	102	80 - 120	<0.00010	mg/L	0.50	20
8306504	Total Beryllium (Be)	2016/06/22	96	80 - 120	100	80 - 120	<0.000010	mg/L	NC	20
8306504	Total Bismuth (Bi)	2016/06/22	98	80 - 120	96	80 - 120	<0.000020	mg/L	NC	20
8306504	Total Boron (B)	2016/06/22	99	80 - 120	101	80 - 120	<0.050	mg/L	NC	20
8306504	Total Cadmium (Cd)	2016/06/22	92	80 - 120	96	80 - 120	<0.0000050	mg/L	NC	20
8306504	Total Chromium (Cr)	2016/06/22	94	80 - 120	97	80 - 120	<0.00050	mg/L	NC	20
8306504	Total Cobalt (Co)	2016/06/22	90	80 - 120	96	80 - 120	<0.000010	mg/L	NC	20
8306504	Total Copper (Cu)	2016/06/22	85	80 - 120	100	80 - 120	<0.00020	mg/L	2.2	20
8306504	Total Iron (Fe)	2016/06/22	NC	80 - 120	103	80 - 120	<0.0050	mg/L	3.5	20
8306504	Total Lead (Pb)	2016/06/22	101	80 - 120	98	80 - 120	<0.000050	mg/L	NC	20
8306504	Total Lithium (Li)	2016/06/22	96	80 - 120	101	80 - 120	<0.00050	mg/L	NC	20
8306504	Total Manganese (Mn)	2016/06/22	NC	80 - 120	100	80 - 120	<0.00010	mg/L	1.8	20
8306504	Total Molybdenum (Mo)	2016/06/22	NC	80 - 120	99	80 - 120	<0.000050	mg/L	0.63	20
8306504	Total Nickel (Ni)	2016/06/22	89	80 - 120	96	80 - 120	<0.00010	mg/L	NC	20
8306504	Total Phosphorus (P)	2016/06/22					<0.010	mg/L	NC	20
8306504	Total Selenium (Se)	2016/06/22	NC	80 - 120	95	80 - 120	<0.000040	mg/L	0.46	20
8306504	Total Silicon (Si)	2016/06/22					<0.10	mg/L	0.38	20
8306504	Total Silver (Ag)	2016/06/22	116	80 - 120	104	80 - 120	<0.000010	mg/L	NC	20
8306504	Total Strontium (Sr)	2016/06/22	NC	80 - 120	104	80 - 120	<0.000050	mg/L	3.6	20
8306504	Total Thallium (Tl)	2016/06/22	108	80 - 120	98	80 - 120	<0.0000020	mg/L	NC	20
8306504	Total Tin (Sn)	2016/06/22	104	80 - 120	102	80 - 120	<0.00020	mg/L	NC	20
8306504	Total Titanium (Ti)	2016/06/22	101	80 - 120	100	80 - 120	<0.0050	mg/L	NC	20
8306504	Total Uranium (U)	2016/06/22	103	80 - 120	96	80 - 120	<0.0000050	mg/L	0.43	20
8306504	Total Vanadium (V)	2016/06/22	97	80 - 120	103	80 - 120	<0.00050	mg/L	NC	20
8306504	Total Zinc (Zn)	2016/06/22	90	80 - 120	100	80 - 120	<0.0010	mg/L	NC	20
8306504	Total Zirconium (Zr)	2016/06/22					<0.00010	mg/L	NC	20
8306753	Fluoride (F)	2016/06/21	96	80 - 120	96	80 - 120	<0.010	mg/L	NC	20
8306756	Fluoride (F)	2016/06/21	96	80 - 120	92	80 - 120	<0.010	mg/L	4.7	20
8306782	Dissolved Phosphorus (P)	2016/06/21	NC	80 - 120	108	80 - 120	<0.0020	mg/L	0.34	20



Maxxam Job #: B649077  
Report Date: 2016/06/28

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8306812	Dissolved Phosphorus (P)	2016/06/21	100	80 - 120	108	80 - 120	<0.0020	mg/L	NC	20
8306821	Total Phosphorus (P)	2016/06/21	95	80 - 120	104	80 - 120	<0.0020	mg/L	NC	20
8306889	Total Phosphorus (P)	2016/06/21	99	80 - 120	105	80 - 120	<0.0020	mg/L	NC	20
8307212	Dissolved Sulphate (SO4)	2016/06/21	NC	80 - 120	98	80 - 120	<0.50	mg/L	2.3	20
8307302	Total Aluminum (Al)	2016/06/22	NC	80 - 120	116	80 - 120	<0.0030	mg/L	2.5	20
8307302	Total Antimony (Sb)	2016/06/22	NC	80 - 120	103	80 - 120	<0.000050	mg/L	2.0	20
8307302	Total Arsenic (As)	2016/06/22	NC	80 - 120	108	80 - 120	<0.000020	mg/L	13	20
8307302	Total Barium (Ba)	2016/06/22	NC	80 - 120	105	80 - 120	<0.00010	mg/L	0.62	20
8307302	Total Beryllium (Be)	2016/06/22	100	80 - 120	100	80 - 120	0.000013, RDL=0.000010	mg/L	NC	20
8307302	Total Bismuth (Bi)	2016/06/22	102	80 - 120	107	80 - 120	<0.000020	mg/L	NC	20
8307302	Total Boron (B)	2016/06/22	104	80 - 120	99	80 - 120	<0.050	mg/L	NC	20
8307302	Total Cadmium (Cd)	2016/06/22	95	80 - 120	102	80 - 120	<0.0000050	mg/L	3.2	20
8307302	Total Chromium (Cr)	2016/06/22	100	80 - 120	99	80 - 120	<0.00050	mg/L	NC	20
8307302	Total Cobalt (Co)	2016/06/22	95	80 - 120	99	80 - 120	<0.000010	mg/L	10	20
8307302	Total Copper (Cu)	2016/06/22	104	80 - 120	102	80 - 120	0.00025, RDL=0.00020	mg/L	11	20
8307302	Total Iron (Fe)	2016/06/22	NC	80 - 120	99	80 - 120	<0.0050	mg/L	2.4	20
8307302	Total Lead (Pb)	2016/06/22	NC	80 - 120	108	80 - 120	<0.000050	mg/L	2.6	20
8307302	Total Lithium (Li)	2016/06/22	NC	80 - 120	100	80 - 120	<0.00050	mg/L	0.76	20
8307302	Total Manganese (Mn)	2016/06/22	NC	80 - 120	102	80 - 120	<0.00010	mg/L	14	20
8307302	Total Molybdenum (Mo)	2016/06/22	111	80 - 120	97	80 - 120	<0.000050	mg/L	NC	20
8307302	Total Nickel (Ni)	2016/06/22	91	80 - 120	99	80 - 120	<0.00010	mg/L	8.6	20
8307302	Total Phosphorus (P)	2016/06/22					<0.010	mg/L	12	20
8307302	Total Selenium (Se)	2016/06/22	96	80 - 120	102	80 - 120	<0.000040	mg/L	NC	20
8307302	Total Silicon (Si)	2016/06/22					<0.10	mg/L	0.38	20
8307302	Total Silver (Ag)	2016/06/22	125 (1)	80 - 120	104	80 - 120	<0.000010	mg/L	0.33	20
8307302	Total Strontium (Sr)	2016/06/22	NC	80 - 120	107	80 - 120	<0.000050	mg/L	19	20
8307302	Total Thallium (Tl)	2016/06/22	96	80 - 120	110	80 - 120	<0.0000020	mg/L	12	20
8307302	Total Tin (Sn)	2016/06/22	NC	80 - 120	105	80 - 120	<0.00020	mg/L	NC	20
8307302	Total Titanium (Ti)	2016/06/22	NC	80 - 120	112	80 - 120	<0.0050	mg/L	NC	20



Maxxam Job #: B649077  
Report Date: 2016/06/28

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8307302	Total Uranium (U)	2016/06/22	NC	80 - 120	104	80 - 120	<0.0000050	mg/L	0.014	20
8307302	Total Vanadium (V)	2016/06/22	101	80 - 120	103	80 - 120	<0.00050	mg/L	NC	20
8307302	Total Zinc (Zn)	2016/06/22	NC	80 - 120	104	80 - 120	<0.0010	mg/L	13	20
8307302	Total Zirconium (Zr)	2016/06/22					<0.00010	mg/L	14	20
8309009	Dissolved Mercury (Hg)	2016/06/23	91	80 - 120	93	80 - 120	<0.0000020	mg/L	NC	20
8309019	Dissolved Mercury (Hg)	2016/06/23	93	80 - 120	94	80 - 120	<0.0000020	mg/L	NC	20
8309050	Total Mercury (Hg)	2016/06/23	95	80 - 120	97	80 - 120	<0.0000020	mg/L	NC	20
8309051	Total Mercury (Hg)	2016/06/23	102	80 - 120	103	80 - 120	<0.0000020	mg/L	NC	20
8309076	Dissolved Phosphorus (P)	2016/06/23	85	80 - 120	99	80 - 120	<0.0020	mg/L	8.0	20
8309077	Total Phosphorus (P)	2016/06/23	88	80 - 120	99	80 - 120	<0.0020	mg/L	NC	20
8310131	Dissolved Aluminum (Al)	2016/06/24			113	80 - 120	<0.00050	mg/L		
8310131	Dissolved Antimony (Sb)	2016/06/24			102	80 - 120	<0.000020	mg/L		
8310131	Dissolved Arsenic (As)	2016/06/24			102	80 - 120	<0.000020	mg/L		
8310131	Dissolved Barium (Ba)	2016/06/24			101	80 - 120	<0.000020	mg/L		
8310131	Dissolved Beryllium (Be)	2016/06/24			101	80 - 120	<0.000010	mg/L		
8310131	Dissolved Bismuth (Bi)	2016/06/24			104	80 - 120	<0.0000050	mg/L		
8310131	Dissolved Boron (B)	2016/06/24			95	80 - 120	<0.010	mg/L		
8310131	Dissolved Cadmium (Cd)	2016/06/24			99	80 - 120	<0.0000050	mg/L		
8310131	Dissolved Chromium (Cr)	2016/06/24			101	80 - 120	<0.00010	mg/L		
8310131	Dissolved Cobalt (Co)	2016/06/24			100	80 - 120	<0.0000050	mg/L		
8310131	Dissolved Copper (Cu)	2016/06/24			99	80 - 120	<0.000050	mg/L		
8310131	Dissolved Iron (Fe)	2016/06/24			104	80 - 120	<0.0010	mg/L		
8310131	Dissolved Lead (Pb)	2016/06/24			103	80 - 120	<0.0000050	mg/L		
8310131	Dissolved Lithium (Li)	2016/06/24			103	80 - 120	<0.00050	mg/L		
8310131	Dissolved Manganese (Mn)	2016/06/24			100	80 - 120	<0.000050	mg/L		
8310131	Dissolved Molybdenum (Mo)	2016/06/24			97	80 - 120	<0.000050	mg/L		
8310131	Dissolved Nickel (Ni)	2016/06/24			99	80 - 120	<0.000020	mg/L		
8310131	Dissolved Phosphorus (P)	2016/06/24					0.0022, RDL=0.0020	mg/L		
8310131	Dissolved Selenium (Se)	2016/06/24			96	80 - 120	<0.000040	mg/L		
8310131	Dissolved Silicon (Si)	2016/06/24					<0.050	mg/L		

Maxxam Job #: B649077  
Report Date: 2016/06/28

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8310131	Dissolved Silver (Ag)	2016/06/24			102	80 - 120	<0.0000050	mg/L		
8310131	Dissolved Strontium (Sr)	2016/06/24			97	80 - 120	<0.000050	mg/L		
8310131	Dissolved Thallium (Tl)	2016/06/24			112	80 - 120	<0.0000020	mg/L		
8310131	Dissolved Tin (Sn)	2016/06/24			108	80 - 120	<0.00020	mg/L		
8310131	Dissolved Titanium (Ti)	2016/06/24			105	80 - 120	<0.00050	mg/L		
8310131	Dissolved Uranium (U)	2016/06/24			100	80 - 120	<0.0000020	mg/L		
8310131	Dissolved Vanadium (V)	2016/06/24			100	80 - 120	<0.00020	mg/L		
8310131	Dissolved Zinc (Zn)	2016/06/24			101	80 - 120	<0.00010	mg/L		
8310131	Dissolved Zirconium (Zr)	2016/06/24					<0.00010	mg/L		
8310177	Alkalinity (PP as CaCO3)	2016/06/24					<0.50	mg/L	NC	20
8310177	Alkalinity (Total as CaCO3)	2016/06/24	NC	80 - 120	97	80 - 120	<0.50	mg/L	0.17	20
8310177	Bicarbonate (HCO3)	2016/06/24					<0.50	mg/L	0.17	20
8310177	Carbonate (CO3)	2016/06/24					<0.50	mg/L	NC	20
8310177	Hydroxide (OH)	2016/06/24					<0.50	mg/L	NC	20
8310614	Dissolved Chloride (Cl)	2016/06/24			106	80 - 120	0.63, RDL=0.50	mg/L		
8310615	Dissolved Sulphate (SO4)	2016/06/24			99	80 - 120	<0.50	mg/L		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

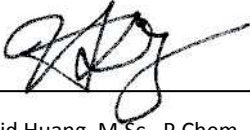
(2) Blank Spike outside acceptance criteria (10% of analytes failure allowed).

Maxxam Job #: B649077  
Report Date: 2016/06/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



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David Huang, M.Sc., P.Chem., QP, Scientific Services Manager

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



B649077\_COC

**CHAIN OF CUSTODY RECORD**

BBY FCD-00077/05

Page 1 3

Bun

0) 665-8566

COC #:



08423271

Invoice Information		Report Information (if differs from invoice)				Project Information (where applicable)				Lead Time (TAT) Required									
Company Name: <b>BMC MINERALS LTD.</b>	Company Name: <b>ALEXCO ENVIRONMENTAL</b>	Quotation #: <b>B50743</b>		<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses)		PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS		Rush TAT (Surcharges will be applied)											
Contact Name:	Contact Name: <b>KAI WOLOSHYN</b>	P.O. #/ AFE#:				Same Day		2 Days											
Address: <b>530-1130 WEST PENDER ST Vancouver, BC PC: V6E 4A4</b>	Address: <b>UNIT 3 151 INDUSTRIAL RD Whitehorse, YK PC: V1A 2V3</b>	Project #: <b>BMC-15-01</b>		Site Location: <b>Kudz Ze Kayah</b>		1 Day		3 Days											
Phone:	Phone: <b>(867) 668-6463</b>	Site #:				Date Required:													
Email:	Email: <b>kwoloshyn@alexcoresource.com</b>	Sampled By: <b>Lela Fougere</b>																	
Regulatory Criteria		Special Instructions		Analysis Requested								Rush Confirmation #:							
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> BC CSR Water <input type="checkbox"/> CCME (Specify) <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC Water Quality		<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify) <b>USE SCENARIO # 12485</b>		TOTAL LOW LEVEL METALS INCL. MERCURY DISSOLVED LOW LEVEL METALS INCL. MERCURY LOW LEVEL TSS ANIONS (Cl, F, SO4, NO2, NO3) AMMONIA CONDUCTIVITY pH ALKALINITY & ACIDITY DOC TOTAL PHOSPHORUS - LOW LEVEL DISSOLVED PHOSPHORUS - LOW LEVEL # OF CONTAINERS SUBMITTED								LABORATORY USE ONLY CUSTODY SEAL Y / N / N/A COOLER TEMPERATURES Present    Intact N/A    N/A    34.4 / 4.9 / 3.33 N/A    N/A    3.3 / 3.4 / 4.3 / 3.3 N/A    N/A    4.4 / 3.3 / 4.3 COOLING MEDIA PRESENT (Y) / (N)							
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM																			
Sample Identification		Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	TOTAL LOW LEVEL METALS INCL. MERCURY	DISSOLVED LOW LEVEL METALS INCL. MERCURY	LOW LEVEL TSS	ANIONS (Cl, F, SO4, NO2, NO3)	AMMONIA	CONDUCTIVITY	pH	ALKALINITY & ACIDITY	DOC	TOTAL PHOSPHORUS - LOW LEVEL	DISSOLVED PHOSPHORUS - LOW LEVEL	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	COMMENTS
1	Dup 2		14-Jun-16	10:00	Water	X	X	X	X	X	X	X	X	X	X	X	11		
3	MW15-06		14-Jun-16	13:30	Water	X	X	X	X	X	X	X	X	X	X	X	11		
4	BH95G-31		14-Jun-16	17:55	Water	X	X	X	X	X	X	X	X	X	X	X	11		
5	BH95G-2		14-Jun-16	9:10	Water	X	X	X	X	X	X	X	X	X	X	X	11		
6	BH95G-33d		14-Jun-16	11:55	Water	X	X	X	X	X	X	X	X	X	X	X	11		
7	MW15-04D		15-Jun-16	11:00	Water	X	X	X	X	X	X	X	X	X	X	X	11		
8	MW15-04S		15-Jun-16	10:03	Water	X	X	X	X	X	X	X	X	X	X	X	11		
9	BH95G-131		15-Jun-16	17:25	Water	X	X	X	X	X	X	X	X	X	X	X	11		
10	MW15-03D		15-Jun-16	9:01	Water	X	X	X	X	X	X	X	X	X	X	X	11		
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #				TEMP:							
Lela Fougere		17/06/2015	14:00	KEVIN CHONG		2016/06/18	12:30												

RECEIVED IN WHITEHORSE  
 Y: 8 June 2015  
 2016-06-17  
 cooler  
 7 → 1  
 8 → 2  
 6 → 3  
 7 → 4  
 8 → 5  
 8  
 6

**CHAIN OF CUSTODY RECORD**

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5. Toll Free (800) 665-8566

COC #:



BBY FCD-00077/05

Page 2 3

Invoice Information		Report Information (if differs from invoice)				Project Information (where app)										Time (TAT) Required			
Company Name: <b>BMC MINERALS LTD.</b>		Company Name: <b>ALEXCO ENVIRONMENTAL</b>				Quotation #: <b>B50743</b>										<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses)			
Contact Name:		Contact Name: <b>KAI WOLOSHYN</b>				P.O. #/ AFE#:										<b>PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS</b>			
Address: <b>530-1130 WEST PENDER ST</b> <b>Vancouver, BC PC: V6E 4A4</b>		Address: <b>UNIT 3 151 INDUSTRIAL RD</b> <b>Whitehorse, YK PC: V1A 2V3</b>				Project #: <b>BMC-15-01</b>										Rush TAT (Surcharges will be applied)			
Phone:		Phone: <b>(867) 668-6463</b>				Site Location: <b>Kudz Ze Kayah</b>										<input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days			
Email:		Email: <b>kwoloshyn@alexcoresource.com</b>				Site #:										<input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days			
Email:		Email:				Sampled By: <b>Leia Fougere</b>										Date Required:			
Regulatory Criteria				Special Instructions				Analysis Requested										Rush Confirmation #:	
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> BC CSR Water <input type="checkbox"/> CCME (Specify) <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC Water Quality				<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify) <b>USE SCENARIO # 12485</b>				TOTAL LOW LEVEL METALS INCL. MERCURY DISSOLVED LOW LEVEL METALS INCL. MERCURY LOW LEVEL TSS ANIONS (Cl, F, SO4, NO2, NO3) AMMONIA CONDUCTIVITY pH ALKALINITY & ACIDITY DOC TOTAL PHOSPHORUS - LOW LEVEL DISSOLVED PHOSPHORUS - LOW LEVEL # OF CONTAINERS SUBMITTED										LABORATORY USE ONLY CUSTODY SEAL Y / N / M / A Present    Intact M/A    M/A    3, 4, 9, 19, 33, 35 M/A    M/A    3, 3, 3, 14, 4, 3, 33, 34 M/A    M/A    4, 4, 5, 14, 3, 4 COOLING MEDIA PRESENT (Y) / (N)	
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM																			
Sample Identification		Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	TOTAL LOW LEVEL METALS INCL. MERCURY	DISSOLVED LOW LEVEL METALS INCL. MERCURY	LOW LEVEL TSS	ANIONS (Cl, F, SO4, NO2, NO3)	AMMONIA	CONDUCTIVITY	pH	ALKALINITY & ACIDITY	DOC	TOTAL PHOSPHORUS - LOW LEVEL	DISSOLVED PHOSPHORUS - LOW LEVEL	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	COMMENTS
1	MW15-03S ✓		15-Jun-16	9:15	Water	X	X	X	X	X	X	X	X	X	X	X	11		
2	MW15-07D ✓		15-Jun-16	11:45	Water	X	X	X	X	X	X	X	X	X	X	X	11		
3	MW15-07S ✓		15-Jun-16	12:20	Water	X	X	X	X	X	X	X	X	X	X	X	11		
4	X Dup3 ✓		15-Jun-16	12:00	Water	X	X	X	X	X	X	X	X	X	X	X	11		
5	MW15-08s ✓		15-Jun-16	13:25	Water	X	X	X	X	X	X	X	X	X	X	X	11		
6	MW15-FB ✓		16-Jun-16	13:35	Water	X	X	X	X	X	X	X	X	X	X	X	11		
7	<del>BH96G-32</del> 95G-32 ✓		16-Jun-16	17:45	Water	X	X	X	X	X	X	X	X	X	X	X	11		
8	MW15-10D ✓		16-Jun-16	12:40	Water	X	X	X	X	X	X	X	X	X	X	X	11		
9	MW15-09s ✓		16-Jun-16	11:20	Water	X	X	X	X	X	X	X	X	X	X	X	11		
10	BH95G-30 ✓		16-Jun-16	15:45	Water	X	X	X	X	X	X	X	X	X	X	X	11		
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #											
Leia Fougere		17/06/2016	14:00	<i>[Signature]</i>		20/6/06/18	12:30												





Burnal

B649077\_COC

365-8566

**CHAIN OF CUSTODY RECORD**



08423273

COC #:

BBY FCD-00077/05

Page 3 3

Invoice Information					Project Information (where app)										Turnaround Time (TAT) Required					
Company Name: <b>BMC MINERALS LTD.</b>		Company Name: <b>ALEXCO ENVIRONMENTAL</b>		Quotation #: <b>B50743</b>		<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses)			PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS			Rush TAT (Surcharges will be applied) <input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days <input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days								
Contact Name:		Contact Name: <b>KAI WOLOSHYN</b>		P.O. #/ AFE#:		Project #: <b>BMC-15-01</b>														
Address: <b>530-1130 WEST PENDER ST</b>		Address: <b>UNIT 3 151 INDUSTRIAL RD</b>		Site Location: <b>Kudz Ze Kayah</b>		Date Required:			Rush Confirmation #:											
Vancouver, BC PC: V6E 4A4		Whitehorse, YK PC: V1A 2V3		Site #:		Date Required:														
Phone:		Phone: <b>(867) 668-6463</b>		Sampled By: <b>Leia Fougere</b>		Date Required:			LABORATORY USE ONLY											
Email:		Email: <b>kwoloshyn@alexcoresource.com</b>		Date Required:		Date Required:														
Regulatory Criteria					Special Instructions					Analysis Requested										
<input type="checkbox"/> BC CSR Soil		<input type="checkbox"/> BC CSR Water		<input type="checkbox"/> Return Cooler		TOTAL LOW LEVEL METALS INCL. MERCURY DISSOLVED LOW LEVEL METALS INCL. MERCURY LOW LEVEL TSS ANIONS (Cl, F, SO4, NO2, NO3) AMMONIA CONDUCTIVITY pH ALKALINITY & ACIDITY DOC TOTAL PHOSPHORUS - LOW LEVEL DISSOLVED PHOSPHORUS - LOW LEVEL # OF CONTAINERS SUBMITTED HOLD - DO NOT ANALYZE					CUSTODY SEAL Y / N / NA		COOLER TEMPERATURES		COOLING MEDIA PRESENT		COMMENTS			
<input type="checkbox"/> CCME (Specify)		<input type="checkbox"/> Other (Specify)		<input type="checkbox"/> Ship Sample Bottles (Please Specify)							Present		Intact							
<input type="checkbox"/> Drinking Water		<input type="checkbox"/> BC Water Quality		<u>USE SCENARIO # 17485</u>							N/A		N/A		3,4,4/4,4,3/33					
											N/A		N/A		3,3,3/4,4,3/33					
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM																				
Sample Identification		Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	TOTAL LOW LEVEL METALS INCL. MERCURY	DISSOLVED LOW LEVEL METALS INCL. MERCURY	LOW LEVEL TSS	ANIONS (Cl, F, SO4, NO2, NO3)	AMMONIA	CONDUCTIVITY	pH	ALKALINITY & ACIDITY	DOC	TOTAL PHOSPHORUS - LOW LEVEL	DISSOLVED PHOSPHORUS - LOW LEVEL	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	LABORATORY USE ONLY	COMMENTS
1	MW15-10s		16-Jun-16	12:10	Water	X	X	X	X	X	X	X	X	X	X	X	11			
2	Trip Blank		16-Jun-16		Water	X	X	X	X	X	X	X	X	X	X	X	11			
3	MW15-05D		16-Jun-16	14:15	Water	X	X	X	X	X	X	X	X	X	X	X	11			
4	BH95G-129		17-Jun-16	9:00	Water	X	X	X	X	X	X	X	X	X	X	X	11			
5																				
6																				
7																				
8																				
9																				
10																				
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)		TIME: (HH:MM)		RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)		TIME: (HH:MM)		MAXXAM JOB #								
Leia Fougere		17/06/2016		14:00		<i>KEVIN CHONG</i>		2016/06/18		12:30										

**CHAIN OF CUSTODY RECORD**

BBY FCD-00077/05

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5. Toll Free (800) 665-8566

COC #:

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: <b>BMC MINERALS LTD.</b>	Company Name: <b>ALEXCO ENVIRONMENTAL</b>	Quotation #: <b>B60751</b>	<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses)
Contact Name:	Contact Name: KAI WOLOSHYN	P.O. #/ AFE#:	<b>PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS</b>
Address: <b>530-1130 WEST PENDER ST</b> Vancouver, BC PC: V6E 4A4	Address: <b>UNIT 3 151 INDUSTRIAL RD</b> Whitehorse, YK PC: V1A 2V3	Project #: <b>BMC-16-01</b>	
Phone:	Phone: (867) 668-6463	Site Location: <b>Kudz Ze Kayah</b>	<b>Rush TAT (Surcharges will be applied)</b> <input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days <input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days
Email:	Email: <a href="mailto:kwoloshyn@alexcoresource.com">kwoloshyn@alexcoresource.com</a>	Site #:	<b>Date Required:</b>
		Sampled By: <b>Leia Fougere</b>	

Regulatory Criteria	Special Instructions	Analysis Requested	Rush Confirmation #:																																															
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> BC CSR Water <input type="checkbox"/> CCME (Specify) <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC Water Quality	<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify) <b>USE SCENARIO # 12485</b>	<table border="1" style="width:100%; height: 100%; font-size: small;"> <tr> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">TOTAL LOW LEVEL METALS INCL. MERCURY</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">DISSOLVED LOW LEVEL METALS INCL. MERCURY</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">LOW LEVEL TSS</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">ANIONS (Cl, F, SO4, NO2, NO3)</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">AMMONIA</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">CONDUCTIVITY</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">pH</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">ALKALINITY &amp; ACIDITY</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">DOC</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">TOTAL PHOSPHORUS - LOW LEVEL</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">DISSOLVED PHOSPHORUS - LOW LEVEL</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);"># OF CONTAINERS SUBMITTED</td> <td rowspan="3" style="writing-mode: vertical-rl; transform: rotate(180deg);">HOLD - DO NOT ANALYZE</td> </tr> <tr> <td style="text-align: center;">X</td><td style="text-align: center;">X</td><td style="text-align: center;">X</td><td style="text-align: center;">X</td><td style="text-align: center;">X</td><td style="text-align: center;">X</td><td style="text-align: center;">X</td><td style="text-align: center;">X</td><td style="text-align: center;">X</td><td style="text-align: center;">X</td><td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">X</td><td style="text-align: center;">X</td><td style="text-align: center;">X</td><td style="text-align: center;">X</td><td style="text-align: center;">X</td><td style="text-align: center;">X</td><td style="text-align: center;">X</td><td style="text-align: center;">X</td><td style="text-align: center;">X</td><td style="text-align: center;">X</td><td style="text-align: center;">X</td> </tr> </table>	TOTAL LOW LEVEL METALS INCL. MERCURY	DISSOLVED LOW LEVEL METALS INCL. MERCURY	LOW LEVEL TSS	ANIONS (Cl, F, SO4, NO2, NO3)	AMMONIA	CONDUCTIVITY	pH	ALKALINITY & ACIDITY	DOC	TOTAL PHOSPHORUS - LOW LEVEL	DISSOLVED PHOSPHORUS - LOW LEVEL	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	<table border="1" style="width:100%; text-align: center;"> <tr><th colspan="2">LABORATORY USE ONLY</th></tr> <tr><td colspan="2">CUSTODY SEAL Y / N</td></tr> <tr><td>Present</td><td>Intact</td></tr> <tr><td colspan="2">COOLER TEMPERATURES</td></tr> <tr><td colspan="2">COOLING MEDIA PRESENT    Y / N</td></tr> <tr><td colspan="2">COMMENTS</td></tr> </table>	LABORATORY USE ONLY		CUSTODY SEAL Y / N		Present	Intact	COOLER TEMPERATURES		COOLING MEDIA PRESENT    Y / N		COMMENTS	
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SAMPLES MUST BE KEPT COOL ( < 10 °C ) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Sample Identification		Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	TOTAL LOW LEVEL METALS INCL. MERCURY	DISSOLVED LOW LEVEL METALS INCL. MERCURY	LOW LEVEL TSS	ANIONS (Cl, F, SO4, NO2, NO3)	AMMONIA	CONDUCTIVITY	pH	ALKALINITY & ACIDITY	DOC	TOTAL PHOSPHORUS - LOW LEVEL	DISSOLVED PHOSPHORUS - LOW LEVEL	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	COMMENTS
1	Dup 2		14-Jun-16	10:00	Water	X	X	X	X	X	X	X	X	X	X	X	11		
3	MW15-06		14-Jun-16	13:30	Water	X	X	X	X	X	X	X	X	X	X	X	11		
4	BH95G-31		14-Jun-16	17:55	Water	X	X	X	X	X	X	X	X	X	X	X	11		
5	BH95G-2		14-Jun-16	9:10	Water	X	X	X	X	X	X	X	X	X	X	X	11		
6	BH95G-33d		14-Jun-16	11:55	Water	X	X	X	X	X	X	X	X	X	X	X	11		
7	MW15-04D		15-Jun-16	11:00	Water	X	X	X	X	X	X	X	X	X	X	X	11		
8	MW15-04S		15-Jun-16	10:03	Water	X	X	X	X	X	X	X	X	X	X	X	11		
9	BH95G-131		15-Jun-16	17:25	Water	X	X	X	X	X	X	X	X	X	X	X	11		
10	MW15-03D		15-Jun-16	9:01	Water	X	X	X	X	X	X	X	X	X	X	X	11		

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #
Leia Fougere	2016/06/17	14:00				

Invoice Information		Report Information (if differs from invoice)				Project Information (where applicable)												Turnaround Time (TAT) Required	
Company Name: <b>BMC MINERALS LTD.</b>		Company Name: <b>ALEXCO ENVIRONMENTAL</b>				Quotation #: <b>B60751</b>												<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses)	
Contact Name:		Contact Name: <b>KAI WOLOSHYN</b>				P.O. #/ AFE#:												<b>PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS</b>	
Address: <b>530-1130 WEST PENDER ST</b>		Address: <b>UNIT 3 151 INDUSTRIAL RD</b>				Project #: <b>BMC-16-01</b>												<b>Rush TAT (Surcharges will be applied)</b>	
Vancouver, BC PC: V6E 4A4		Whitehorse, YK PC: V1A 2V3				Site Location: <b>Kudz Ze Kayah</b>												<input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days <input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days	
Phone:		Phone: <b>(867) 668-6463</b>				Site #:												Date Required:	
Email:		Email: <a href="mailto:kwoloshyn@alexcoresource.com">kwoloshyn@alexcoresource.com</a>				Sampled By: <b>Leia Fougere</b>													
Regulatory Criteria				Special Instructions		Analysis Requested												Rush Confirmation #:	
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> BC CSR Water <input type="checkbox"/> CCME (Specify) <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC Water Quality				<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify) <b>USE SCENARIO # 12485</b>		TOTAL LOW LEVEL METALS INCL. MERCURY    DISSOLVED LOW LEVEL METALS INCL. MERCURY LOW LEVEL SS    ANIONS (Cl, F, SO4, NO2, NO3)    AMMONIA    CONDUCTIVITY    pH    ALKALINITY & ACIDITY    DOC    TOTAL PHOSPHORUS - LOW LEVEL    DISSOLVED PHOSPHORUS - LOW LEVEL												LABORATORY USE ONLY CUSTODY SEAL Y / N      COOLER TEMPERATURES Present    Intact COOLING MEDIA PRESENT Y / N COMMENTS	
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1	MW15-03S		15-Jun-16	9:15	Water	X	X	X	X	X	X	X	X	X	X	X	11		
2	MW15-07D		15-Jun-16	11:45	Water	X	X	X	X	X	X	X	X	X	X	X	11		
3	MW15-07S		15-Jun-16	12:20	Water	X	X	X	X	X	X	X	X	X	X	X	11		
4	Dup3		15-Jun-16	12:00	Water	X	X	X	X	X	X	X	X	X	X	X	11		
5	MW15-08s		15-Jun-16	13:25	Water	X	X	X	X	X	X	X	X	X	X	X	11		
6	MW15-FB		16-Jun-16	13:35	Water	X	X	X	X	X	X	X	X	X	X	X	11		
7	BH95G-32		16-Jun-16	17:45	Water	X	X	X	X	X	X	X	X	X	X	X	11		
8	MW15-10D		16-Jun-16	12:40	Water	X	X	X	X	X	X	X	X	X	X	X	11		
9	MW15-09s		16-Jun-16	11:20	Water	X	X	X	X	X	X	X	X	X	X	X	11		
10	BH95G-30		16-Jun-16	15:45	Water	X	X	X	X	X	X	X	X	X	X	X	11		
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)				DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #									
Leia Fougere		2016/06/17	14:00																





**CHAIN OF CUSTODY RECORD**

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5. Toll Free (800) 665-8566

COC #:

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: <b>BMC MINERALS LTD.</b>	Company Name: <b>ALEXCO ENVIRONMENTAL</b>	Quotation #: <b>B60751</b>	<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses)
Contact Name: _____	Contact Name: <b>KAI WOLOSHYN</b>	P.O. #/ AFE#: _____	<b>PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS</b>
Address: <b>530-1130 WEST PENDER ST</b>	Address: <b>UNIT 3 151 INDUSTRIAL RD</b>	Project #: <b>BMC-16-01</b>	<b>Rush TAT (Surcharges will be applied)</b>
<b>Vancouver, BC PC: V6E 4A4</b>	<b>Whitehorse, YK PC: V1A 2V3</b>	Site Location: <b>Kudz Ze Kayah</b>	<input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days
Phone: _____	Phone: <b>(867) 668-6463</b>	Site #: _____	<input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days
Email: _____	Email: <b>kwoloshyn@alexcoresource.com</b>	Sampled By: <b>Leia Fougere</b>	Date Required: _____

Regulatory Criteria		Special Instructions		Analysis Requested														Rush Confirmation #:																					
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> BC CSR Water <input type="checkbox"/> CCME (Specify) <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC Water Quality		<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify) <b>USE SCENARIO # 12485</b>		TOTAL LOW LEVEL METALS INCL. MERCURY	DISSOLVED LOW LEVEL METALS INCL. MERCURY	LOW LEVEL TSS	ANIONS (Cl, F, SO4, NO2, NO3)	AMMONIA	CONDUCTIVITY	pH	ALKALINITY & ACIDITY	DOC	TOTAL PHOSPHORUS - LOW LEVEL	DISSOLVED PHOSPHORUS - LOW LEVEL					# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	<b>LABORATORY USE ONLY</b> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th colspan="2">CUSTODY SEAL Y / N</th> <th rowspan="2">COOLER TEMPERATURES</th> </tr> <tr> <th>Present</th> <th>Intact</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td colspan="3">COOLING MEDIA PRESENT Y / N</td> </tr> <tr> <td colspan="3">COMMENTS</td> </tr> </table>		CUSTODY SEAL Y / N		COOLER TEMPERATURES	Present	Intact							COOLING MEDIA PRESENT Y / N			COMMENTS		
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Leia Fougere	2016/06/17	14:00				

Your Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Your C.O.C. #: 08425769

**Attention: KAI WOLOSHYN**

ALEXCO ENVIRONMENTAL GROUP INC.  
Unit 3 Calcite Business Centre  
151 Industrial Road  
WHITEHORSE, YT  
Canada Y1A 2V3

**Report Date: 2016/08/05**  
Report #: R2230139  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B661948**

**Received: 2016/07/26, 16:00**

Sample Matrix: Water  
# Samples Received: 6

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Analytical Method</b>
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	6	N/A	2016/07/28	BBY6SOP-00037	SM 22 2310 B m
Alkalinity - Water	2	2016/07/28	2016/07/28	BBY6SOP-00026	SM 22 2320 B m
Alkalinity - Water	4	2016/07/28	2016/07/29	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry	6	N/A	2016/07/28	BBY6SOP-00011	SM 22 4500-Cl- E m
Carbon (DOC) - field filtered/preserved (1)	6	N/A	2016/07/28	BBY6SOP-00003	SM 22 5310 C m
Conductance - water	2	N/A	2016/07/28	BBY6SOP-00026	SM 22 2510 B m
Conductance - water	4	N/A	2016/07/29	BBY6SOP-00026	SM 22 2510 B m
Fluoride	6	N/A	2016/07/28	BBY6SOP-00048	SM 22 4500-F C m
Hardness Total (calculated as CaCO <sub>3</sub> )	5	N/A	2016/08/03	BBY WI-00033	Auto Calc
Hardness Total (calculated as CaCO <sub>3</sub> )	1	N/A	2016/08/04	BBY WI-00033	Auto Calc
Hardness (calculated as CaCO <sub>3</sub> )	6	N/A	2016/08/03	BBY WI-00033	Auto Calc
Mercury (Dissolved-LowLevel) by CVAF	6	N/A	2016/07/29	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total-LowLevel) by CVAF	6	2016/07/29	2016/07/29	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Ion Balance	6	N/A	2016/08/03	BBY WI-00033	SM 22 1030E
Sum of cations, anions	6	N/A	2016/08/03	Calc	
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	6	N/A	2016/08/03	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Low Level (dissolved)	6	N/A	2016/08/03	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Digested LL (total)	5	2016/07/28	2016/08/02	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Na, K, Ca, Mg, S by CRC ICPMS (total)	5	N/A	2016/08/03	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Na, K, Ca, Mg, S by CRC ICPMS (total)	1	N/A	2016/08/04	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Elements by ICPMS Low Level (total)	1	N/A	2016/08/04	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Ammonia-N (Preserved)	6	N/A	2016/07/28	BBY6SOP-00009	SM 22 4500-NH3- G m
Nitrate+Nitrite (N) (low level)	6	N/A	2016/07/28	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) (low level)	6	N/A	2016/07/28	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N)	6	N/A	2016/07/29	BBY6SOP-00010	SM 22 4500-NO3- I m
Filter and HNO <sub>3</sub> Preserve for Metals	6	N/A	2016/07/28	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (2)	2	N/A	2016/07/28	BBY6SOP-00026	SM 22 4500-H+ B m
pH Water (2)	4	N/A	2016/07/29	BBY6SOP-00026	SM 22 4500-H+ B m
Sulphate by Automated Colourimetry	6	N/A	2016/07/28	BBY6SOP-00017	SM 22 4500-SO42- E m

Your Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Your C.O.C. #: 08425769

**Attention: KAI WOLOSHYN**

ALEXCO ENVIRONMENTAL GROUP INC.  
Unit 3 Calcite Business Centre  
151 Industrial Road  
WHITEHORSE, YT  
Canada Y1A 2V3

**Report Date: 2016/08/05**  
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**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B661948**

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Sample Matrix: Water  
# Samples Received: 6

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Phosphorus-P (LL Tot, dissolved) - UF/UP	6	2016/08/02	2016/08/02	BBY6SOP-00013	SM 22 4500-P E m
Total Phosphorus - unpreserved	6	N/A	2016/08/02	BBY6SOP-00013	SM 22 4500-P E m
Total Suspended Solids-Low Level	6	2016/07/28	2016/07/29	BBY6SOP-00034	SM 22 2540 D

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) DOC present in the sample should be considered as non-purgeable DOC.

(2) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

**Encryption Key**

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Megan Smith, Project Manager

Email: msmith@maxxam.ca

Phone# (604) 734 7276

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B661948  
Report Date: 2016/08/05

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PC7674			PC7675		PC7676		PC7677		
Sampling Date		2016/07/25 13:40			2016/07/25 13:15		2016/07/25 15:10		2016/07/25 14:30		
COC Number		08425769			08425769		08425769		08425769		
	UNITS	MW15-03S	RDL	QC Batch	MW15-03D	QC Batch	MW15-04S	RDL	MW15-04D	RDL	QC Batch

**Calculated Parameters**

Anion Sum	meq/L	3.0	N/A	8342951	4.4	8342951	2.7	N/A	3.2	N/A	8342951
Cation Sum	meq/L	3.1	N/A	8342951	4.6	8342951	2.8	N/A	3.4	N/A	8342951
Filter and HNO3 Preservation	N/A	LAB	N/A	8343607	LAB	8343607	LAB	N/A	LAB	N/A	8343607
Ion Balance	N/A	1.0	0.010	8342811	1.0	8342811	1.0	0.010	1.1	0.010	8342811
Nitrate (N)	mg/L	0.134	0.0020	8342621	0.0026	8342621	0.210	0.0020	0.0256	0.0020	8342621

**Misc. Inorganics**

Fluoride (F)	mg/L	0.065	0.010	8345456	0.160	8345456	0.088	0.010	0.210	0.010	8345456
Dissolved Organic Carbon (C)	mg/L	<0.50	0.50	8343770	<0.50	8343770	<0.50	0.50	<0.50	0.50	8343769
Acidity (pH 4.5)	mg/L	<0.50	0.50	8343742	<0.50	8343742	<0.50	0.50	<0.50	0.50	8343742
Alkalinity (Total as CaCO3)	mg/L	137	0.50	8344208	194	8344200	120	0.50	137	0.50	8344208
Acidity (pH 8.3)	mg/L	<0.50	0.50	8343742	1.98	8343742	<0.50	0.50	<0.50	0.50	8343742
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8344208	<0.50	8344200	<0.50	0.50	<0.50	0.50	8344208
Bicarbonate (HCO3)	mg/L	167	0.50	8344208	236	8344200	147	0.50	168	0.50	8344208
Carbonate (CO3)	mg/L	<0.50	0.50	8344208	<0.50	8344200	<0.50	0.50	<0.50	0.50	8344208
Hydroxide (OH)	mg/L	<0.50	0.50	8344208	<0.50	8344200	<0.50	0.50	<0.50	0.50	8344208

**Anions**

Dissolved Sulphate (SO4)	mg/L	12.5	0.50	8345016	23.9	8345016	10.5	0.50	20.5	0.50	8345016
Dissolved Chloride (Cl)	mg/L	1.0	0.50	8345010	0.82	8345010	1.1	0.50	1.1	0.50	8345010

**Nutrients**

Dissolved Phosphorus (P)	mg/L	0.335 (1)	0.0020	8348535	0.0046 (1)	8348535	0.0349 (1)	0.0020	0.0495 (1)	0.0020	8348535
Total Ammonia (N)	mg/L	0.020	0.0050	8343384	0.10	8343384	0.024	0.0050	0.040	0.0050	8343384
Nitrate plus Nitrite (N)	mg/L	0.134	0.0020	8344417	0.0026	8344417	0.210	0.0020	0.0256	0.0020	8344417
Nitrite (N)	mg/L	<0.0020	0.0020	8344419	<0.0020	8344419	<0.0020	0.0020	<0.0020	0.0020	8344419
Total Phosphorus (P)	mg/L	1.60 (2)	0.020	8348539	0.0041 (1)	8348539	0.498 (1)	0.0020	0.337 (1)	0.0020	8348539

**Physical Properties**

Conductivity	uS/cm	276	1.0	8344214	393	8344201	245	1.0	295	1.0	8344214
pH	pH	8.24		8344215	8.23	8344205	8.17		8.19		8344215

RDL = Reportable Detection Limit  
N/A = Not Applicable  
(1) Sample analysed past recommended hold time.  
(2) Detection limits raised due to dilution to bring analyte within the calibrated range. Sample analysed past recommended hold time.

Maxxam Job #: B661948  
Report Date: 2016/08/05

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		PC7674			PC7675		PC7676		PC7677		
<b>Sampling Date</b>		2016/07/25 13:40			2016/07/25 13:15		2016/07/25 15:10		2016/07/25 14:30		
<b>COC Number</b>		08425769			08425769		08425769		08425769		
	<b>UNITS</b>	<b>MW15-03S</b>	<b>RDL</b>	<b>QC Batch</b>	<b>MW15-03D</b>	<b>QC Batch</b>	<b>MW15-04S</b>	<b>RDL</b>	<b>MW15-04D</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Physical Properties</b>											
Total Suspended Solids	mg/L	1070 (1)	1.1	8343061	2.6	8343061	481 (1)	1.0	456 (1)	1.1	8343061

RDL = Reportable Detection Limit

(1) RDL raised due to limited initial sample amount.

Maxxam Job #: B661948  
Report Date: 2016/08/05

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PC7678			PC7679		
Sampling Date		2016/07/25 15:30			2016/07/25 16:30		
COC Number		08425769			08425769		
	UNITS	DUP 1	RDL	QC Batch	MW15-05D	RDL	QC Batch
<b>Calculated Parameters</b>							
Anion Sum	meq/L	3.2	N/A	8342951	4.2	N/A	8342951
Cation Sum	meq/L	3.3	N/A	8342951	4.5	N/A	8342951
Filter and HNO3 Preservation	N/A	LAB	N/A	8343607	LAB	N/A	8343607
Ion Balance	N/A	1.0	0.010	8342811	1.1	0.010	8342811
Nitrate (N)	mg/L	0.0256	0.0020	8342621	0.243	0.0020	8342621
<b>Misc. Inorganics</b>							
Fluoride (F)	mg/L	0.210	0.010	8345456	0.130	0.010	8345456
Dissolved Organic Carbon (C)	mg/L	<0.50	0.50	8343770	0.60	0.50	8343769
Acidity (pH 4.5)	mg/L	<0.50	0.50	8343742	<0.50	0.50	8343742
Alkalinity (Total as CaCO3)	mg/L	136	0.50	8344208	174	0.50	8344200
Acidity (pH 8.3)	mg/L	0.55	0.50	8343742	1.61	0.50	8343742
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8344208	<0.50	0.50	8344200
Bicarbonate (HCO3)	mg/L	166	0.50	8344208	212	0.50	8344200
Carbonate (CO3)	mg/L	<0.50	0.50	8344208	<0.50	0.50	8344200
Hydroxide (OH)	mg/L	<0.50	0.50	8344208	<0.50	0.50	8344200
<b>Anions</b>							
Dissolved Sulphate (SO4)	mg/L	20.9	0.50	8345016	32.6	0.50	8345016
Dissolved Chloride (Cl)	mg/L	1.3	0.50	8345010	1.2	0.50	8345010
<b>Nutrients</b>							
Dissolved Phosphorus (P)	mg/L	0.0351 (1)	0.0020	8348535	0.0081 (1)	0.0020	8348535
Total Ammonia (N)	mg/L	0.036	0.0050	8343384	0.024	0.0050	8343383
Nitrate plus Nitrite (N)	mg/L	0.0256	0.0020	8344417	0.246	0.0020	8344417
Nitrite (N)	mg/L	<0.0020	0.0020	8344419	0.0034	0.0020	8344419
Total Phosphorus (P)	mg/L	0.379 (1)	0.0020	8348539	0.132 (1)	0.0020	8348539
<b>Physical Properties</b>							
Conductivity	uS/cm	295	1.0	8344214	377	1.0	8344201
pH	pH	8.10		8344215	8.07		8344205
RDL = Reportable Detection Limit N/A = Not Applicable (1) Sample analysed past recommended hold time.							

Maxxam Job #: B661948  
Report Date: 2016/08/05

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		PC7678			PC7679		
<b>Sampling Date</b>		2016/07/25 15:30			2016/07/25 16:30		
<b>COC Number</b>		08425769			08425769		
	<b>UNITS</b>	<b>DUP 1</b>	<b>RDL</b>	<b>QC Batch</b>	<b>MW15-05D</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Physical Properties</b>							
Total Suspended Solids	mg/L	480 (1)	1.1	8343061	498 (2)	10	8343061
RDL = Reportable Detection Limit							
(1) RDL raised due to limited initial sample amount.							
(2) RDL raised due to high concentration of solids in the sample.							

Maxxam Job #: B661948  
Report Date: 2016/08/05

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PC7674	PC7675	PC7676	PC7677	PC7678		
Sampling Date		2016/07/25 13:40	2016/07/25 13:15	2016/07/25 15:10	2016/07/25 14:30	2016/07/25 15:30		
COC Number		08425769	08425769	08425769	08425769	08425769		
	<b>UNITS</b>	<b>MW15-03S</b>	<b>MW15-03D</b>	<b>MW15-04S</b>	<b>MW15-04D</b>	<b>DUP 1</b>	<b>RDL</b>	<b>QC Batch</b>

**Misc. Inorganics**

Dissolved Hardness (CaCO3)	mg/L	153	220	134	162	159	0.50	8342977
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**Elements**

Dissolved Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000020	8344654
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**Dissolved Metals by ICPMS**

Dissolved Aluminum (Al)	mg/L	0.00548	0.00151	0.00377	0.00236	0.00199	0.00050	8343783
Dissolved Antimony (Sb)	mg/L	<0.000020	0.000050	<0.000020	0.000026	<0.000020	0.000020	8343783
Dissolved Arsenic (As)	mg/L	0.000143	0.00121	0.000199	0.00157	0.00139	0.000020	8343783
Dissolved Barium (Ba)	mg/L	0.0438	0.0454	0.0787	0.0667	0.0637	0.000020	8343783
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000010	8343783
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8343783
Dissolved Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	8343783
Dissolved Cadmium (Cd)	mg/L	0.0000100	<0.0000050	<0.0000050	0.0000220	0.0000230	0.0000050	8343783
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	0.00024	<0.00010	<0.00010	0.00010	8343783
Dissolved Cobalt (Co)	mg/L	0.0000180	0.0000360	0.0000070	0.000292	0.000289	0.0000050	8343783
Dissolved Copper (Cu)	mg/L	0.000310	0.000177	0.000302	0.000097	0.000091	0.000050	8343783
Dissolved Iron (Fe)	mg/L	<0.0010	0.0038	<0.0010	<0.0010	<0.0010	0.0010	8343783
Dissolved Lead (Pb)	mg/L	<0.0000050	0.0000050	<0.0000050	0.0000090	<0.0000050	0.0000050	8343783
Dissolved Lithium (Li)	mg/L	0.00116	0.00728	0.00056	0.00120	0.00120	0.00050	8343783
Dissolved Manganese (Mn)	mg/L	0.00436	0.0568	0.00112	0.171	0.172	0.000050	8343783
Dissolved Molybdenum (Mo)	mg/L	0.00200	0.00319	0.00120 (1)	0.00364 (1)	0.00335 (1)	0.000050	8343783
Dissolved Nickel (Ni)	mg/L	0.00108	0.000195	0.000119	0.00117	0.00101	0.000020	8343783
Dissolved Phosphorus (P)	mg/L	0.0039	<0.0020	<0.0020	<0.0020	<0.0020	0.0020	8343783
Dissolved Selenium (Se)	mg/L	0.000255	<0.000040	0.000825	0.000078	0.000073	0.000040	8343783
Dissolved Silicon (Si)	mg/L	3.06	5.23	3.71	3.30	3.21	0.050	8343783
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8343783
Dissolved Strontium (Sr)	mg/L	0.146	0.236	0.152	0.200	0.200	0.000050	8343783
Dissolved Thallium (Tl)	mg/L	0.0000060	<0.0000020	<0.0000020	0.0000050	0.0000050	0.0000020	8343783
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8343783
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	8343783
Dissolved Uranium (U)	mg/L	0.000701	0.00264	0.000634	0.00139	0.00133	0.0000020	8343783

RDL = Reportable Detection Limit

(1) Dissolved greater than total. Reanalysis yields similar results.



Maxxam Job #: B661948  
Report Date: 2016/08/05

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PC7674	PC7675	PC7676	PC7677	PC7678		
Sampling Date		2016/07/25 13:40	2016/07/25 13:15	2016/07/25 15:10	2016/07/25 14:30	2016/07/25 15:30		
COC Number		08425769	08425769	08425769	08425769	08425769		
	UNITS	MW15-03S	MW15-03D	MW15-04S	MW15-04D	DUP 1	RDL	QC Batch
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8343783
Dissolved Zinc (Zn)	mg/L	0.00027	0.00055	0.00061	0.00031	0.00026	0.00010	8343783
Dissolved Zirconium (Zr)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	8343783
Dissolved Calcium (Ca)	mg/L	52.9	58.9	47.1	55.0	54.3	0.050	8341847
Dissolved Magnesium (Mg)	mg/L	5.01	17.8	3.94	5.95	5.79	0.050	8341847
Dissolved Potassium (K)	mg/L	0.924	2.25	1.16	2.17	2.10	0.050	8341847
Dissolved Sodium (Na)	mg/L	0.782	1.94	1.02	1.78	1.72	0.050	8341847
Dissolved Sulphur (S)	mg/L	4.0	7.6	3.4	6.7	6.7	3.0	8341847
RDL = Reportable Detection Limit								

Maxxam Job #: B661948  
Report Date: 2016/08/05

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		PC7679		
<b>Sampling Date</b>		2016/07/25 16:30		
<b>COC Number</b>		08425769		
	<b>UNITS</b>	<b>MW15-05D</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Misc. Inorganics</b>				
Dissolved Hardness (CaCO3)	mg/L	217	0.50	8342977
<b>Elements</b>				
Dissolved Mercury (Hg)	mg/L	<0.0000020	0.0000020	8344654
<b>Dissolved Metals by ICPMS</b>				
Dissolved Aluminum (Al)	mg/L	0.00320	0.00050	8343783
Dissolved Antimony (Sb)	mg/L	<0.000020	0.000020	8343783
Dissolved Arsenic (As)	mg/L	0.000173	0.000020	8343783
Dissolved Barium (Ba)	mg/L	0.0465	0.000020	8343783
Dissolved Beryllium (Be)	mg/L	<0.000010	0.000010	8343783
Dissolved Bismuth (Bi)	mg/L	<0.0000050	0.0000050	8343783
Dissolved Boron (B)	mg/L	<0.010	0.010	8343783
Dissolved Cadmium (Cd)	mg/L	0.0000740	0.0000050	8343783
Dissolved Chromium (Cr)	mg/L	<0.00010	0.00010	8343783
Dissolved Cobalt (Co)	mg/L	0.0000310	0.0000050	8343783
Dissolved Copper (Cu)	mg/L	0.000236	0.000050	8343783
Dissolved Iron (Fe)	mg/L	<0.0010	0.0010	8343783
Dissolved Lead (Pb)	mg/L	0.000206	0.0000050	8343783
Dissolved Lithium (Li)	mg/L	0.00186	0.00050	8343783
Dissolved Manganese (Mn)	mg/L	0.00477	0.000050	8343783
Dissolved Molybdenum (Mo)	mg/L	0.000959 (1)	0.000050	8343783
Dissolved Nickel (Ni)	mg/L	0.000251	0.000020	8343783
Dissolved Phosphorus (P)	mg/L	<0.0020	0.0020	8343783
Dissolved Selenium (Se)	mg/L	0.00182	0.000040	8343783
Dissolved Silicon (Si)	mg/L	2.95	0.050	8343783
Dissolved Silver (Ag)	mg/L	<0.0000050	0.0000050	8343783
Dissolved Strontium (Sr)	mg/L	0.273	0.000050	8343783
Dissolved Thallium (Tl)	mg/L	0.0000020	0.0000020	8343783
Dissolved Tin (Sn)	mg/L	<0.00020	0.00020	8343783
Dissolved Titanium (Ti)	mg/L	<0.00050	0.00050	8343783
Dissolved Uranium (U)	mg/L	0.00214	0.0000020	8343783
RDL = Reportable Detection Limit				
(1) Dissolved greater than total. Reanalysis yields similar results.				

Maxxam Job #: B661948  
Report Date: 2016/08/05

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		PC7679		
<b>Sampling Date</b>		2016/07/25 16:30		
<b>COC Number</b>		08425769		
	<b>UNITS</b>	<b>MW15-05D</b>	<b>RDL</b>	<b>QC Batch</b>
Dissolved Vanadium (V)	mg/L	<0.00020	0.00020	8343783
Dissolved Zinc (Zn)	mg/L	0.00270	0.00010	8343783
Dissolved Zirconium (Zr)	mg/L	<0.00010	0.00010	8343783
Dissolved Calcium (Ca)	mg/L	74.3	0.050	8341847
Dissolved Magnesium (Mg)	mg/L	7.60	0.050	8341847
Dissolved Potassium (K)	mg/L	1.49	0.050	8341847
Dissolved Sodium (Na)	mg/L	2.88	0.050	8341847
Dissolved Sulphur (S)	mg/L	10.3	3.0	8341847
RDL = Reportable Detection Limit				

Maxxam Job #: B661948  
Report Date: 2016/08/05

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		PC7675		
<b>Sampling Date</b>		2016/07/25 13:15		
<b>COC Number</b>		08425769		
	<b>UNITS</b>	<b>MW15-03D</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>				
Total Hardness (CaCO3)	mg/L	208	0.50	8341901
<b>Elements</b>				
Total Mercury (Hg)	mg/L	<0.0000020	0.0000020	8344667
<b>Total Metals by ICPMS</b>				
Total Aluminum (Al)	mg/L	0.00959	0.00050	8343544
Total Antimony (Sb)	mg/L	0.000058	0.000020	8343544
Total Arsenic (As)	mg/L	0.00200	0.000020	8343544
Total Barium (Ba)	mg/L	0.0481	0.000020	8343544
Total Beryllium (Be)	mg/L	0.000012	0.000010	8343544
Total Bismuth (Bi)	mg/L	<0.0000050	0.0000050	8343544
Total Boron (B)	mg/L	<0.010	0.010	8343544
Total Cadmium (Cd)	mg/L	0.0000080	0.0000050	8343544
Total Chromium (Cr)	mg/L	<0.00010	0.00010	8343544
Total Cobalt (Co)	mg/L	0.0000510	0.0000050	8343544
Total Copper (Cu)	mg/L	0.000138	0.000050	8343544
Total Iron (Fe)	mg/L	0.815	0.0010	8343544
Total Lead (Pb)	mg/L	0.000172	0.0000050	8343544
Total Lithium (Li)	mg/L	0.00633	0.00050	8343544
Total Manganese (Mn)	mg/L	0.0578	0.000050	8343544
Total Molybdenum (Mo)	mg/L	0.00334	0.000050	8343544
Total Nickel (Ni)	mg/L	0.000309	0.000020	8343544
Total Phosphorus (P)	mg/L	0.0102	0.0020	8343544
Total Selenium (Se)	mg/L	<0.000040	0.000040	8343544
Total Silicon (Si)	mg/L	4.99	0.050	8343544
Total Silver (Ag)	mg/L	0.0000050	0.0000050	8343544
Total Strontium (Sr)	mg/L	0.257	0.000050	8343544
Total Thallium (Tl)	mg/L	<0.0000020	0.0000020	8343544
Total Tin (Sn)	mg/L	<0.00020	0.00020	8343544
Total Titanium (Ti)	mg/L	<0.00050	0.00050	8343544
Total Uranium (U)	mg/L	0.00270	0.0000020	8343544
Total Vanadium (V)	mg/L	<0.00020	0.00020	8343544
RDL = Reportable Detection Limit				

Maxxam Job #: B661948  
Report Date: 2016/08/05

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		PC7675		
<b>Sampling Date</b>		2016/07/25 13:15		
<b>COC Number</b>		08425769		
	<b>UNITS</b>	<b>MW15-03D</b>	<b>RDL</b>	<b>QC Batch</b>
Total Zinc (Zn)	mg/L	0.00121	0.00010	8343544
Total Zirconium (Zr)	mg/L	0.00089	0.00010	8343544
Total Calcium (Ca)	mg/L	57.4	0.050	8341902
Total Magnesium (Mg)	mg/L	15.7	0.050	8341902
Total Potassium (K)	mg/L	2.38	0.050	8341902
Total Sodium (Na)	mg/L	1.87	0.050	8341902
Total Sulphur (S)	mg/L	7.7	3.0	8341902
RDL = Reportable Detection Limit				

Maxxam Job #: B661948  
Report Date: 2016/08/05

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PC7674	PC7676	PC7677	PC7678	PC7679		
Sampling Date		2016/07/25 13:40	2016/07/25 15:10	2016/07/25 14:30	2016/07/25 15:30	2016/07/25 16:30		
COC Number		08425769	08425769	08425769	08425769	08425769		
	UNITS	MW15-03S	MW15-04S	MW15-04D	DUP 1	MW15-05D	RDL	QC Batch

**Calculated Parameters**

Total Hardness (CaCO3)	mg/L	178	143	204	178	242	0.50	8341901
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**Elements**

Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000020	8344667
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**Total Metals by ICPMS**

Total Aluminum (Al)	mg/L	2.23	2.59	3.39	2.80	3.09	0.0030	8343616
Total Antimony (Sb)	mg/L	0.000073	0.000047	0.000067	0.000058	0.000041	0.000020	8343616
Total Arsenic (As)	mg/L	0.00393	0.00220	0.00651	0.00565	0.00115	0.000020	8343616
Total Barium (Ba)	mg/L	0.0992	0.152	0.350	0.259	0.105	0.000050	8343616
Total Beryllium (Be)	mg/L	0.000168	0.000101	0.000340	0.000262	0.000776	0.000010	8343616
Total Bismuth (Bi)	mg/L	0.000069	0.000032	0.000088	0.000072	0.000185	0.000010	8343616
Total Boron (B)	mg/L	<0.010	<0.010	0.011	<0.010	<0.010	0.010	8343616
Total Cadmium (Cd)	mg/L	0.000249	0.000116	0.000475	0.000428	0.000536	0.000050	8343616
Total Chromium (Cr)	mg/L	0.00894	0.00493	0.0195	0.0150	0.00211	0.00010	8343616
Total Cobalt (Co)	mg/L	0.00541	0.00301	0.0125	0.0109	0.00284	0.000010	8343616
Total Copper (Cu)	mg/L	0.0325	0.0169	0.0327	0.0207	0.0122	0.00020	8343616
Total Iron (Fe)	mg/L	7.41	4.72	8.42	7.10	4.05	0.0050	8343616
Total Lead (Pb)	mg/L	0.0110	0.00431	0.00850	0.00631	0.0418	0.000020	8343616
Total Lithium (Li)	mg/L	0.00331	0.00207	0.00358	0.00305	0.00345	0.00050	8343616
Total Manganese (Mn)	mg/L	0.283	0.124	0.396	0.302	0.228	0.00010	8343616
Total Molybdenum (Mo)	mg/L	0.00205	0.000876	0.000782	0.000609	0.000505	0.000050	8343616
Total Nickel (Ni)	mg/L	0.0140	0.00550	0.0272	0.0231	0.00338	0.00010	8343616
Total Phosphorus (P)	mg/L	0.364	0.178	0.205	0.142	0.0910	0.0050	8343616
Total Selenium (Se)	mg/L	0.000291	0.000793	0.000211	0.000202	0.00171	0.000040	8343616
Total Silicon (Si)	mg/L	5.97	6.44	7.30	6.56	6.74	0.050	8343616
Total Silver (Ag)	mg/L	0.000567	0.000296	0.000271	0.000282	0.000974	0.000010	8343616
Total Strontium (Sr)	mg/L	0.172	0.165	0.248	0.223	0.292	0.000050	8343616
Total Thallium (Tl)	mg/L	0.0000460	0.0000390	0.0000650	0.0000530	0.0000570	0.0000020	8343616
Total Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	0.00022	0.00020	8343616
Total Titanium (Ti)	mg/L	0.0753	0.0891	0.0260	0.0227	0.0089	0.0020	8343616
Total Uranium (U)	mg/L	0.00101	0.000788	0.00245	0.00188	0.00320	0.0000050	8343616
Total Vanadium (V)	mg/L	0.00750	0.00942	0.00551	0.00474	0.00333	0.00020	8343616

RDL = Reportable Detection Limit

Maxxam Job #: B661948  
Report Date: 2016/08/05

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PC7674	PC7676	PC7677	PC7678	PC7679		
Sampling Date		2016/07/25 13:40	2016/07/25 15:10	2016/07/25 14:30	2016/07/25 15:30	2016/07/25 16:30		
COC Number		08425769	08425769	08425769	08425769	08425769		
	UNITS	MW15-03S	MW15-04S	MW15-04D	DUP 1	MW15-05D	RDL	QC Batch
Total Zinc (Zn)	mg/L	0.0281	0.0225	0.0304	0.0240	0.0490	0.0010	8343616
Total Zirconium (Zr)	mg/L	0.00047	0.00066	0.00149	0.00161	0.00037	0.00010	8343616
Total Calcium (Ca)	mg/L	60.4	48.7	68.6	59.0	82.3	0.25	8341902
Total Magnesium (Mg)	mg/L	6.57	5.30	7.91	7.55	8.88	0.25	8341902
Total Potassium (K)	mg/L	1.42	1.64	2.79	2.58	1.97	0.25	8341902
Total Sodium (Na)	mg/L	0.96	1.13	1.89	1.87	2.92	0.25	8341902
Total Sulphur (S)	mg/L	4.0	3.3	6.9	6.8	10.0	3.0	8341902
RDL = Reportable Detection Limit								

Maxxam Job #: B661948  
Report Date: 2016/08/05

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**TEST SUMMARY**

**Maxxam ID:** PC7674  
**Sample ID:** MW15-03S  
**Matrix:** Water

**Collected:** 2016/07/25  
**Shipped:**  
**Received:** 2016/07/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8343742	N/A	2016/07/28	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8344208	2016/07/28	2016/07/29	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8345010	N/A	2016/07/28	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8343770	N/A	2016/07/28	Isabel Choi
Conductance - water	AT/ALK	8344214	N/A	2016/07/29	Maria Maclean
Fluoride	ISE/ISE	8345456	N/A	2016/07/28	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8341901	N/A	2016/08/03	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8342977	N/A	2016/08/03	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8344654	N/A	2016/07/29	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8344667	2016/07/29	2016/07/29	Edwin Lamigo
Ion Balance	CALC	8342811	N/A	2016/08/03	Automated Statchk
Sum of cations, anions	CALC	8342951	N/A	2016/08/03	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8341847	N/A	2016/08/03	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8343783	N/A	2016/08/03	Greg Sparrow
Elements by ICPMS Digested LL (total)	ICP/CRCM	8343616	2016/07/28	2016/08/02	Greg Sparrow
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8341902	N/A	2016/08/03	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8343384	N/A	2016/07/28	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8344417	N/A	2016/07/28	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8344419	N/A	2016/07/28	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8342621	N/A	2016/07/29	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8343607	N/A	2016/07/28	Lucy Luo
pH Water	AT/ALK	8344215	N/A	2016/07/29	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8345016	N/A	2016/07/28	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8348535	2016/08/02	2016/08/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8348539	N/A	2016/08/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8343061	2016/07/28	2016/07/29	Wendy Fong

**Maxxam ID:** PC7674 Dup  
**Sample ID:** MW15-03S  
**Matrix:** Water

**Collected:** 2016/07/25  
**Shipped:**  
**Received:** 2016/07/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbon (DOC) - field filtered/preserved	TRAA/COL	8343770	N/A	2016/07/28	Isabel Choi

**Maxxam ID:** PC7675  
**Sample ID:** MW15-03D  
**Matrix:** Water

**Collected:** 2016/07/25  
**Shipped:**  
**Received:** 2016/07/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8343742	N/A	2016/07/28	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8344200	2016/07/28	2016/07/28	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8345010	N/A	2016/07/28	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8343770	N/A	2016/07/28	Isabel Choi
Conductance - water	AT/ALK	8344201	N/A	2016/07/28	Maria Maclean



Maxxam Job #: B661948  
Report Date: 2016/08/05

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

### TEST SUMMARY

**Maxxam ID:** PC7675  
**Sample ID:** MW15-03D  
**Matrix:** Water

**Collected:** 2016/07/25  
**Shipped:**  
**Received:** 2016/07/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Fluoride	ISE/ISE	8345456	N/A	2016/07/28	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8341901	N/A	2016/08/04	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8342977	N/A	2016/08/03	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8344654	N/A	2016/07/29	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8344667	2016/07/29	2016/07/29	Edwin Lamigo
Ion Balance	CALC	8342811	N/A	2016/08/03	Automated Statchk
Sum of cations, anions	CALC	8342951	N/A	2016/08/03	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8341847	N/A	2016/08/03	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8343783	N/A	2016/08/03	Greg Sparrow
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8341902	N/A	2016/08/04	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8343544	N/A	2016/08/04	John Choo
Ammonia-N (Preserved)	KONE/COL	8343384	N/A	2016/07/28	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8344417	N/A	2016/07/28	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8344419	N/A	2016/07/28	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8342621	N/A	2016/07/29	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8343607	N/A	2016/07/28	Lucy Luo
pH Water	AT/ALK	8344205	N/A	2016/07/28	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8345016	N/A	2016/07/28	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8348535	2016/08/02	2016/08/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8348539	N/A	2016/08/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8343061	2016/07/28	2016/07/29	Wendy Fong

**Maxxam ID:** PC7675 Dup  
**Sample ID:** MW15-03D  
**Matrix:** Water

**Collected:** 2016/07/25  
**Shipped:**  
**Received:** 2016/07/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (Total-LowLevel) by CVAf	CV/AF	8344667	2016/07/29	2016/07/29	Edwin Lamigo
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8343783	N/A	2016/08/03	Greg Sparrow
Total Phosphorus - unpreserved	KONE/COL	8348539	N/A	2016/08/02	Diana Cruz

**Maxxam ID:** PC7676  
**Sample ID:** MW15-04S  
**Matrix:** Water

**Collected:** 2016/07/25  
**Shipped:**  
**Received:** 2016/07/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8343742	N/A	2016/07/28	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8344208	2016/07/28	2016/07/29	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8345010	N/A	2016/07/28	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8343769	N/A	2016/07/28	Isabel Choi
Conductance - water	AT/ALK	8344214	N/A	2016/07/29	Maria Maclean
Fluoride	ISE/ISE	8345456	N/A	2016/07/28	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8341901	N/A	2016/08/03	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8342977	N/A	2016/08/03	Automated Statchk

Maxxam Job #: B661948  
Report Date: 2016/08/05

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

### TEST SUMMARY

**Maxxam ID:** PC7676  
**Sample ID:** MW15-04S  
**Matrix:** Water

**Collected:** 2016/07/25  
**Shipped:**  
**Received:** 2016/07/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8344654	N/A	2016/07/29	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8344667	2016/07/29	2016/07/29	Edwin Lamigo
Ion Balance	CALC	8342811	N/A	2016/08/03	Automated Statchk
Sum of cations, anions	CALC	8342951	N/A	2016/08/03	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8341847	N/A	2016/08/03	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8343783	N/A	2016/08/03	Greg Sparrow
Elements by ICPMS Digested LL (total)	ICP/CRCM	8343616	2016/07/28	2016/08/02	Greg Sparrow
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8341902	N/A	2016/08/03	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8343384	N/A	2016/07/28	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8344417	N/A	2016/07/28	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8344419	N/A	2016/07/28	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8342621	N/A	2016/07/29	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8343607	N/A	2016/07/28	Lucy Luo
pH Water	AT/ALK	8344215	N/A	2016/07/29	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8345016	N/A	2016/07/28	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8348535	2016/08/02	2016/08/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8348539	N/A	2016/08/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8343061	2016/07/28	2016/07/29	Wendy Fong

**Maxxam ID:** PC7677  
**Sample ID:** MW15-04D  
**Matrix:** Water

**Collected:** 2016/07/25  
**Shipped:**  
**Received:** 2016/07/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8343742	N/A	2016/07/28	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8344208	2016/07/28	2016/07/29	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8345010	N/A	2016/07/28	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8343769	N/A	2016/07/28	Isabel Choi
Conductance - water	AT/ALK	8344214	N/A	2016/07/29	Maria Maclean
Fluoride	ISE/ISE	8345456	N/A	2016/07/28	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8341901	N/A	2016/08/03	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8342977	N/A	2016/08/03	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8344654	N/A	2016/07/29	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8344667	2016/07/29	2016/07/29	Edwin Lamigo
Ion Balance	CALC	8342811	N/A	2016/08/03	Automated Statchk
Sum of cations, anions	CALC	8342951	N/A	2016/08/03	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8341847	N/A	2016/08/03	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8343783	N/A	2016/08/03	Greg Sparrow
Elements by ICPMS Digested LL (total)	ICP/CRCM	8343616	2016/07/28	2016/08/02	Greg Sparrow
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8341902	N/A	2016/08/03	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8343384	N/A	2016/07/28	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8344417	N/A	2016/07/28	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8344419	N/A	2016/07/28	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8342621	N/A	2016/07/29	Automated Statchk

Maxxam Job #: B661948  
Report Date: 2016/08/05

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**TEST SUMMARY**

**Maxxam ID:** PC7677  
**Sample ID:** MW15-04D  
**Matrix:** Water

**Collected:** 2016/07/25  
**Shipped:**  
**Received:** 2016/07/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Filter and HNO3 Preserve for Metals	ICP	8343607	N/A	2016/07/28	Lucy Luo
pH Water	AT/ALK	8344215	N/A	2016/07/29	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8345016	N/A	2016/07/28	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8348535	2016/08/02	2016/08/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8348539	N/A	2016/08/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8343061	2016/07/28	2016/07/29	Wendy Fong

**Maxxam ID:** PC7678  
**Sample ID:** DUP 1  
**Matrix:** Water

**Collected:** 2016/07/25  
**Shipped:**  
**Received:** 2016/07/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8343742	N/A	2016/07/28	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8344208	2016/07/28	2016/07/29	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8345010	N/A	2016/07/28	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8343770	N/A	2016/07/28	Isabel Choi
Conductance - water	AT/ALK	8344214	N/A	2016/07/29	Maria Maclean
Fluoride	ISE/ISE	8345456	N/A	2016/07/28	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8341901	N/A	2016/08/03	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8342977	N/A	2016/08/03	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8344654	N/A	2016/07/29	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8344667	2016/07/29	2016/07/29	Edwin Lamigo
Ion Balance	CALC	8342811	N/A	2016/08/03	Automated Statchk
Sum of cations, anions	CALC	8342951	N/A	2016/08/03	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8341847	N/A	2016/08/03	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8343783	N/A	2016/08/03	Greg Sparrow
Elements by ICPMS Digested LL (total)	ICP/CRCM	8343616	2016/07/28	2016/08/02	Greg Sparrow
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8341902	N/A	2016/08/03	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8343384	N/A	2016/07/28	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8344417	N/A	2016/07/28	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8344419	N/A	2016/07/28	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8342621	N/A	2016/07/29	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8343607	N/A	2016/07/28	Lucy Luo
pH Water	AT/ALK	8344215	N/A	2016/07/29	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8345016	N/A	2016/07/28	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8348535	2016/08/02	2016/08/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8348539	N/A	2016/08/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8343061	2016/07/28	2016/07/29	Wendy Fong

Maxxam Job #: B661948  
Report Date: 2016/08/05

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

### TEST SUMMARY

**Maxxam ID:** PC7678 Dup  
**Sample ID:** DUP 1  
**Matrix:** Water

**Collected:** 2016/07/25  
**Shipped:**  
**Received:** 2016/07/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Water	AT/ALK	8344208	2016/07/28	2016/07/29	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8345010	N/A	2016/07/28	Balwinder Bassi
Conductance - water	AT/ALK	8344214	N/A	2016/07/29	Maria Maclean
pH Water	AT/ALK	8344215	N/A	2016/07/29	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8345016	N/A	2016/07/28	Balwinder Bassi

**Maxxam ID:** PC7679  
**Sample ID:** MW15-05D  
**Matrix:** Water

**Collected:** 2016/07/25  
**Shipped:**  
**Received:** 2016/07/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8343742	N/A	2016/07/28	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8344200	2016/07/28	2016/07/28	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8345010	N/A	2016/07/28	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8343769	N/A	2016/07/28	Isabel Choi
Conductance - water	AT/ALK	8344201	N/A	2016/07/28	Maria Maclean
Fluoride	ISE/ISE	8345456	N/A	2016/07/28	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8341901	N/A	2016/08/03	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8342977	N/A	2016/08/03	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8344654	N/A	2016/07/29	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8344667	2016/07/29	2016/07/29	Edwin Lamigo
Ion Balance	CALC	8342811	N/A	2016/08/03	Automated Statchk
Sum of cations, anions	CALC	8342951	N/A	2016/08/03	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8341847	N/A	2016/08/03	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8343783	N/A	2016/08/03	Greg Sparrow
Elements by ICPMS Digested LL (total)	ICP/CRCM	8343616	2016/07/28	2016/08/02	Greg Sparrow
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8341902	N/A	2016/08/03	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8343383	N/A	2016/07/28	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8344417	N/A	2016/07/28	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8344419	N/A	2016/07/28	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8342621	N/A	2016/07/29	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8343607	N/A	2016/07/28	Lucy Luo
pH Water	AT/ALK	8344205	N/A	2016/07/28	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8345016	N/A	2016/07/28	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8348535	2016/08/02	2016/08/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8348539	N/A	2016/08/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8343061	2016/07/28	2016/07/29	Wendy Fong

Maxxam Job #: B661948  
Report Date: 2016/08/05

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

### GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	2.0°C
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Sample PC7674-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PC7676-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PC7677-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PC7678-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PC7679-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

**Results relate only to the items tested.**

Maxxam Job #: B661948  
Report Date: 2016/08/05

**QUALITY ASSURANCE REPORT**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8343061	Total Suspended Solids	2016/07/29			104	80 - 120	<1.0	mg/L		
8343383	Total Ammonia (N)	2016/07/28	108	80 - 120	97	80 - 120	<0.0050	mg/L	NC	20
8343384	Total Ammonia (N)	2016/07/28	106	80 - 120	97	80 - 120	<0.0050	mg/L	NC	20
8343544	Total Aluminum (Al)	2016/08/03	111	80 - 120	117	80 - 120	<0.00050	mg/L	NC	20
8343544	Total Antimony (Sb)	2016/08/03	102	80 - 120	100	80 - 120	<0.000020	mg/L	NC	20
8343544	Total Arsenic (As)	2016/08/03	97	80 - 120	97	80 - 120	<0.000020	mg/L	NC	20
8343544	Total Barium (Ba)	2016/08/03	100	80 - 120	101	80 - 120	<0.000020	mg/L	NC	20
8343544	Total Beryllium (Be)	2016/08/03	97	80 - 120	101	80 - 120	<0.000010	mg/L	NC	20
8343544	Total Bismuth (Bi)	2016/08/03	102	80 - 120	104	80 - 120	<0.0000050	mg/L	NC	20
8343544	Total Boron (B)	2016/08/03	91	80 - 120	97	80 - 120	<0.010	mg/L	NC	20
8343544	Total Cadmium (Cd)	2016/08/03	95	80 - 120	98	80 - 120	<0.0000050	mg/L	NC	20
8343544	Total Chromium (Cr)	2016/08/03	100	80 - 120	103	80 - 120	<0.00010	mg/L	NC	20
8343544	Total Cobalt (Co)	2016/08/03	99	80 - 120	103	80 - 120	<0.0000050	mg/L	NC	20
8343544	Total Copper (Cu)	2016/08/03	104	80 - 120	107	80 - 120	<0.000050	mg/L	NC	20
8343544	Total Iron (Fe)	2016/08/03	108	80 - 120	112	80 - 120	<0.0010	mg/L	NC	20
8343544	Total Lead (Pb)	2016/08/03	99	80 - 120	102	80 - 120	<0.0000050	mg/L	NC	20
8343544	Total Lithium (Li)	2016/08/03	88	80 - 120	88	80 - 120	<0.00050	mg/L	NC	20
8343544	Total Manganese (Mn)	2016/08/03	97	80 - 120	100	80 - 120	<0.000050	mg/L	NC	20
8343544	Total Molybdenum (Mo)	2016/08/03	101	80 - 120	103	80 - 120	<0.000050	mg/L	NC	20
8343544	Total Nickel (Ni)	2016/08/03	103	80 - 120	107	80 - 120	<0.000020	mg/L	NC	20
8343544	Total Phosphorus (P)	2016/08/03					0.0026, RDL=0.0020	mg/L	NC	20
8343544	Total Selenium (Se)	2016/08/03	100	80 - 120	100	80 - 120	<0.000040	mg/L	NC	20
8343544	Total Silicon (Si)	2016/08/03					<0.050	mg/L	NC	20
8343544	Total Silver (Ag)	2016/08/03	104	80 - 120	105	80 - 120	<0.0000050	mg/L	NC	20
8343544	Total Strontium (Sr)	2016/08/03	89	80 - 120	87	80 - 120	<0.000050	mg/L	NC	20
8343544	Total Thallium (Tl)	2016/08/03	102	80 - 120	106	80 - 120	<0.0000020	mg/L	NC	20
8343544	Total Tin (Sn)	2016/08/03	100	80 - 120	102	80 - 120	<0.00020	mg/L	NC	20
8343544	Total Titanium (Ti)	2016/08/03	92	80 - 120	103	80 - 120	<0.00050	mg/L	NC	20
8343544	Total Uranium (U)	2016/08/03	104	80 - 120	107	80 - 120	<0.0000020	mg/L	NC	20
8343544	Total Vanadium (V)	2016/08/03	99	80 - 120	103	80 - 120	<0.00020	mg/L	NC	20

Maxxam Job #: B661948  
Report Date: 2016/08/05

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8343544	Total Zinc (Zn)	2016/08/03	102	80 - 120	101	80 - 120	<0.00010	mg/L	NC	20
8343544	Total Zirconium (Zr)	2016/08/03					<0.00010	mg/L	NC	20
8343616	Total Aluminum (Al)	2016/08/02	NC	80 - 120	123 (1)	80 - 120	<0.0030	mg/L		
8343616	Total Antimony (Sb)	2016/08/02	107	80 - 120	106	80 - 120	<0.000020	mg/L		
8343616	Total Arsenic (As)	2016/08/02	110	80 - 120	105	80 - 120	<0.000020	mg/L		
8343616	Total Barium (Ba)	2016/08/02	NC	80 - 120	112	80 - 120	<0.000050	mg/L		
8343616	Total Beryllium (Be)	2016/08/02	117	80 - 120	116	80 - 120	<0.000010	mg/L		
8343616	Total Bismuth (Bi)	2016/08/02	100	80 - 120	104	80 - 120	<0.000010	mg/L	NC	20
8343616	Total Boron (B)	2016/08/02	NC	80 - 120	112	80 - 120	<0.010	mg/L		
8343616	Total Cadmium (Cd)	2016/08/02	103	80 - 120	103	80 - 120	<0.0000050	mg/L		
8343616	Total Chromium (Cr)	2016/08/02	100	80 - 120	100	80 - 120	<0.00010	mg/L		
8343616	Total Cobalt (Co)	2016/08/02	101	80 - 120	102	80 - 120	<0.000010	mg/L		
8343616	Total Copper (Cu)	2016/08/02	97	80 - 120	105	80 - 120	0.00029, RDL=0.00020 (2)	mg/L		
8343616	Total Iron (Fe)	2016/08/02	NC	80 - 120	107	80 - 120	<0.0050	mg/L		
8343616	Total Lead (Pb)	2016/08/02	102	80 - 120	103	80 - 120	<0.000020	mg/L		
8343616	Total Lithium (Li)	2016/08/02	NC	80 - 120	117	80 - 120	<0.00050	mg/L		
8343616	Total Manganese (Mn)	2016/08/02	NC	80 - 120	106	80 - 120	<0.00010	mg/L		
8343616	Total Molybdenum (Mo)	2016/08/02	NC	80 - 120	101	80 - 120	<0.000050	mg/L		
8343616	Total Nickel (Ni)	2016/08/02	100	80 - 120	105	80 - 120	<0.00010	mg/L		
8343616	Total Phosphorus (P)	2016/08/02					<0.0050	mg/L		
8343616	Total Selenium (Se)	2016/08/02	110	80 - 120	109	80 - 120	<0.000040	mg/L		
8343616	Total Silicon (Si)	2016/08/02					<0.050	mg/L		
8343616	Total Silver (Ag)	2016/08/02	109	80 - 120	105	80 - 120	<0.000010	mg/L		
8343616	Total Strontium (Sr)	2016/08/02	NC	80 - 120	102	80 - 120	<0.000050	mg/L		
8343616	Total Thallium (Tl)	2016/08/02	106	80 - 120	103	80 - 120	<0.0000020	mg/L		
8343616	Total Tin (Sn)	2016/08/02	82	80 - 120	100	80 - 120	<0.00020	mg/L		
8343616	Total Titanium (Ti)	2016/08/02	119	80 - 120	100	80 - 120	<0.0020	mg/L		
8343616	Total Uranium (U)	2016/08/02	114	80 - 120	110	80 - 120	<0.0000050	mg/L		
8343616	Total Vanadium (V)	2016/08/02	NC	80 - 120	106	80 - 120	<0.00020	mg/L		



Maxxam Job #: B661948  
Report Date: 2016/08/05

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8343616	Total Zinc (Zn)	2016/08/02	NC	80 - 120	105	80 - 120	<0.0010	mg/L		
8343616	Total Zirconium (Zr)	2016/08/02					<0.00010	mg/L		
8343742	Acidity (pH 4.5)	2016/07/28					<0.50	mg/L	NC	20
8343742	Acidity (pH 8.3)	2016/07/28			99	80 - 120	<0.50	mg/L	NC	20
8343769	Dissolved Organic Carbon (C)	2016/07/28	108	80 - 120	114	80 - 120	<0.50	mg/L	1.4	20
8343770	Dissolved Organic Carbon (C)	2016/07/28	112	80 - 120	111	80 - 120	<0.50	mg/L	NC	20
8343783	Dissolved Aluminum (Al)	2016/08/03	109	80 - 120	118	80 - 120	<0.00050	mg/L	NC	20
8343783	Dissolved Antimony (Sb)	2016/08/03	101	80 - 120	105	80 - 120	<0.000020	mg/L	NC	20
8343783	Dissolved Arsenic (As)	2016/08/03	102	80 - 120	101	80 - 120	<0.000020	mg/L	0.66	20
8343783	Dissolved Barium (Ba)	2016/08/03	NC	80 - 120	108	80 - 120	<0.000020	mg/L	0.033	20
8343783	Dissolved Beryllium (Be)	2016/08/03	104	80 - 120	118	80 - 120	<0.000010	mg/L	NC	20
8343783	Dissolved Bismuth (Bi)	2016/08/03	98	80 - 120	102	80 - 120	<0.0000050	mg/L	NC	20
8343783	Dissolved Boron (B)	2016/08/03	101	80 - 120	122 (1)	80 - 120	<0.010	mg/L	NC	20
8343783	Dissolved Cadmium (Cd)	2016/08/03	98	80 - 120	102	80 - 120	<0.0000050	mg/L	NC	20
8343783	Dissolved Chromium (Cr)	2016/08/03	99	80 - 120	99	80 - 120	0.00015, RDL=0.00010	mg/L	NC	20
8343783	Dissolved Cobalt (Co)	2016/08/03	93	80 - 120	101	80 - 120	<0.0000050	mg/L	2.7	20
8343783	Dissolved Copper (Cu)	2016/08/03	91	80 - 120	102	80 - 120	<0.000050	mg/L	NC	20
8343783	Dissolved Iron (Fe)	2016/08/03	109	80 - 120	111	80 - 120	0.0012, RDL=0.0010	mg/L	NC	20
8343783	Dissolved Lead (Pb)	2016/08/03	100	80 - 120	102	80 - 120	<0.0000050	mg/L	NC	20
8343783	Dissolved Lithium (Li)	2016/08/03	NC	80 - 120	121 (1)	80 - 120	<0.00050	mg/L	0.87	20
8343783	Dissolved Manganese (Mn)	2016/08/03	NC	80 - 120	105	80 - 120	<0.000050	mg/L	0.36	20
8343783	Dissolved Molybdenum (Mo)	2016/08/03	NC	80 - 120	103	80 - 120	<0.000050	mg/L	0.82	20
8343783	Dissolved Nickel (Ni)	2016/08/03	95	80 - 120	105	80 - 120	<0.000020	mg/L	0	20
8343783	Dissolved Phosphorus (P)	2016/08/03					0.0035, RDL=0.0020	mg/L	NC	20
8343783	Dissolved Selenium (Se)	2016/08/03	104	80 - 120	104	80 - 120	<0.000040	mg/L	NC	20
8343783	Dissolved Silicon (Si)	2016/08/03					<0.050	mg/L	2.5	20
8343783	Dissolved Silver (Ag)	2016/08/03	100	80 - 120	103	80 - 120	<0.0000050	mg/L	NC	20
8343783	Dissolved Strontium (Sr)	2016/08/03	NC	80 - 120	98	80 - 120	<0.000050	mg/L	2.0	20



Maxxam Job #: B661948  
Report Date: 2016/08/05

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8343783	Dissolved Thallium (Tl)	2016/08/03	101	80 - 120	103	80 - 120	<0.0000020	mg/L	NC	20
8343783	Dissolved Tin (Sn)	2016/08/03	100	80 - 120	104	80 - 120	<0.00020	mg/L	NC	20
8343783	Dissolved Titanium (Ti)	2016/08/03	98	80 - 120	101	80 - 120	<0.00050	mg/L	NC	20
8343783	Dissolved Uranium (U)	2016/08/03	103	80 - 120	111	80 - 120	<0.0000020	mg/L	0.27	20
8343783	Dissolved Vanadium (V)	2016/08/03	99	80 - 120	106	80 - 120	<0.00020	mg/L	NC	20
8343783	Dissolved Zinc (Zn)	2016/08/03	99	80 - 120	101	80 - 120	<0.00010	mg/L	3.5	20
8343783	Dissolved Zirconium (Zr)	2016/08/03					<0.00010	mg/L	NC	20
8344200	Alkalinity (PP as CaCO3)	2016/07/28					<0.50	mg/L	24 (3)	20
8344200	Alkalinity (Total as CaCO3)	2016/07/28	NC	80 - 120	101	80 - 120	0.69, RDL=0.50	mg/L	5.4	20
8344200	Bicarbonate (HCO3)	2016/07/28					0.84, RDL=0.50	mg/L	7.1	20
8344200	Carbonate (CO3)	2016/07/28					<0.50	mg/L	24 (3)	20
8344200	Hydroxide (OH)	2016/07/28					<0.50	mg/L	NC	20
8344201	Conductivity	2016/07/28			101	80 - 120	<1.0	uS/cm	0.20	20
8344205	pH	2016/07/28			101	97 - 103			1.7	N/A
8344208	Alkalinity (PP as CaCO3)	2016/07/29					<0.50	mg/L	NC	20
8344208	Alkalinity (Total as CaCO3)	2016/07/29	NC	80 - 120	102	80 - 120	<0.50	mg/L	1.6	20
8344208	Bicarbonate (HCO3)	2016/07/29					<0.50	mg/L	1.6	20
8344208	Carbonate (CO3)	2016/07/29					<0.50	mg/L	NC	20
8344208	Hydroxide (OH)	2016/07/29					<0.50	mg/L	NC	20
8344214	Conductivity	2016/07/29			101	80 - 120	<1.0	uS/cm	0.34	20
8344215	pH	2016/07/29			101	97 - 103			1.2	N/A
8344417	Nitrate plus Nitrite (N)	2016/07/28	105	80 - 120	106	80 - 120	<0.0020	mg/L	NC	25
8344419	Nitrite (N)	2016/07/28	97	80 - 120	93	80 - 120	<0.0020	mg/L	NC	25
8344654	Dissolved Mercury (Hg)	2016/07/29	91	80 - 120	101	80 - 120	<0.0000020	mg/L	NC	20
8344667	Total Mercury (Hg)	2016/07/29	119	80 - 120	108	80 - 120	<0.0000020	mg/L	NC	20
8345010	Dissolved Chloride (Cl)	2016/07/28	96	80 - 120	101	80 - 120	<0.50	mg/L	NC	20
8345016	Dissolved Sulphate (SO4)	2016/07/28	NC	80 - 120	107	80 - 120	<0.50	mg/L	1.2	20
8345456	Fluoride (F)	2016/07/28	101	80 - 120	98	80 - 120	0.010, RDL=0.010	mg/L	0	20
8348535	Dissolved Phosphorus (P)	2016/08/02	NC	80 - 120	109	80 - 120	<0.0020	mg/L	0.42	20

Maxxam Job #: B661948  
Report Date: 2016/08/05

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8348539	Total Phosphorus (P)	2016/08/02	99	80 - 120	108	80 - 120	<0.0020	mg/L	NC	20

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

(1) Blank Spike outside acceptance criteria (10% of analytes failure allowed)

(2) RDL raised due to background artifacts detected in analysis

(3) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Maxxam Job #: B661948  
Report Date: 2016/08/05

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



---

David Huang, M.Sc., P.Chem., QP, Scientific Services Manager

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

**CHAIN OF CUSTODY RECORD**

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5. Toll Free (800) 665-8566

COC #

08425769

BBY FCD-00077/05

Page 2 3

Invoice Information	Report Information (if differs from invoice)	Project Information (where	nd Time (TAT) Required
Company Name: <b>BMC MINERALS LTD.</b>	Company Name: <b>ALEXCO ENVIRONMENTAL</b>	Quotation #: <b>B60751</b>	<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses)
Contact Name:	Contact Name: <b>KAI WOLOSHYN</b>	P.O. #/ AFE#:	<b>PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS</b>
Address: <b>530-1130 WEST PENDER ST</b>	Address: <b>UNIT 3 151 INDUSTRIAL RD</b>	Project #: <b>BMC-16-01</b>	<b>Rush TAT (Surcharges will be applied)</b>
<b>Vancouver, BC PC: V6E 4A4</b>	<b>Whitehorse, YK PC: V1A 2V3</b>	Site Location: <b>Kudz Ze Kayah</b>	<input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days
Phone:	Phone: <b>(867) 668-6463</b>	Site #:	<input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days
Email:	Email: <b>kwoloshyn@alexcoresource.com</b>	Sampled By: <b>Leia Fougere</b>	Date Required:

Regulatory Criteria	Special Instructions	Analysis Requested	Rush Confirmation #:
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> BC CSR Water <input type="checkbox"/> CCME (Specify) <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC Water Quality	<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify) <b>USE SCENARIO # 12485</b>	TOTAL LOW LEVEL METALS INCL. MERCURY DISSOLVED LOW LEVEL METALS INCL. MERCURY LOW LEVEL TSS AMMONIUM (CI, F, SO4, NO2, NO3) AMMONIA CONDUCTIVITY pH ALKALINITY & ACIDITY DOC TOTAL PHOSPHORUS - LOW LEVEL DISSOLVED PHOSPHORUS - LOW LEVEL	LABORATORY USE ONLY CUSTODY SEAL Y / N Present Intact COOLING MEDIA PRESENT Y / N COMMENTS

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	TOTAL LOW LEVEL METALS INCL. MERCURY	DISSOLVED LOW LEVEL METALS INCL. MERCURY	LOW LEVEL TSS	AMMONIUM (CI, F, SO4, NO2, NO3)	AMMONIA	CONDUCTIVITY	pH	ALKALINITY & ACIDITY	DOC	TOTAL PHOSPHORUS - LOW LEVEL	DISSOLVED PHOSPHORUS - LOW LEVEL	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	COMMENTS
1	MW15-03S	25-Jul-16	13:40	Water	X	X	X	X	X	X	X	X	X	X	X	10		RECEIVED IN WHITEHORSE BY: <i>Sydney@1600</i> 2016-07-26 TEMP: 4 / 5 → 1 → 2 cooler #
2	MW15-03D	25-Jul-16	13:15	Water	X	X	X	X	X	X	X	X	X	X	10			
3	MW15-04S	25-Jul-16	15:10	Water	X	X	X	X	X	X	X	X	X	X	10			
4	MW15-04D	25-Jul-16	14:30	Water	X	X	X	X	X	X	X	X	X	X	10			
5	Dup 1	25-Jul-16	15:30	Water	X	X	X	X	X	X	X	X	X	X	10			
6	MW15-05D	25-Jul-16	16:30	Water	X	X	X	X	X	X	X	X	X	X	10			
7				Water	X	X	X	X	X	X	X	X	X	X	10			
8				Water	X	X	X	X	X	X	X	X	X	X	10			
9				Water	X	X	X	X	X	X	X	X	X	X	10			
10				Water	X	X	X	X	X	X	X	X	X	X	10			

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)
Leia Fougere	26/07/16	8:00	<i>M. Laurier Berthier</i>	2016/07/27	14:40



B661948\_COC

Your Project #: BMC-16-01  
 Site Location: KUDZ ZE KAYAH  
 Your C.O.C. #: 08425835, 08425836

**Attention: KAI WOLOSHYN**

ALEXCO ENVIRONMENTAL GROUP INC.  
 Unit 3 Calcite Business Centre  
 151 Industrial Road  
 WHITEHORSE, YT  
 Canada Y1A 2V3

**Report Date: 2016/09/12**  
 Report #: R2258700  
 Version: 3 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**MAXXAM JOB #: B662698**

**Received: 2016/07/28, 10:15**

Sample Matrix: Water  
 # Samples Received: 21

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Acidity pH 4.5 & pH 8.3 (as CaCO3)	7	N/A	2016/08/01	BBY6SOP-00037	SM 22 2310 B m
Acidity pH 4.5 & pH 8.3 (as CaCO3)	14	N/A	2016/08/02	BBY6SOP-00037	SM 22 2310 B m
Alkalinity - Water	18	2016/07/29	2016/07/30	BBY6SOP-00026	SM 22 2320 B m
Alkalinity - Water	3	2016/08/08	2016/08/08	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry	16	N/A	2016/07/29	BBY6SOP-00011	SM 22 4500-Cl- E m
Chloride by Automated Colourimetry	2	N/A	2016/08/02	BBY6SOP-00011	SM 22 4500-Cl- E m
Chloride by Automated Colourimetry	3	N/A	2016/08/08	BBY6SOP-00011	SM 22 4500-Cl- E m
Carbon (DOC) - field filtered/preserved (1)	20	N/A	2016/08/02	BBY6SOP-00003	SM 22 5310 C m
Carbon (DOC) - unfiltered/unpreserved (1)	1	N/A	2016/08/02	BBY6SOP-00003	SM 22 5310 C m
Conductance - water	21	N/A	2016/07/30	BBY6SOP-00026	SM 22 2510 B m
Fluoride	21	N/A	2016/07/29	BBY6SOP-00048	SM 22 4500-F C m
Hardness Total (calculated as CaCO3)	18	N/A	2016/08/04	BBY WI-00033	Auto Calc
Hardness Total (calculated as CaCO3)	3	N/A	2016/08/06	BBY WI-00033	Auto Calc
Hardness (calculated as CaCO3)	17	N/A	2016/08/04	BBY WI-00033	Auto Calc
Hardness (calculated as CaCO3)	4	N/A	2016/08/08	BBY WI-00033	Auto Calc
Mercury (Dissolved-LowLevel) by CVAf	21	N/A	2016/08/03	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total-LowLevel) by CVAf	21	2016/08/03	2016/08/03	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Ion Balance	17	N/A	2016/08/04	BBY WI-00033	Auto Calc
Ion Balance	4	N/A	2016/08/08	BBY WI-00033	Auto Calc
Sum of cations, anions	17	N/A	2016/08/04	Calc	
Sum of cations, anions	4	N/A	2016/08/06	Calc	
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	17	N/A	2016/08/04	BBY7SOP-00002	EPA 6020B R2 m
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	4	N/A	2016/08/08	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Low Level (dissolved)	18	N/A	2016/08/04	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Low Level (dissolved)	3	N/A	2016/08/08	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Digested LL (total)	12	2016/08/02	2016/08/02	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Elements by ICPMS Digested LL (total)	1	2016/08/02	2016/08/03	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Elements by ICPMS Digested LL (total)	5	2016/08/02	2016/08/04	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Na, K, Ca, Mg, S by CRC ICPMS (total)	18	N/A	2016/08/04	BBY7SOP-00003,	BCLM2005,EPA6020bR2m

Your Project #: BMC-16-01  
 Site Location: KUDZ ZE KAYAH  
 Your C.O.C. #: 08425835, 08425836

**Attention: KAI WOLOSHYN**

ALEXCO ENVIRONMENTAL GROUP INC.  
 Unit 3 Calcite Business Centre  
 151 Industrial Road  
 WHITEHORSE, YT  
 Canada Y1A 2V3

**Report Date: 2016/09/12**  
 Report #: R2258700  
 Version: 3 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**MAXXAM JOB #: B662698**

**Received: 2016/07/28, 10:15**

Sample Matrix: Water  
 # Samples Received: 21

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
Na, K, Ca, Mg, S by CRC ICPMS (total)	3	N/A	2016/08/06	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Elements by ICPMS Low Level (total)	1	N/A	2016/08/05	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Elements by ICPMS Low Level (total)	2	N/A	2016/08/06	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Ammonia-N (Unpreserved)	1	N/A	2016/07/29	BBY6SOP-00009	SM 22 4500-NH3- G m
Ammonia-N (Preserved)	16	N/A	2016/08/03	BBY6SOP-00009	SM 22 4500-NH3- G m
Ammonia-N (Preserved)	4	N/A	2016/08/19	BBY6SOP-00009	SM 22 4500-NH3- G m
Nitrate+Nitrite (N) (low level)	21	N/A	2016/07/29	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) (low level)	21	N/A	2016/07/29	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N)	21	N/A	2016/07/30	BBY6SOP-00010	SM 22 4500-NO3- I m
Filter and HNO3 Preserve for Metals	20	N/A	2016/07/29	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (2)	21	N/A	2016/07/30	BBY6SOP-00026	SM 22 4500-H+ B m
Sulphate by Automated Colourimetry	16	N/A	2016/07/29	BBY6SOP-00017	SM 22 4500-SO42- E m
Sulphate by Automated Colourimetry	2	N/A	2016/08/02	BBY6SOP-00017	SM 22 4500-SO42- E m
Sulphate by Automated Colourimetry	3	N/A	2016/08/08	BBY6SOP-00017	SM 22 4500-SO42- E m
Phosphorus-P (LL Tot, dissolved) - UF/UP	20	2016/08/02	2016/08/02	BBY6SOP-00013	SM 22 4500-P E m
Phosphorus-P (LL Tot, dissolved) - UF/UP	1	2016/08/08	2016/08/08	BBY6SOP-00013	SM 22 4500-P E m
Total Phosphorus - unpreserved	20	N/A	2016/08/02	BBY6SOP-00013	SM 22 4500-P E m
Total Phosphorus - unpreserved	1	N/A	2016/08/08	BBY6SOP-00013	SM 22 4500-P E m
Total Suspended Solids-Low Level	21	2016/08/02	2016/08/03	BBY6SOP-00034	SM 22 2540 D

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) DOC present in the sample should be considered as non-purgeable DOC.

(2) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Your Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Your C.O.C. #: 08425835, 08425836

**Attention:KAI WOLOSHYN**

ALEXCO ENVIRONMENTAL GROUP INC.  
Unit 3 Calcite Business Centre  
151 Industrial Road  
WHITEHORSE, YT  
Canada Y1A 2V3

**Report Date: 2016/09/12**  
Report #: R2258700  
Version: 3 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**MAXXAM JOB #: B662698**  
**Received: 2016/07/28, 10:15**

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.  
Megan Smith, Project Manager  
Email: msmith@maxxam.ca  
Phone# (604) 734 7276

=====  
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PD1490			PD1491			PD1492		
Sampling Date		2016/07/26 14:20			2016/07/26 20:30			2016/07/26 17:00		
COC Number		08425835			08425835			08425835		
	UNITS	MW15-01	RDL	QC Batch	DUP 2	RDL	QC Batch	BH95G-32	RDL	QC Batch
<b>Calculated Parameters</b>										
Anion Sum	meq/L	3.3	N/A	8345465	4.2	N/A	8345465	3.9	N/A	8345465
Cation Sum	meq/L	3.5	N/A	8345465	4.5	N/A	8345465	4.5	N/A	8345465
Filter and HNO3 Preservation	N/A	LAB	N/A	8345300	LAB	N/A	8345300	LAB	N/A	8345300
Ion Balance	N/A	1.1	0.010	8345464	1.1	0.010	8345464	1.1	0.010	8345464
Nitrate (N)	mg/L	0.260	0.0020	8344863	<0.0020	0.0020	8344863	0.0537	0.0020	8344863
<b>Misc. Inorganics</b>										
Fluoride (F)	mg/L	0.094	0.010	8345979	0.100	0.010	8345979	0.037	0.010	8345979
Dissolved Organic Carbon (C)	mg/L	1.84	0.50	8348797	1.40	0.50	8348797	1.06	0.50	8348801
Acidity (pH 4.5)	mg/L	<0.50	0.50	8346037	<0.50	0.50	8346037	<0.50	0.50	8346037
Alkalinity (Total as CaCO3)	mg/L	122	0.50	8345820	160	0.50	8345820	158	0.50	8345820
Acidity (pH 8.3)	mg/L	1.06	0.50	8346037	2.91	0.50	8346037	3.06	0.50	8346037
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8345820	<0.50	0.50	8345820	<0.50	0.50	8345820
Bicarbonate (HCO3)	mg/L	149	0.50	8345820	195	0.50	8345820	192	0.50	8345820
Carbonate (CO3)	mg/L	<0.50	0.50	8345820	<0.50	0.50	8345820	<0.50	0.50	8345820
Hydroxide (OH)	mg/L	<0.50	0.50	8345820	<0.50	0.50	8345820	<0.50	0.50	8345820
<b>Anions</b>										
Dissolved Sulphate (SO4)	mg/L	39.6	0.50	8348088	45.5	0.50	8348088	35.5	0.50	8348088
Dissolved Chloride (Cl)	mg/L	<0.50	0.50	8348087	1.2	0.50	8348087	0.92	0.50	8348087
<b>Nutrients</b>										
Dissolved Phosphorus (P)	mg/L	0.0065 (1)	0.0020	8348559	0.0193 (1)	0.0020	8348559	0.0092 (1)	0.0020	8348559
Total Ammonia (N)	mg/L	0.11	0.0050	8346034	0.053	0.0050	8369486	0.12	0.0050	8346035
Nitrate plus Nitrite (N)	mg/L	0.263	0.0020	8346009	<0.0020	0.0020	8346011	0.0537	0.0020	8346009
Nitrite (N)	mg/L	0.0031	0.0020	8346010	<0.0020	0.0020	8346012	<0.0020	0.0020	8346010
Total Phosphorus (P)	mg/L	0.0362 (1)	0.0020	8348713	0.261 (1)	0.0020	8348713	0.0783 (1)	0.0020	8348713
<b>Physical Properties</b>										
Conductivity	uS/cm	325	1.0	8345821	404	1.0	8345821	378	1.0	8345821
pH	pH	8.15		8345822	8.24		8345822	7.90		8345822
<b>Physical Properties</b>										
Total Suspended Solids	mg/L	32.4	1.0	8345975	694 (2)	20	8345975	62.8	1.0	8345975
RDL = Reportable Detection Limit N/A = Not Applicable (1) Sample preserved to extend hold time. (2) RDL raised due to high concentration of solids in the sample.										



Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PD1493			PD1494			PD1495		
Sampling Date		2016/07/26 17:40			2016/07/26 20:49			2016/07/26 10:43		
COC Number		08425835			08425835			08425835		
	UNITS	BH95G-33D	RDL	QC Batch	BH95G-21	RDL	QC Batch	BH95G-25S	RDL	QC Batch

**Calculated Parameters**

Anion Sum	meq/L	4.7	N/A	8345465	4.2	N/A	8345465	10	N/A	8345465
Cation Sum	meq/L	5.2	N/A	8345465	4.5	N/A	8345465	12	N/A	8345465
Filter and HNO3 Preservation	N/A	LAB	N/A	8345300	LAB	N/A	8345300	LAB	N/A	8345300
Ion Balance	N/A	1.1	0.010	8345464	1.1	0.010	8345464	1.1	0.010	8345464
Nitrate (N)	mg/L	0.171	0.0020	8344863	0.0035	0.0020	8344863	<0.0020	0.0020	8344863

**Misc. Inorganics**

Fluoride (F)	mg/L	0.062	0.010	8345988	0.096	0.010	8345979	0.140	0.010	8345988
Dissolved Organic Carbon (C)	mg/L	1.08	0.50	8348797	1.61	0.50	8348801	2.45	0.50	8348801
Acidity (pH 4.5)	mg/L	<0.50	0.50	8350392	<0.50	0.50	8346037	<0.50	0.50	8346037
Alkalinity (Total as CaCO3)	mg/L	162	0.50	8345826	161	0.50	8345820	321	0.50	8345820
Acidity (pH 8.3)	mg/L	0.80	0.50	8350392	2.60	0.50	8346037	20.9	0.50	8346037
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8345826	<0.50	0.50	8345820	<0.50	0.50	8345820
Bicarbonate (HCO3)	mg/L	198	0.50	8345826	197	0.50	8345820	392	0.50	8345820
Carbonate (CO3)	mg/L	<0.50	0.50	8345826	<0.50	0.50	8345820	<0.50	0.50	8345820
Hydroxide (OH)	mg/L	<0.50	0.50	8345826	<0.50	0.50	8345820	<0.50	0.50	8345820

**Anions**

Dissolved Sulphate (SO4)	mg/L	69.9	0.50	8349456	46.0	0.50	8348088	189	0.50	8348088
Dissolved Chloride (Cl)	mg/L	<0.50	0.50	8349449	1.4	0.50	8348087	1.3	0.50	8348087

**Nutrients**

Dissolved Phosphorus (P)	mg/L	0.243 (1)	0.0020	8348712	0.0149 (1)	0.0020	8348559	0.0113 (1)	0.0020	8348559
Total Ammonia (N)	mg/L	0.017	0.0050	8346034	0.045	0.0050	8369486	0.91	0.0050	8346035
Nitrate plus Nitrite (N)	mg/L	0.171	0.0020	8346011	0.0035	0.0020	8346011	<0.0020	0.0020	8346011
Nitrite (N)	mg/L	<0.0020	0.0020	8346012	<0.0020	0.0020	8346012	<0.0020	0.0020	8346012
Total Phosphorus (P)	mg/L	0.245 (1)	0.0020	8348715	0.301 (1)	0.0020	8348713	0.0477 (1)	0.0020	8348713

**Physical Properties**

Conductivity	uS/cm	446	1.0	8345830	405	1.0	8345821	942	1.0	8345821
pH	pH	8.05		8345832	8.22		8345822	8.07		8345822

**Physical Properties**

Total Suspended Solids	mg/L	285 (2)	17	8345975	674 (2)	20	8345975	746 (2)	10	8345975
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RDL = Reportable Detection Limit  
 N/A = Not Applicable  
 (1) Sample preserved to extend hold time.  
 (2) RDL raised due to high concentration of solids in the sample.

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PD1496		PD1497			PD1498		
Sampling Date		2016/07/26 12:00		2016/07/26 10:00			2016/07/26 10:20		
COC Number		08425835		08425835			08425835		
	UNITS	MW15-11D	QC Batch	FB-GW	RDL	QC Batch	BH95G-25D	RDL	QC Batch
<b>Calculated Parameters</b>									
Anion Sum	meq/L	5.9	8353996	0.014	N/A	8345465	12	N/A	8353996
Cation Sum	meq/L	6.1	8353996	0.0020	N/A	8345465	12	N/A	8353996
Filter and HNO3 Preservation	N/A	LAB	8345300	LAB	N/A	8345300	LAB	N/A	8345300
Ion Balance	N/A	0.87	8353995	0.15 (1)	0.010	8345464	1.0	0.010	8353995
Nitrate (N)	mg/L	<0.0020	8344863	<0.0020	0.0020	8344863	<0.0020	0.0020	8344863
<b>Misc. Inorganics</b>									
Fluoride (F)	mg/L	0.170	8345988	<0.010	0.010	8345988	0.100	0.010	8345988
Dissolved Organic Carbon (C)	mg/L	3.02	8348801	<0.50	0.50	8348801	2.48	0.50	8348801
Acidity (pH 4.5)	mg/L	<0.50	8350392	<0.50	0.50	8346037	<0.50	0.50	8350392
Alkalinity (Total as CaCO3)	mg/L	226	8345826	0.69	0.50	8345820	346	0.50	8354073
Acidity (pH 8.3)	mg/L	0.84	8350392	<0.50	0.50	8346037	7.58	0.50	8350392
Alkalinity (PP as CaCO3)	mg/L	<0.50	8345826	<0.50	0.50	8345820	<0.50	0.50	8354073
Bicarbonate (HCO3)	mg/L	276	8345826	0.84	0.50	8345820	422	0.50	8354073
Carbonate (CO3)	mg/L	<0.50	8345826	<0.50	0.50	8345820	<0.50	0.50	8354073
Hydroxide (OH)	mg/L	<0.50	8345826	<0.50	0.50	8345820	<0.50	0.50	8354073
<b>Anions</b>									
Dissolved Sulphate (SO4)	mg/L	63.1	8348088	<0.50	0.50	8348088	249	5.0	8355560
Dissolved Chloride (Cl)	mg/L	0.84	8348087	<0.50	0.50	8348087	1.3	0.50	8355558
<b>Nutrients</b>									
Dissolved Phosphorus (P)	mg/L	0.0058 (2)	8348559	<0.0020 (2)	0.0020	8348559	0.0286 (2)	0.0020	8348712
Total Ammonia (N)	mg/L	0.19	8346035	<0.0050	0.0050	8346035	0.20	0.0050	8346034
Nitrate plus Nitrite (N)	mg/L	<0.0020	8346011	<0.0020	0.0020	8346011	<0.0020	0.0020	8346011
Nitrite (N)	mg/L	<0.0020	8346012	<0.0020	0.0020	8346012	<0.0020	0.0020	8346012
Total Phosphorus (P)	mg/L	0.0080 (2)	8348715	<0.0020 (2)	0.0020	8348713	0.0272 (2)	0.0020	8348715
<b>Physical Properties</b>									
Conductivity	uS/cm	546	8345830	1.3	1.0	8345821	1020	1.0	8345830
pH	pH	8.17	8345832	5.69		8345822	7.94		8345832
RDL = Reportable Detection Limit N/A = Not Applicable (1) Ion balance out of optimal range due to high measurement uncertainty at this level (Ion Sum < 0.4 meq/L for both cations and anions). (2) Sample preserved to extend hold time.									

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		PD1496		PD1497			PD1498		
<b>Sampling Date</b>		2016/07/26 12:00		2016/07/26 10:00			2016/07/26 10:20		
<b>COC Number</b>		08425835		08425835			08425835		
	<b>UNITS</b>	<b>MW15-11D</b>	<b>QC Batch</b>	<b>FB-GW</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH95G-25D</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Physical Properties</b>									
Total Suspended Solids	mg/L	9.5	8345975	<1.0	1.0	8345975	426 (1)	10	8345975
RDL = Reportable Detection Limit									
(1) RDL raised due to high concentration of solids in the sample.									

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		PD1499			PD1516			PD1517		
<b>Sampling Date</b>		2016/07/26 09:30			2016/07/27 15:35			2016/07/27 14:28		
<b>COC Number</b>		08425835			08425836			08425836		
	<b>UNITS</b>	<b>BH95G-29</b>	<b>RDL</b>	<b>QC Batch</b>	<b>MW15-08S</b>	<b>RDL</b>	<b>QC Batch</b>	<b>MW15-06</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Calculated Parameters</b>										
Anion Sum	meq/L	4.6	N/A	8345465	3.9	N/A	8345465	3.9	N/A	8345465
Cation Sum	meq/L	5.0	N/A	8345465	4.3	N/A	8345465	4.2	N/A	8345465
Filter and HNO3 Preservation	N/A	LAB	N/A	8345300	LAB	N/A	8345300	LAB	N/A	8345300
Ion Balance	N/A	1.1	0.010	8345464	1.1	0.010	8345464	1.1	0.010	8345464
Nitrate (N)	mg/L	<0.0020	0.0020	8344863	0.266	0.0020	8344863	0.331	0.0020	8344863
<b>Misc. Inorganics</b>										
Fluoride (F)	mg/L	0.130	0.010	8345988	0.091	0.010	8345988	0.120	0.010	8345988
Dissolved Organic Carbon (C)	mg/L	1.16	0.50	8348801	0.71	0.50	8348801	0.54	0.50	8348801
Acidity (pH 4.5)	mg/L	<0.50	0.50	8350392	<0.50	0.50	8350392	<0.50	0.50	8346037
Alkalinity (Total as CaCO3)	mg/L	178	0.50	8345826	165	0.50	8345826	168	0.50	8345826
Acidity (pH 8.3)	mg/L	<0.50	0.50	8350392	<0.50	0.50	8350392	2.17	0.50	8346037
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8345826	<0.50	0.50	8345826	<0.50	0.50	8345826
Bicarbonate (HCO3)	mg/L	217	0.50	8345826	201	0.50	8345826	204	0.50	8345826
Carbonate (CO3)	mg/L	<0.50	0.50	8345826	<0.50	0.50	8345826	<0.50	0.50	8345826
Hydroxide (OH)	mg/L	<0.50	0.50	8345826	<0.50	0.50	8345826	<0.50	0.50	8345826
<b>Anions</b>										
Dissolved Sulphate (SO4)	mg/L	48.1	0.50	8348091	24.5	0.50	8348088	23.0	0.50	8348088
Dissolved Chloride (Cl)	mg/L	1.6	0.50	8348090	1.5	0.50	8348087	1.2	0.50	8348087
<b>Nutrients</b>										
Dissolved Phosphorus (P)	mg/L	2.31 (1)	0.020	8348712	0.0344 (2)	0.0020	8348559	0.105 (2)	0.0020	8348559
Total Ammonia (N)	mg/L	1.2 (3)	0.050	8346035	0.41	0.0050	8346035	0.10	0.0050	8346035
Nitrate plus Nitrite (N)	mg/L	0.0152	0.0020	8346011	0.266	0.0020	8346011	0.331	0.0020	8346011
Nitrite (N)	mg/L	0.0159	0.0020	8346012	<0.0020	0.0020	8346012	<0.0020	0.0020	8346012
Total Phosphorus (P)	mg/L	2.30 (1)	0.020	8348715	0.137 (2)	0.0020	8348715	0.103 (2)	0.0020	8348715
<b>Physical Properties</b>										
Conductivity	uS/cm	436	1.0	8345830	366	1.0	8345830	367	1.0	8345830
pH	pH	8.24		8345832	7.87		8345832	8.12		8345832

RDL = Reportable Detection Limit

N/A = Not Applicable

(1) Detection limits raised due to dilution to bring analyte within the calibrated range. Sample preserved to extend hold time.

(2) Sample preserved to extend hold time.

(3) Detection limits raised due to dilution to bring analyte within the calibrated range.

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		PD1499			PD1516			PD1517		
<b>Sampling Date</b>		2016/07/26 09:30			2016/07/27 15:35			2016/07/27 14:28		
<b>COC Number</b>		08425835			08425836			08425836		
	<b>UNITS</b>	<b>BH95G-29</b>	<b>RDL</b>	<b>QC Batch</b>	<b>MW15-08S</b>	<b>RDL</b>	<b>QC Batch</b>	<b>MW15-06</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Physical Properties</b>										
Total Suspended Solids	mg/L	1210 (1)	20	8345975	244 (1)	10	8345975	62.5 (2)	2.5	8345975

RDL = Reportable Detection Limit  
 (1) RDL raised due to high concentration of solids in the sample.  
 (2) RDL raised due to sample matrix interference.

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PD1518			PD1519			PD1520		
Sampling Date		2016/07/27 13:10			2016/07/27 17:30			2016/07/28 10:15		
COC Number		08425836			08425836			08425836		
	UNITS	MW15-07D	RDL	QC Batch	MW16-15S	RDL	QC Batch	TRIP BLANK	RDL	QC Batch

Calculated Parameters										
Anion Sum	meq/L	4.3	N/A	8345465	2.6	N/A	8345465	0.013	N/A	8345465
Cation Sum	meq/L	4.6	N/A	8345465	2.7	N/A	8345465	0.0021	N/A	8345465
Filter and HNO3 Preservation	N/A	LAB	N/A	8345300	LAB	N/A	8345300		N/A	8345300
Ion Balance	N/A	1.1	0.010	8345464	1.0	0.010	8345464	0.17 (1)	0.010	8345464
Nitrate (N)	mg/L	<0.0020	0.0020	8344863	0.421	0.0020	8344863	<0.0020	0.0020	8344863

Misc. Inorganics										
Fluoride (F)	mg/L	0.360	0.010	8345988	0.054	0.010	8345988	<0.010	0.010	8345988
Dissolved Organic Carbon (C)	mg/L	<0.50	0.50	8348801	1.28	0.50	8348801	<0.50 (2)	0.50	8346758
Acidity (pH 4.5)	mg/L	<0.50	0.50	8350392	<0.50	0.50	8350392	<0.50	0.50	8350392
Alkalinity (Total as CaCO3)	mg/L	182	0.50	8345826	82.1	0.50	8345826	0.63	0.50	8345826
Acidity (pH 8.3)	mg/L	<0.50	0.50	8350392	1.19	0.50	8350392	<0.50	0.50	8350392
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8345826	<0.50	0.50	8345826	<0.50	0.50	8345826
Bicarbonate (HCO3)	mg/L	222	0.50	8345826	100	0.50	8345826	0.77	0.50	8345826
Carbonate (CO3)	mg/L	<0.50	0.50	8345826	<0.50	0.50	8345826	<0.50	0.50	8345826
Hydroxide (OH)	mg/L	<0.50	0.50	8345826	<0.50	0.50	8345826	<0.50	0.50	8345826

Anions										
Dissolved Sulphate (SO4)	mg/L	31.9	0.50	8349456	42.1	0.50	8348088	<0.50	0.50	8348088
Dissolved Chloride (Cl)	mg/L	<0.50	0.50	8349449	1.0	0.50	8348087	<0.50	0.50	8348087

Nutrients										
Dissolved Phosphorus (P)	mg/L	0.0045 (2)	0.0020	8348712	0.0295 (2)	0.0020	8348559	<0.0020 (2)	0.0020	8348559
Total Ammonia (N)	mg/L	0.072	0.0050	8346035	0.047	0.0050	8346035	<0.0050	0.0050	8345078
Nitrate plus Nitrite (N)	mg/L	<0.0020	0.0020	8346011	0.421	0.0020	8346011	<0.0020	0.0020	8346011
Nitrite (N)	mg/L	<0.0020	0.0020	8346012	<0.0020	0.0020	8346012	<0.0020	0.0020	8346012
Total Phosphorus (P)	mg/L	0.0041 (2)	0.0020	8348715	0.274 (2)	0.0020	8348715	<0.0020 (2)	0.0020	8348715

Physical Properties										
Conductivity	uS/cm	404	1.0	8345830	262	1.0	8345830	1.5	1.0	8345830
pH	pH	7.84		8345832	7.85		8345832	5.67		8345832

RDL = Reportable Detection Limit  
 N/A = Not Applicable  
 (1) Ion balance out of optimal range due to high measurement uncertainty at this level (Ion Sum < 0.4 meq/L for both cations and anions).  
 (2) Sample preserved to extend hold time.

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		PD1518			PD1519			PD1520		
<b>Sampling Date</b>		2016/07/27 13:10			2016/07/27 17:30			2016/07/28 10:15		
<b>COC Number</b>		08425836			08425836			08425836		
	<b>UNITS</b>	<b>MW15-07D</b>	<b>RDL</b>	<b>QC Batch</b>	<b>MW16-15S</b>	<b>RDL</b>	<b>QC Batch</b>	<b>TRIP BLANK</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Physical Properties</b>										
Total Suspended Solids	mg/L	4.0 (1)	1.1	8345975	669 (2)	10	8345975	<1.0	1.0	8345975

RDL = Reportable Detection Limit  
 (1) RDL raised due to limited initial sample amount.  
 (2) RDL raised due to high concentration of solids in the sample.

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PD1521			PD1522			PD1523		
Sampling Date		2016/07/27 10:40			2016/07/27 10:15			2016/07/27 11:00		
COC Number		08425836			08425836			08425836		
	UNITS	DUP 3	RDL	QC Batch	MW15-10S	RDL	QC Batch	MW15-10D	RDL	QC Batch
<b>Calculated Parameters</b>										
Anion Sum	meq/L	41	N/A	8353996	7.0	N/A	8345465	40	N/A	8353996
Cation Sum	meq/L	38	N/A	8353996	7.5	N/A	8345465	38	N/A	8353996
Filter and HNO3 Preservation	N/A	LAB	N/A	8345300	LAB	N/A	8345300	LAB	N/A	8345300
Ion Balance	N/A	0.94	0.010	8353995	1.1	0.010	8345464	0.95	0.010	8353995
Nitrate (N)	mg/L	0.0022	0.0020	8344863	0.147	0.0020	8344863	0.0035	0.0020	8344863
<b>Misc. Inorganics</b>										
Fluoride (F)	mg/L	1.40	0.010	8345988	0.220	0.010	8345988	1.40	0.010	8345988
Dissolved Organic Carbon (C)	mg/L	0.53	0.50	8348797	1.15	0.50	8348797	0.56	0.50	8348797
Acidity (pH 4.5)	mg/L	<0.50	0.50	8350392	<0.50	0.50	8350392	<0.50	0.50	8350392
Alkalinity (Total as CaCO3)	mg/L	2010	0.50	8354073	320	0.50	8345826	2000	0.50	8354073
Acidity (pH 8.3)	mg/L	429	0.50	8350392	34.0	0.50	8350392	866	0.50	8350392
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8354073	<0.50	0.50	8345826	<0.50	0.50	8354073
Bicarbonate (HCO3)	mg/L	2450	0.50	8354073	391	0.50	8345826	2430	0.50	8354073
Carbonate (CO3)	mg/L	<0.50	0.50	8354073	<0.50	0.50	8345826	<0.50	0.50	8354073
Hydroxide (OH)	mg/L	<0.50	0.50	8354073	<0.50	0.50	8345826	<0.50	0.50	8354073
<b>Anions</b>										
Dissolved Sulphate (SO4)	mg/L	15.3	0.50	8355560	28.3	0.50	8348088	9.99	0.50	8355560
Dissolved Chloride (Cl)	mg/L	4.0	0.50	8355558	1.2	0.50	8348087	4.0	0.50	8355558
<b>Nutrients</b>										
Dissolved Phosphorus (P)	mg/L	0.0123 (1)	0.0020	8348559	0.0101 (1)	0.0020	8348559	0.0263 (1)	0.0020	8348712
Total Ammonia (N)	mg/L	0.25	0.0050	8369486	0.28	0.0050	8346034	0.24	0.0050	8369486
Nitrate plus Nitrite (N)	mg/L	0.0022	0.0020	8346011	0.147	0.0020	8346011	0.0035	0.0020	8346011
Nitrite (N)	mg/L	<0.0020	0.0020	8346012	<0.0020	0.0020	8346012	<0.0020	0.0020	8346012
Total Phosphorus (P)	mg/L	0.0833 (1)	0.0020	8348715	0.118 (1)	0.0020	8348715	0.0749 (1)	0.0020	8348715
<b>Physical Properties</b>										
Conductivity	uS/cm	2940	1.0	8345830	666	1.0	8345830	2920	1.0	8345830
pH	pH	6.79		8345832	6.81		8345832	6.83		8345832
RDL = Reportable Detection Limit N/A = Not Applicable (1) Sample preserved to extend hold time.										



Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		PD1521			PD1522			PD1523		
<b>Sampling Date</b>		2016/07/27 10:40			2016/07/27 10:15			2016/07/27 11:00		
<b>COC Number</b>		08425836			08425836			08425836		
	<b>UNITS</b>	<b>DUP 3</b>	<b>RDL</b>	<b>QC Batch</b>	<b>MW15-10S</b>	<b>RDL</b>	<b>QC Batch</b>	<b>MW15-10D</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Physical Properties</b>										
Total Suspended Solids	mg/L	181	1.0	8345978	2240 (1)	20	8345978	170 (2)	1.0	8345978

RDL = Reportable Detection Limit  
 (1) RDL raised due to high concentration of solids in the sample.  
 (2) RDL raised due to limited initial sample amount.

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		PD1524	PD1525		PD1526		
Sampling Date		2016/07/27 11:40	2016/07/26 12:20		2016/07/27 09:40		
COC Number		08425836	08425836		08425836		
	UNITS	MW15-07S	MW15-11S	QC Batch	MW15-09S	RDL	QC Batch
<b>Calculated Parameters</b>							
Anion Sum	meq/L	4.0	6.0	8345465	4.3	N/A	8345465
Cation Sum	meq/L	4.4	6.3	8345465	4.7	N/A	8345465
Filter and HNO3 Preservation	N/A	LAB	LAB	8345300	LAB	N/A	8345300
Ion Balance	N/A	1.1	1.1	8345464	1.1	0.010	8345464
Nitrate (N)	mg/L	<0.0020	<0.0020	8344863	0.0652	0.0020	8344863
<b>Misc. Inorganics</b>							
Fluoride (F)	mg/L	0.310	0.170	8345988	0.250	0.010	8345988
Dissolved Organic Carbon (C)	mg/L	0.53	2.64	8348797	0.72	0.50	8348797
Acidity (pH 4.5)	mg/L	<0.50	<0.50	8350392	<0.50	0.50	8350392
Alkalinity (Total as CaCO3)	mg/L	166	232	8345826	196	0.50	8345826
Acidity (pH 8.3)	mg/L	0.67	1.36	8350392	<0.50	0.50	8350392
Alkalinity (PP as CaCO3)	mg/L	<0.50	<0.50	8345826	<0.50	0.50	8345826
Bicarbonate (HCO3)	mg/L	203	283	8345826	240	0.50	8345826
Carbonate (CO3)	mg/L	<0.50	<0.50	8345826	<0.50	0.50	8345826
Hydroxide (OH)	mg/L	<0.50	<0.50	8345826	<0.50	0.50	8345826
<b>Anions</b>							
Dissolved Sulphate (SO4)	mg/L	31.2	61.5	8348088	17.2	0.50	8348088
Dissolved Chloride (Cl)	mg/L	0.62	0.99	8348087	0.59	0.50	8348087
<b>Nutrients</b>							
Dissolved Phosphorus (P)	mg/L	0.0033 (1)	0.0206 (1)	8348559	0.142 (2)	0.0020	8355299
Total Ammonia (N)	mg/L	0.051	0.30	8346034	0.052	0.0050	8346034
Nitrate plus Nitrite (N)	mg/L	<0.0020	<0.0020	8346011	0.0672	0.0020	8346011
Nitrite (N)	mg/L	<0.0020	<0.0020	8346012	0.0020	0.0020	8346012
Total Phosphorus (P)	mg/L	0.0053 (1)	0.0193 (1)	8348715	0.181 (2)	0.0020	8355296
<b>Physical Properties</b>							
Conductivity	uS/cm	391	556	8345830	412	1.0	8345830
pH	pH	8.19	8.22	8345832	8.19		8345832
RDL = Reportable Detection Limit N/A = Not Applicable (1) Sample preserved to extend hold time. (2) Sample was originally analysed within hold time. Data quality required investigation. Re-analysis was completed past recommended hold time.							

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PD1524	PD1525		PD1526		
Sampling Date		2016/07/27 11:40	2016/07/26 12:20		2016/07/27 09:40		
COC Number		08425836	08425836		08425836		
	UNITS	MW15-07S	MW15-11S	QC Batch	MW15-09S	RDL	QC Batch
<b>Physical Properties</b>							
Total Suspended Solids	mg/L	5.2 (1)	21.3	8345978	69.4	1.0	8345978
RDL = Reportable Detection Limit							
(1) RDL raised due to limited initial sample amount.							

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PD1490	PD1491	PD1492		PD1493		
Sampling Date		2016/07/26 14:20	2016/07/26 20:30	2016/07/26 17:00		2016/07/26 17:40		
COC Number		08425835	08425835	08425835		08425835		
	UNITS	MW15-01	DUP 2	BH95G-32	QC Batch	BH95G-33D	RDL	QC Batch
<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO3)	mg/L	174	221	216	8344822	256	0.50	8344822
<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	<0.000020	<0.000020	<0.000020	8349667	<0.000020	0.000020	8349667
<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	0.00721	0.00122	0.00274	8348505	0.00115	0.00050	8348505
Dissolved Antimony (Sb)	mg/L	0.000023	0.000243	0.000035	8348505	0.000022	0.000020	8348505
Dissolved Arsenic (As)	mg/L	0.000192	0.000684	0.000241	8348505	0.000433	0.000020	8348505
Dissolved Barium (Ba)	mg/L	0.0146	0.0576	0.174	8348505	0.0873	0.000020	8348505
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	8348505	<0.000010	0.000010	8348505
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	8348505	<0.0000050	0.0000050	8348505
Dissolved Boron (B)	mg/L	<0.010	<0.010	<0.010	8348505	<0.010	0.010	8348505
Dissolved Cadmium (Cd)	mg/L	0.0000090	0.0000090	0.0000460	8348505	<0.0000050	0.0000050	8348505
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	<0.00010	8348505	<0.00010	0.00010	8348505
Dissolved Cobalt (Co)	mg/L	0.0000110	0.0000320	0.000312	8348505	0.0000070	0.0000050	8348505
Dissolved Copper (Cu)	mg/L	0.000612	0.000206	0.000230	8348505	0.000089	0.000050	8348505
Dissolved Iron (Fe)	mg/L	<0.0010	<0.0010	<0.0010	8348505	<0.0010	0.0010	8348505
Dissolved Lead (Pb)	mg/L	<0.0000050	0.0000070	<0.0000050	8348505	<0.0000050	0.0000050	8348505
Dissolved Lithium (Li)	mg/L	0.00124	0.00559	0.00123	8348505	0.00133	0.00050	8348505
Dissolved Manganese (Mn)	mg/L	0.000111	0.0412	0.0715	8348505	0.00252	0.000050	8348505
Dissolved Molybdenum (Mo)	mg/L	0.000809	0.000346 (1)	0.000668	8348505	0.00175 (1)	0.000050	8355011
Dissolved Nickel (Ni)	mg/L	0.000187	0.000122	0.00155	8348505	0.00119	0.000020	8348505
Dissolved Phosphorus (P)	mg/L	<0.0020	<0.0020	<0.0020	8348505	<0.0020	0.0020	8348505
Dissolved Selenium (Se)	mg/L	0.000268	0.000075	0.000768	8348505	0.00514	0.000040	8348505
Dissolved Silicon (Si)	mg/L	1.89	3.93	2.53	8348505	3.19	0.050	8348505
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	<0.0000050	8348505	<0.0000050	0.0000050	8348505
Dissolved Strontium (Sr)	mg/L	0.148	0.199	0.265	8348505	0.238	0.000050	8348505
Dissolved Thallium (Tl)	mg/L	<0.0000020	0.0000070	0.0000070	8348505	0.0000020	0.0000020	8348505
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	8348505	<0.00020	0.00020	8348505
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	<0.00050	8348505	<0.00050	0.00050	8348505
Dissolved Uranium (U)	mg/L	0.00163	0.00496	0.00112	8348505	0.00511	0.0000020	8348505
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	8348505	<0.00020	0.00020	8348505
RDL = Reportable Detection Limit								
(1) Dissolved greater than total. Reanalysis yields similar results.								

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PD1490	PD1491	PD1492		PD1493		
Sampling Date		2016/07/26 14:20	2016/07/26 20:30	2016/07/26 17:00		2016/07/26 17:40		
COC Number		08425835	08425835	08425835		08425835		
	UNITS	MW15-01	DUP 2	BH95G-32	QC Batch	BH95G-33D	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	<0.00010	<0.00010	<0.00010	8348505	<0.00010	0.00010	8348505
Dissolved Zirconium (Zr)	mg/L	<0.00010	<0.00010	<0.00010	8348505	<0.00010	0.00010	8348505
Dissolved Calcium (Ca)	mg/L	58.6	68.8	79.3	8344823	86.0	0.050	8344823
Dissolved Magnesium (Mg)	mg/L	6.59	12.0	4.25	8344823	9.92	0.050	8344823
Dissolved Potassium (K)	mg/L	0.444	1.32	4.18	8344823	0.922	0.050	8344823
Dissolved Sodium (Na)	mg/L	0.755	0.916	0.652	8344823	0.751	0.050	8344823
Dissolved Sulphur (S)	mg/L	14.4	16.2	11.8	8344823	22.6	3.0	8344823
RDL = Reportable Detection Limit								

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PD1494		PD1495		PD1496		
Sampling Date		2016/07/26 20:49		2016/07/26 10:43		2016/07/26 12:00		
COC Number		08425835		08425835		08425835		
	UNITS	BH95G-21	QC Batch	BH95G-25S	QC Batch	MW15-11D	RDL	QC Batch
<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO3)	mg/L	220	8344822	567	8344822	290	0.50	8353872
<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	<0.0000020	8349667	<0.0000020	8349667	<0.0000020	0.0000020	8349667
<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	0.00076	8348505	<0.00050	8348505	0.00149	0.00050	8355011
Dissolved Antimony (Sb)	mg/L	0.000231	8348505	0.000025	8348505	0.000059	0.000020	8355011
Dissolved Arsenic (As)	mg/L	0.000691	8348505	0.00127	8348505	0.000154	0.000020	8355011
Dissolved Barium (Ba)	mg/L	0.0577	8348505	0.0628	8348505	0.0316	0.000020	8355011
Dissolved Beryllium (Be)	mg/L	<0.000010	8348505	<0.000010	8348505	<0.000010	0.000010	8355011
Dissolved Bismuth (Bi)	mg/L	<0.0000050	8348505	<0.0000050	8348505	<0.0000050	0.0000050	8355011
Dissolved Boron (B)	mg/L	<0.010	8348505	<0.010	8348505	<0.010	0.010	8355011
Dissolved Cadmium (Cd)	mg/L	0.0000080	8348505	0.0000100	8348505	<0.0000050	0.0000050	8355011
Dissolved Chromium (Cr)	mg/L	<0.00010	8348505	<0.00010	8348505	<0.00010	0.00010	8355011
Dissolved Cobalt (Co)	mg/L	0.0000380	8348505	0.000266	8348505	0.0000460	0.0000050	8355011
Dissolved Copper (Cu)	mg/L	0.000197	8348505	0.000113	8348505	<0.000050	0.000050	8355011
Dissolved Iron (Fe)	mg/L	<0.0010	8348505	0.0011	8348505	0.0010	0.0010	8355011
Dissolved Lead (Pb)	mg/L	<0.0000050	8348505	<0.0000050	8348505	<0.0000050	0.0000050	8355011
Dissolved Lithium (Li)	mg/L	0.00555	8348505	0.0123	8348505	0.0101	0.00050	8355011
Dissolved Manganese (Mn)	mg/L	0.0411	8348505	0.406	8348505	0.134	0.000050	8355011
Dissolved Molybdenum (Mo)	mg/L	0.000338 (1)	8355011	0.00175	8348505	0.000419	0.000050	8355011
Dissolved Nickel (Ni)	mg/L	0.000121	8348505	0.000497	8348505	0.000087	0.000020	8355011
Dissolved Phosphorus (P)	mg/L	<0.0020	8348505	<0.0020	8348505	<0.0020	0.0020	8355011
Dissolved Selenium (Se)	mg/L	0.000077	8348505	<0.000040	8348505	<0.000040	0.000040	8355011
Dissolved Silicon (Si)	mg/L	3.91	8348505	6.35	8348505	4.49 (1)	0.050	8355011
Dissolved Silver (Ag)	mg/L	<0.0000050	8348505	<0.0000050	8348505	<0.0000050	0.0000050	8355011
Dissolved Strontium (Sr)	mg/L	0.194	8348505	0.499	8348505	0.487	0.000050	8355011
Dissolved Thallium (Tl)	mg/L	0.0000080	8348505	0.0000030	8348505	<0.0000020	0.0000020	8355011
Dissolved Tin (Sn)	mg/L	<0.00020	8348505	<0.00020	8348505	<0.00020	0.00020	8355011
Dissolved Titanium (Ti)	mg/L	<0.00050	8348505	<0.00050	8348505	<0.00050	0.00050	8355011
Dissolved Uranium (U)	mg/L	0.00494	8348505	0.00339	8348505	0.0100	0.0000020	8355011
Dissolved Vanadium (V)	mg/L	<0.00020	8348505	<0.00020	8348505	<0.00020	0.00020	8355011
RDL = Reportable Detection Limit								
(1) Dissolved greater than total. Reanalysis yields similar results.								

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PD1494		PD1495		PD1496		
Sampling Date		2016/07/26 20:49		2016/07/26 10:43		2016/07/26 12:00		
COC Number		08425835		08425835		08425835		
	UNITS	BH95G-21	QC Batch	BH95G-25S	QC Batch	MW15-11D	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	<0.00010	8348505	<0.00010	8348505	0.00067	0.00010	8355011
Dissolved Zirconium (Zr)	mg/L	<0.00010	8348505	<0.00010	8348505	<0.00010	0.00010	8355011
Dissolved Calcium (Ca)	mg/L	67.9	8344823	156	8344823	75.9	0.050	8353967
Dissolved Magnesium (Mg)	mg/L	12.2	8344823	43.3	8344823	24.4 (1)	0.050	8353967
Dissolved Potassium (K)	mg/L	1.29	8344823	5.70	8344823	4.05 (1)	0.050	8353967
Dissolved Sodium (Na)	mg/L	0.937	8344823	3.79	8344823	3.18	0.050	8353967
Dissolved Sulphur (S)	mg/L	16.5	8344823	72.4	8344823	22.6 (1)	3.0	8353967

RDL = Reportable Detection Limit

(1) Dissolved greater than total. Reanalysis yields similar results.

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PD1497		PD1498		PD1499		
Sampling Date		2016/07/26 10:00		2016/07/26 10:20		2016/07/26 09:30		
COC Number		08425835		08425835		08425835		
	UNITS	FB-GW	QC Batch	BH95G-25D	QC Batch	BH95G-29	RDL	QC Batch
<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO3)	mg/L	<0.50	8344822	603	8353872	239	0.50	8344822
<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	<0.000020	8349667	<0.000020	8349667	<0.000020	0.000020	8349667
<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	<0.00050	8348505	0.00117	8355011	0.00109	0.00050	8348505
Dissolved Antimony (Sb)	mg/L	<0.000020	8348505	0.000164	8355011	0.000516	0.000020	8348505
Dissolved Arsenic (As)	mg/L	<0.000020	8348505	0.000597	8355011	0.00466	0.000020	8348505
Dissolved Barium (Ba)	mg/L	<0.000020	8348505	0.0257	8355011	0.0529	0.000020	8348505
Dissolved Beryllium (Be)	mg/L	<0.000010	8348505	<0.000010	8355011	<0.000010	0.000010	8348505
Dissolved Bismuth (Bi)	mg/L	<0.0000050	8348505	<0.0000050	8355011	<0.0000050	0.0000050	8348505
Dissolved Boron (B)	mg/L	<0.010	8348505	<0.010	8355011	<0.010	0.010	8348505
Dissolved Cadmium (Cd)	mg/L	<0.0000050	8348505	0.0000100	8355011	0.0000310	0.0000050	8348505
Dissolved Chromium (Cr)	mg/L	<0.00010	8348505	<0.00010	8355011	<0.00010	0.00010	8348505
Dissolved Cobalt (Co)	mg/L	<0.0000050	8348505	0.000788	8355011	0.000105	0.0000050	8348505
Dissolved Copper (Cu)	mg/L	<0.000050	8348505	0.000115	8355011	0.000141	0.000050	8348505
Dissolved Iron (Fe)	mg/L	<0.0010	8348505	<0.0010	8355011	<0.0010	0.0010	8348505
Dissolved Lead (Pb)	mg/L	<0.0000050	8348505	<0.0000050	8355011	0.0000300	0.0000050	8348505
Dissolved Lithium (Li)	mg/L	<0.00050	8348505	0.0128	8355011	0.00528	0.00050	8348505
Dissolved Manganese (Mn)	mg/L	<0.000050	8348505	0.392	8355011	0.157	0.000050	8348505
Dissolved Molybdenum (Mo)	mg/L	<0.000050	8348505	0.000433	8355011	0.00111	0.000050	8348505
Dissolved Nickel (Ni)	mg/L	<0.000020	8348505	0.00176	8355011	0.000682	0.000020	8348505
Dissolved Phosphorus (P)	mg/L	0.0025	8348505	<0.0020	8355011	0.161	0.0020	8348505
Dissolved Selenium (Se)	mg/L	<0.000040	8348505	<0.000040	8355011	0.000076	0.000040	8348505
Dissolved Silicon (Si)	mg/L	<0.050	8348505	5.72	8355011	3.72	0.050	8348505
Dissolved Silver (Ag)	mg/L	<0.0000050	8348505	<0.0000050	8355011	<0.0000050	0.0000050	8348505
Dissolved Strontium (Sr)	mg/L	<0.000050	8348505	0.553	8355011	0.281	0.000050	8348505
Dissolved Thallium (Tl)	mg/L	<0.0000020	8348505	0.0000050	8355011	0.0000040	0.0000020	8348505
Dissolved Tin (Sn)	mg/L	<0.00020	8348505	<0.00020	8355011	<0.00020	0.00020	8348505
Dissolved Titanium (Ti)	mg/L	<0.00050	8348505	<0.00050	8355011	<0.00050	0.00050	8348505
Dissolved Uranium (U)	mg/L	<0.0000020	8348505	0.00689	8355011	0.00340	0.0000020	8348505
Dissolved Vanadium (V)	mg/L	<0.00020	8348505	<0.00020	8355011	0.00048	0.00020	8348505
Dissolved Zinc (Zn)	mg/L	<0.00010	8348505	0.0153	8355011	0.00117	0.00010	8348505
RDL = Reportable Detection Limit								



Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PD1497		PD1498		PD1499		
Sampling Date		2016/07/26 10:00		2016/07/26 10:20		2016/07/26 09:30		
COC Number		08425835		08425835		08425835		
	UNITS	FB-GW	QC Batch	BH95G-25D	QC Batch	BH95G-29	RDL	QC Batch
Dissolved Zirconium (Zr)	mg/L	<0.00010	8348505	0.00031	8355011	<0.00010	0.00010	8348505
Dissolved Calcium (Ca)	mg/L	<0.050	8344823	148	8353967	79.1	0.050	8344823
Dissolved Magnesium (Mg)	mg/L	<0.050	8344823	56.8	8353967	10.1	0.050	8344823
Dissolved Potassium (K)	mg/L	<0.050	8344823	4.49	8353967	2.81	0.050	8344823
Dissolved Sodium (Na)	mg/L	<0.050	8344823	2.07	8353967	1.17	0.050	8344823
Dissolved Sulphur (S)	mg/L	<3.0	8344823	91.2	8353967	16.9	3.0	8344823
RDL = Reportable Detection Limit								

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PD1516	PD1517		PD1518	PD1519		
Sampling Date		2016/07/27 15:35	2016/07/27 14:28		2016/07/27 13:10	2016/07/27 17:30		
COC Number		08425836	08425836		08425836	08425836		
	UNITS	MW15-08S	MW15-06	QC Batch	MW15-07D	MW16-15S	RDL	QC Batch
<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO3)	mg/L	209	206	8344822	216	129	0.50	8344822
<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	<0.000020	<0.000020	8349667	<0.000020	0.000030	0.000020	8349728
<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	0.00286	0.00205	8348505	0.00076	0.00411	0.00050	8348505
Dissolved Antimony (Sb)	mg/L	0.000031	0.000021	8348505	<0.000020	0.000179	0.000020	8348505
Dissolved Arsenic (As)	mg/L	0.000354	0.000069	8348505	<0.000020	0.000484	0.000020	8348505
Dissolved Barium (Ba)	mg/L	0.0848	0.0750	8348505	0.0370	0.0678	0.000020	8348505
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	8348505	<0.000010	<0.000010	0.000010	8348505
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	8348505	<0.0000050	<0.0000050	0.0000050	8348505
Dissolved Boron (B)	mg/L	<0.010	<0.010	8348505	<0.010	<0.010	0.010	8348505
Dissolved Cadmium (Cd)	mg/L	0.0000840	0.000146	8348505	<0.0000050	0.00196	0.0000050	8348505
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	8348505	<0.00010	<0.00010	0.00010	8348505
Dissolved Cobalt (Co)	mg/L	0.0000500	0.0000080	8348505	0.0000050	0.00104	0.0000050	8348505
Dissolved Copper (Cu)	mg/L	0.000761	0.000493	8348505	0.000149	0.00531	0.000050	8348505
Dissolved Iron (Fe)	mg/L	<0.0010	<0.0010	8348505	0.0045	0.0012	0.0010	8348505
Dissolved Lead (Pb)	mg/L	0.0000930	0.0000110	8348505	<0.0000050	0.000215	0.0000050	8348505
Dissolved Lithium (Li)	mg/L	0.00216	0.00164	8348505	0.0120	0.00213	0.00050	8348505
Dissolved Manganese (Mn)	mg/L	0.000558	0.000099	8348505	0.0532	0.200	0.000050	8348505
Dissolved Molybdenum (Mo)	mg/L	0.00197	0.00292	8348505	<0.000050	0.000989	0.000050	8348505
Dissolved Nickel (Ni)	mg/L	0.000862	0.000507	8348505	<0.000020	0.00388	0.000020	8348505
Dissolved Phosphorus (P)	mg/L	<0.0020	<0.0020	8348505	<0.0020	<0.0020	0.0020	8348505
Dissolved Selenium (Se)	mg/L	0.00171	0.00260	8348505	<0.000040	0.00289	0.000040	8348505
Dissolved Silicon (Si)	mg/L	3.75	3.50	8348505	8.54	3.70	0.050	8348505
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	8348505	<0.0000050	<0.0000050	0.0000050	8348505
Dissolved Strontium (Sr)	mg/L	0.218	0.214	8348505	0.311	0.112	0.000050	8348505
Dissolved Thallium (Tl)	mg/L	0.0000090	0.0000030	8348505	<0.0000020	0.0000310	0.0000020	8348505
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	8348505	<0.00020	<0.00020	0.00020	8348505
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	8348505	<0.00050	<0.00050	0.00050	8348505
Dissolved Uranium (U)	mg/L	0.00235	0.00273	8348505	0.000936	0.00205	0.0000020	8348505
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	8348505	<0.00020	<0.00020	0.00020	8348505
Dissolved Zinc (Zn)	mg/L	0.00145	0.00143	8348505	<0.00010	0.0955	0.00010	8348505
RDL = Reportable Detection Limit								

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PD1516	PD1517		PD1518	PD1519		
Sampling Date		2016/07/27 15:35	2016/07/27 14:28		2016/07/27 13:10	2016/07/27 17:30		
COC Number		08425836	08425836		08425836	08425836		
	UNITS	MW15-08S	MW15-06	QC Batch	MW15-07D	MW16-15S	RDL	QC Batch
Dissolved Zirconium (Zr)	mg/L	<0.00010	<0.00010	8348505	<0.00010	<0.00010	0.00010	8348505
Dissolved Calcium (Ca)	mg/L	73.7	72.6	8344823	63.2	42.6	0.050	8344823
Dissolved Magnesium (Mg)	mg/L	6.02	6.10	8344823	14.1	5.53	0.050	8344823
Dissolved Potassium (K)	mg/L	1.27	1.59	8344823	1.50	2.27	0.050	8344823
Dissolved Sodium (Na)	mg/L	1.23	1.33	8344823	4.45	0.775	0.050	8344823
Dissolved Sulphur (S)	mg/L	8.7	7.8	8344823	10.6	14.5	3.0	8344823
RDL = Reportable Detection Limit								

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PD1520		PD1521		PD1522		
Sampling Date		2016/07/28 10:15		2016/07/27 10:40		2016/07/27 10:15		
COC Number		08425836		08425836		08425836		
	UNITS	TRIP BLANK	QC Batch	DUP 3	QC Batch	MW15-10S	RDL	QC Batch
<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO3)	mg/L	<0.50	8344822	1840	8353872	351	0.50	8344822
<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	<0.000020	8349728	<0.000020	8349728	<0.000020	0.000020	8349728
<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	<0.00050	8348505	0.0103	8355011	0.00134	0.00050	8348505
Dissolved Antimony (Sb)	mg/L	<0.000020	8348505	<0.000020	8355011	0.000101	0.000020	8348505
Dissolved Arsenic (As)	mg/L	<0.000020	8348505	0.000184	8355011	0.00351	0.000020	8348505
Dissolved Barium (Ba)	mg/L	<0.000020	8348505	0.272	8355011	0.146	0.000020	8348505
Dissolved Beryllium (Be)	mg/L	<0.000010	8348505	0.000372	8355011	0.000016	0.000010	8348505
Dissolved Bismuth (Bi)	mg/L	<0.0000050	8348505	<0.0000050	8355011	<0.0000050	0.0000050	8348505
Dissolved Boron (B)	mg/L	<0.010	8348505	0.012	8355011	<0.010	0.010	8348505
Dissolved Cadmium (Cd)	mg/L	<0.0000050	8348505	0.0000770	8355011	0.00139	0.0000050	8348505
Dissolved Chromium (Cr)	mg/L	<0.00010	8348505	<0.00010	8355011	<0.00010	0.00010	8348505
Dissolved Cobalt (Co)	mg/L	<0.0000050	8348505	0.000212	8355011	0.00802	0.0000050	8348505
Dissolved Copper (Cu)	mg/L	<0.000050	8348505	0.000066	8355011	0.00118	0.000050	8348505
Dissolved Iron (Fe)	mg/L	<0.0010	8348505	0.110	8355011	0.0011	0.0010	8348505
Dissolved Lead (Pb)	mg/L	<0.0000050	8348505	0.0000110	8355011	0.0000110	0.0000050	8348505
Dissolved Lithium (Li)	mg/L	<0.00050	8348505	0.209	8355011	0.00475	0.00050	8348505
Dissolved Manganese (Mn)	mg/L	<0.000050	8348505	5.16	8355011	1.27	0.000050	8348505
Dissolved Molybdenum (Mo)	mg/L	<0.000050	8348505	0.00101 (1)	8355011	0.00255	0.000050	8348505
Dissolved Nickel (Ni)	mg/L	<0.000020	8348505	0.000609	8355011	0.0158	0.000020	8348505
Dissolved Phosphorus (P)	mg/L	<0.0020	8348505	<0.0020	8355011	<0.0020	0.0020	8348505
Dissolved Selenium (Se)	mg/L	<0.000040	8348505	<0.000040	8355011	0.00242	0.000040	8348505
Dissolved Silicon (Si)	mg/L	<0.050	8348505	34.8	8355011	4.99	0.050	8348505
Dissolved Silver (Ag)	mg/L	<0.0000050	8348505	0.0000050	8355011	<0.0000050	0.0000050	8348505
Dissolved Strontium (Sr)	mg/L	<0.000050	8348505	3.03 (1)	8355011	0.555	0.000050	8348505
Dissolved Thallium (Tl)	mg/L	<0.0000020	8348505	0.0000020	8355011	0.0000090	0.0000020	8348505
Dissolved Tin (Sn)	mg/L	<0.00020	8348505	<0.00020	8355011	<0.00020	0.00020	8348505
Dissolved Titanium (Ti)	mg/L	<0.00050	8348505	<0.00050	8355011	<0.00050	0.00050	8348505
Dissolved Uranium (U)	mg/L	<0.0000020	8348505	0.000272	8355011	0.00269	0.0000020	8348505
Dissolved Vanadium (V)	mg/L	<0.00020	8348505	<0.00020	8355011	<0.00020	0.00020	8348505
RDL = Reportable Detection Limit								
(1) Dissolved greater than total. Reanalysis yields similar results.								

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PD1520		PD1521		PD1522		
Sampling Date		2016/07/28 10:15		2016/07/27 10:40		2016/07/27 10:15		
COC Number		08425836		08425836		08425836		
	UNITS	TRIP BLANK	QC Batch	DUP 3	QC Batch	MW15-10S	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	<0.00010	8348505	0.00210	8355011	0.0137	0.00010	8348505
Dissolved Zirconium (Zr)	mg/L	<0.00010	8348505	0.00194	8355011	<0.00010	0.00010	8348505
Dissolved Calcium (Ca)	mg/L	<0.050	8344823	622	8353967	126	0.050	8344823
Dissolved Magnesium (Mg)	mg/L	<0.050	8344823	70.8	8353967	8.64	0.050	8344823
Dissolved Potassium (K)	mg/L	<0.050	8344823	8.48	8353967	2.01	0.050	8344823
Dissolved Sodium (Na)	mg/L	<0.050	8344823	20.7	8353967	9.38	0.050	8344823
Dissolved Sulphur (S)	mg/L	<3.0	8344823	3.4	8353967	9.7	3.0	8344823
RDL = Reportable Detection Limit								

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PD1523		PD1524	PD1525		
Sampling Date		2016/07/27 11:00		2016/07/27 11:40	2016/07/26 12:20		
COC Number		08425836		08425836	08425836		
	UNITS	MW15-10D	QC Batch	MW15-07S	MW15-11S	RDL	QC Batch
<b>Misc. Inorganics</b>							
Dissolved Hardness (CaCO3)	mg/L	1840	8353872	209	299	0.50	8344822
<b>Elements</b>							
Dissolved Mercury (Hg)	mg/L	<0.000020	8349728	<0.000020	<0.000020	0.000020	8349728
<b>Dissolved Metals by ICPMS</b>							
Dissolved Aluminum (Al)	mg/L	0.0122	8355011	0.00056	0.00077	0.00050	8348505
Dissolved Antimony (Sb)	mg/L	<0.000020	8355011	<0.000020	0.000134	0.000020	8348505
Dissolved Arsenic (As)	mg/L	0.000171	8355011	0.00114	0.000880	0.000020	8348505
Dissolved Barium (Ba)	mg/L	0.273	8355011	0.0308	0.0550	0.000020	8348505
Dissolved Beryllium (Be)	mg/L	0.000411	8355011	<0.000010	<0.000010	0.000010	8348505
Dissolved Bismuth (Bi)	mg/L	<0.0000050	8355011	<0.0000050	<0.0000050	0.0000050	8348505
Dissolved Boron (B)	mg/L	0.012	8355011	<0.010	<0.010	0.010	8348505
Dissolved Cadmium (Cd)	mg/L	0.0000610	8355011	<0.0000050	0.0000080	0.0000050	8348505
Dissolved Chromium (Cr)	mg/L	<0.00010	8355011	<0.00010	<0.00010	0.00010	8348505
Dissolved Cobalt (Co)	mg/L	0.000211	8355011	0.000106	0.000348	0.0000050	8348505
Dissolved Copper (Cu)	mg/L	0.000050	8355011	<0.000050	<0.000050	0.000050	8348505
Dissolved Iron (Fe)	mg/L	0.199	8355011	0.0045	0.0016	0.0010	8348505
Dissolved Lead (Pb)	mg/L	0.0000080	8355011	<0.0000050	<0.0000050	0.0000050	8348505
Dissolved Lithium (Li)	mg/L	0.216	8355011	0.00698	0.00997	0.00050	8348505
Dissolved Manganese (Mn)	mg/L	5.20	8355011	0.148	0.824	0.000050	8348505
Dissolved Molybdenum (Mo)	mg/L	0.000342	8355011	0.000215	0.00137	0.000050	8348505
Dissolved Nickel (Ni)	mg/L	0.000566	8355011	0.000129	0.000819	0.000020	8348505
Dissolved Phosphorus (P)	mg/L	<0.0020	8355011	<0.0020	<0.0020	0.0020	8348505
Dissolved Selenium (Se)	mg/L	<0.000040	8355011	<0.000040	<0.000040	0.000040	8348505
Dissolved Silicon (Si)	mg/L	34.5	8355011	7.60	4.77	0.050	8348505
Dissolved Silver (Ag)	mg/L	0.0000050	8371830	<0.0000050	<0.0000050	0.0000050	8348505
Dissolved Strontium (Sr)	mg/L	2.80	8348505	0.264	0.488	0.000050	8348505
Dissolved Thallium (Tl)	mg/L	0.0000020	8355011	<0.0000020	0.0000020	0.0000020	8348505
Dissolved Tin (Sn)	mg/L	<0.00020	8355011	<0.00020	<0.00020	0.00020	8348505
Dissolved Titanium (Ti)	mg/L	<0.00050	8355011	<0.00050	<0.00050	0.00050	8348505
Dissolved Uranium (U)	mg/L	0.000271	8355011	0.00166	0.00999	0.0000020	8348505
Dissolved Vanadium (V)	mg/L	<0.00020	8355011	<0.00020	<0.00020	0.00020	8348505
Dissolved Zinc (Zn)	mg/L	0.00228	8355011	<0.00010	<0.00010	0.00010	8348505
RDL = Reportable Detection Limit							

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PD1523		PD1524	PD1525		
Sampling Date		2016/07/27 11:00		2016/07/27 11:40	2016/07/26 12:20		
COC Number		08425836		08425836	08425836		
	UNITS	MW15-10D	QC Batch	MW15-07S	MW15-11S	RDL	QC Batch
Dissolved Zirconium (Zr)	mg/L	0.00195	8355011	<0.00010	<0.00010	0.00010	8348505
Dissolved Calcium (Ca)	mg/L	620	8353967	66.7	80.5	0.050	8344823
Dissolved Magnesium (Mg)	mg/L	71.0	8353967	10.4	23.9	0.050	8344823
Dissolved Potassium (K)	mg/L	8.54	8353967	1.28	3.73	0.050	8344823
Dissolved Sodium (Na)	mg/L	21.0	8353967	3.59	3.35	0.050	8344823
Dissolved Sulphur (S)	mg/L	3.4	8353967	11.5	22.1	3.0	8344823
RDL = Reportable Detection Limit							

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		PD1526		
<b>Sampling Date</b>		2016/07/27 09:40		
<b>COC Number</b>		08425836		
	<b>UNITS</b>	<b>MW15-09S</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Misc. Inorganics</b>				
Dissolved Hardness (CaCO3)	mg/L	227	0.50	8344822
<b>Elements</b>				
Dissolved Mercury (Hg)	mg/L	<0.0000020	0.0000020	8349728
<b>Dissolved Metals by ICPMS</b>				
Dissolved Aluminum (Al)	mg/L	0.00105	0.00050	8348630
Dissolved Antimony (Sb)	mg/L	0.000088	0.000020	8348630
Dissolved Arsenic (As)	mg/L	0.000533	0.000020	8348630
Dissolved Barium (Ba)	mg/L	0.186	0.000020	8348630
Dissolved Beryllium (Be)	mg/L	<0.000010	0.000010	8348630
Dissolved Bismuth (Bi)	mg/L	<0.0000050	0.0000050	8348630
Dissolved Boron (B)	mg/L	<0.010	0.010	8348630
Dissolved Cadmium (Cd)	mg/L	0.0000290	0.0000050	8348630
Dissolved Chromium (Cr)	mg/L	<0.00010	0.00010	8348630
Dissolved Cobalt (Co)	mg/L	0.000141	0.0000050	8348630
Dissolved Copper (Cu)	mg/L	0.000077	0.000050	8348630
Dissolved Iron (Fe)	mg/L	<0.0010	0.0010	8348630
Dissolved Lead (Pb)	mg/L	<0.0000050	0.0000050	8348630
Dissolved Lithium (Li)	mg/L	0.00367	0.00050	8348630
Dissolved Manganese (Mn)	mg/L	0.126	0.000050	8348630
Dissolved Molybdenum (Mo)	mg/L	0.00536	0.000050	8348630
Dissolved Nickel (Ni)	mg/L	0.000399	0.000020	8348630
Dissolved Phosphorus (P)	mg/L	<0.0020	0.0020	8348630
Dissolved Selenium (Se)	mg/L	0.000843	0.000040	8348630
Dissolved Silicon (Si)	mg/L	5.15	0.050	8348630
Dissolved Silver (Ag)	mg/L	<0.0000050	0.0000050	8348630
Dissolved Strontium (Sr)	mg/L	0.295	0.000050	8348630
Dissolved Thallium (Tl)	mg/L	0.0000020	0.0000020	8348630
Dissolved Tin (Sn)	mg/L	<0.00020	0.00020	8348630
Dissolved Titanium (Ti)	mg/L	<0.00050	0.00050	8348630
Dissolved Uranium (U)	mg/L	0.00302	0.0000020	8348630
Dissolved Vanadium (V)	mg/L	<0.00020	0.00020	8348630
Dissolved Zinc (Zn)	mg/L	<0.00010	0.00010	8348630
RDL = Reportable Detection Limit				



Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		PD1526		
<b>Sampling Date</b>		2016/07/27 09:40		
<b>COC Number</b>		08425836		
	<b>UNITS</b>	<b>MW15-09S</b>	<b>RDL</b>	<b>QC Batch</b>
Dissolved Zirconium (Zr)	mg/L	<0.00010	0.00010	8348630
Dissolved Calcium (Ca)	mg/L	73.4	0.050	8344823
Dissolved Magnesium (Mg)	mg/L	10.7	0.050	8344823
Dissolved Potassium (K)	mg/L	1.85	0.050	8344823
Dissolved Sodium (Na)	mg/L	3.08	0.050	8344823
Dissolved Sulphur (S)	mg/L	6.5	3.0	8344823
RDL = Reportable Detection Limit				

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		PD1497	PD1518	PD1520		
Sampling Date		2016/07/26 10:00	2016/07/27 13:10	2016/07/28 10:15		
COC Number		08425835	08425836	08425836		
	UNITS	FB-GW	MW15-07D	TRIP BLANK	RDL	QC Batch
<b>Calculated Parameters</b>						
Total Hardness (CaCO3)	mg/L	<0.50	224	<0.50	0.50	8344964
<b>Elements</b>						
Total Mercury (Hg)	mg/L	<0.000020	<0.000020	<0.000020	0.000020	8349994
<b>Total Metals by ICPMS</b>						
Total Aluminum (Al)	mg/L	0.00145	0.0462	<0.00050	0.00050	8349895
Total Antimony (Sb)	mg/L	<0.000020	<0.000020	<0.000020	0.000020	8349895
Total Arsenic (As)	mg/L	<0.000020	0.000024	<0.000020	0.000020	8349895
Total Barium (Ba)	mg/L	<0.000020	0.0395	<0.000020	0.000020	8349895
Total Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	0.000010	8349895
Total Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	0.0000050	8349895
Total Boron (B)	mg/L	<0.010	<0.010	<0.010	0.010	8349895
Total Cadmium (Cd)	mg/L	<0.0000050	<0.0000050	<0.0000050	0.0000050	8349895
Total Chromium (Cr)	mg/L	<0.00010	0.00013	<0.00010	0.00010	8349895
Total Cobalt (Co)	mg/L	<0.0000050	0.0000360	<0.0000050	0.0000050	8349895
Total Copper (Cu)	mg/L	0.000053	0.000905	<0.000050	0.000050	8349895
Total Iron (Fe)	mg/L	0.0012	0.587	<0.0010	0.0010	8349895
Total Lead (Pb)	mg/L	<0.0000050	0.000165	<0.0000050	0.0000050	8349895
Total Lithium (Li)	mg/L	<0.00050	0.0127	<0.00050	0.00050	8349895
Total Manganese (Mn)	mg/L	<0.000050	0.0579	<0.000050	0.000050	8349895
Total Molybdenum (Mo)	mg/L	<0.000050	<0.000050	<0.000050	0.000050	8349895
Total Nickel (Ni)	mg/L	<0.000020	0.000095	<0.000020	0.000020	8349895
Total Phosphorus (P)	mg/L	<0.0020	0.0054	<0.0020	0.0020	8349895
Total Selenium (Se)	mg/L	<0.000040	<0.000040	<0.000040	0.000040	8349895
Total Silicon (Si)	mg/L	<0.050	8.46	<0.050	0.050	8349895
Total Silver (Ag)	mg/L	<0.0000050	<0.0000050	<0.0000050	0.0000050	8349895
Total Strontium (Sr)	mg/L	<0.000050	0.331	<0.000050	0.000050	8349895
Total Thallium (Tl)	mg/L	<0.0000020	<0.0000020	<0.0000020	0.0000020	8349895
Total Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	0.00020	8349895
Total Titanium (Ti)	mg/L	<0.00050	0.00118	<0.00050	0.00050	8349895
Total Uranium (U)	mg/L	<0.0000020	0.00101	<0.0000020	0.0000020	8349895
Total Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	0.00020	8349895
Total Zinc (Zn)	mg/L	0.00018	0.00225	<0.00010	0.00010	8349895
RDL = Reportable Detection Limit						

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		PD1497	PD1518	PD1520		
Sampling Date		2016/07/26 10:00	2016/07/27 13:10	2016/07/28 10:15		
COC Number		08425835	08425836	08425836		
	UNITS	FB-GW	MW15-07D	TRIP BLANK	RDL	QC Batch
Total Zirconium (Zr)	mg/L	<0.00010	0.00023	<0.00010	0.00010	8349895
Total Calcium (Ca)	mg/L	<0.050	66.0	<0.050	0.050	8345216
Total Magnesium (Mg)	mg/L	<0.050	14.5	<0.050	0.050	8345216
Total Potassium (K)	mg/L	<0.050	1.66	<0.050	0.050	8345216
Total Sodium (Na)	mg/L	<0.050	4.72	<0.050	0.050	8345216
Total Sulphur (S)	mg/L	<3.0	11.3	<3.0	3.0	8345216
RDL = Reportable Detection Limit						

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PD1490	PD1491	PD1492		PD1493		
Sampling Date		2016/07/26 14:20	2016/07/26 20:30	2016/07/26 17:00		2016/07/26 17:40		
COC Number		08425835	08425835	08425835		08425835		
	UNITS	MW15-01	DUP 2	BH95G-32	QC Batch	BH95G-33D	RDL	QC Batch
<b>Calculated Parameters</b>								
Total Hardness (CaCO3)	mg/L	169	236	214	8344964	266	0.50	8344964
<b>Elements</b>								
Total Mercury (Hg)	mg/L	<0.000020	<0.000020	<0.000020	8349989	0.000033	0.000020	8349994
<b>Total Metals by ICPMS</b>								
Total Aluminum (Al)	mg/L	0.575	7.49	1.96	8348621	6.19	0.0030	8348621
Total Antimony (Sb)	mg/L	0.000052	0.000505	0.000102	8348621	0.000121	0.000020	8348621
Total Arsenic (As)	mg/L	0.000477	0.00934	0.00206	8348621	0.0107	0.000020	8348621
Total Barium (Ba)	mg/L	0.0187	2.32	0.233	8348621	0.273	0.000050	8348621
Total Beryllium (Be)	mg/L	0.000021	0.000522	0.000103	8348621	0.000358	0.000010	8348621
Total Bismuth (Bi)	mg/L	<0.000010	0.000678	0.000054	8348621	0.000134	0.000010	8348621
Total Boron (B)	mg/L	<0.010	<0.010	<0.010	8348621	<0.010	0.010	8348621
Total Cadmium (Cd)	mg/L	0.0000280	0.000280	0.000125	8348621	0.000165	0.0000050	8348621
Total Chromium (Cr)	mg/L	0.00168	0.00992	0.00475	8348621	0.00776	0.00010	8348621
Total Cobalt (Co)	mg/L	0.000418	0.00516	0.00183	8348621	0.0135	0.000010	8348621
Total Copper (Cu)	mg/L	0.00305	0.0568	0.00753	8348621	0.0255	0.00010	8348621
Total Iron (Fe)	mg/L	1.44	22.1	4.09	8348621	17.4	0.0050	8348621
Total Lead (Pb)	mg/L	0.00112	0.0279	0.00552	8348621	0.00842	0.000020	8348621
Total Lithium (Li)	mg/L	0.00109	0.00920	0.00147	8348621	0.00383	0.00050	8348621
Total Manganese (Mn)	mg/L	0.0234	0.227	0.140	8348621	2.38	0.00010	8348621
Total Molybdenum (Mo)	mg/L	0.000873	0.000212	0.000714	8348621	0.00138	0.000050	8348621
Total Nickel (Ni)	mg/L	0.00100	0.0108	0.00339	8348621	0.0734	0.00010	8348621
Total Phosphorus (P)	mg/L	0.0444	0.572	0.0691	8348621	0.529	0.0050	8348621
Total Selenium (Se)	mg/L	0.000284	0.000253	0.000888	8348621	0.00468	0.000040	8348621
Total Silicon (Si)	mg/L	2.46	13.9	5.82	8348621	12.2	0.050	8348621
Total Silver (Ag)	mg/L	0.000453	0.000487	0.000066	8348621	0.000329	0.000010	8348621
Total Strontium (Sr)	mg/L	0.146	0.259	0.266	8348621	0.259	0.000050	8348621
Total Thallium (Tl)	mg/L	0.0000060	0.000121	0.0000190	8348621	0.0000750	0.0000020	8348621
Total Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	8348621	0.00024	0.00020	8348621
Total Titanium (Ti)	mg/L	0.0467	0.151	0.185	8348621	0.144	0.0020	8348621
Total Uranium (U)	mg/L	0.00172	0.00712	0.00138	8348621	0.00684	0.0000050	8348621
Total Vanadium (V)	mg/L	0.00253	0.0162	0.0102	8348621	0.0194	0.00020	8348621
Total Zinc (Zn)	mg/L	0.0087	0.134	0.0176	8348621	0.0641	0.0010	8348621
RDL = Reportable Detection Limit								

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PD1490	PD1491	PD1492		PD1493		
Sampling Date		2016/07/26 14:20	2016/07/26 20:30	2016/07/26 17:00		2016/07/26 17:40		
COC Number		08425835	08425835	08425835		08425835		
	UNITS	MW15-01	DUP 2	BH95G-32	QC Batch	BH95G-33D	RDL	QC Batch
Total Zirconium (Zr)	mg/L	0.00023	0.00671	0.00140	8348621	0.00361	0.00010	8348621
Total Calcium (Ca)	mg/L	56.5	69.7	77.4	8345216	86.2	0.25	8345216
Total Magnesium (Mg)	mg/L	6.81	15.2	5.02	8345216	12.4	0.25	8345216
Total Potassium (K)	mg/L	0.52	3.03	4.62	8345216	1.72	0.25	8345216
Total Sodium (Na)	mg/L	0.76	1.07	0.74	8345216	0.85	0.25	8345216
Total Sulphur (S)	mg/L	13.3	16.0	10.8	8345216	20.7	3.0	8345216
RDL = Reportable Detection Limit								

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PD1494	PD1495	PD1496	PD1498	PD1499		
Sampling Date		2016/07/26 20:49	2016/07/26 10:43	2016/07/26 12:00	2016/07/26 10:20	2016/07/26 09:30		
COC Number		08425835	08425835	08425835	08425835	08425835		
	UNITS	BH95G-21	BH95G-25S	MW15-11D	BH95G-25D	BH95G-29	RDL	QC Batch
<b>Calculated Parameters</b>								
Total Hardness (CaCO3)	mg/L	236	563	245	635	301	0.50	8344964
<b>Elements</b>								
Total Mercury (Hg)	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000020	8349994
<b>Total Metals by ICPMS</b>								
Total Aluminum (Al)	mg/L	6.68	7.89	0.0366	4.02	11.1	0.0030	8348621
Total Antimony (Sb)	mg/L	0.000507	0.000187	0.000065	0.000434	0.000506	0.000020	8348621
Total Arsenic (As)	mg/L	0.00843	0.0144	0.000221	0.00467	0.0242	0.000020	8348621
Total Barium (Ba)	mg/L	2.13	0.208	0.0298	0.340	0.393	0.000050	8348621
Total Beryllium (Be)	mg/L	0.000455	0.000502	0.000011	0.000321	0.00110	0.000010	8348621
Total Bismuth (Bi)	mg/L	0.000603	0.000358	<0.000010	0.000247	0.000872	0.000010	8348621
Total Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	8348621
Total Cadmium (Cd)	mg/L	0.000253	0.000362	0.0000290	0.000286	0.00186	0.000050	8348621
Total Chromium (Cr)	mg/L	0.00890	0.0180	0.00024	0.00426	0.0170	0.00010	8348621
Total Cobalt (Co)	mg/L	0.00470	0.00702	0.000057	0.00370	0.00802	0.000010	8348621
Total Copper (Cu)	mg/L	0.0497	0.0207	0.00057	0.0115	0.0541	0.00010	8348621
Total Iron (Fe)	mg/L	19.8	25.8	0.691	10.9	21.2	0.0050	8348621
Total Lead (Pb)	mg/L	0.0256	0.0240	0.000455	0.0147	0.0911	0.000020	8348621
Total Lithium (Li)	mg/L	0.00820	0.0167	0.00795	0.0118	0.0129	0.00050	8348621
Total Manganese (Mn)	mg/L	0.211	0.646	0.112	0.614	1.00	0.00010	8348621
Total Molybdenum (Mo)	mg/L	0.000209	0.00187	0.000409	0.000513	0.000967	0.000050	8348621
Total Nickel (Ni)	mg/L	0.00955	0.0154	<0.00010	0.00628	0.0206	0.00010	8348621
Total Phosphorus (P)	mg/L	0.510	0.853	0.0078	0.279	2.60	0.0050	8348621
Total Selenium (Se)	mg/L	0.000247	0.000070	<0.000040	0.000082	0.000182	0.000040	8348621
Total Silicon (Si)	mg/L	13.3	16.8	3.59	11.8	22.1	0.050	8348621
Total Silver (Ag)	mg/L	0.000441	0.000149	0.000150	0.000171	0.000510	0.000010	8348621
Total Strontium (Sr)	mg/L	0.251	0.558	0.435	0.562	0.415	0.000050	8348621
Total Thallium (Tl)	mg/L	0.000118	0.000201	0.0000020	0.0000780	0.000282	0.0000020	8348621
Total Tin (Sn)	mg/L	<0.00020	0.00031	<0.00020	0.00040	0.00048	0.00020	8348621
Total Titanium (Ti)	mg/L	0.140	0.397	<0.0020	0.110	0.164	0.0020	8348621
Total Uranium (U)	mg/L	0.00684	0.00593	0.00881	0.00902	0.0102	0.0000050	8348621
Total Vanadium (V)	mg/L	0.0145	0.0247	<0.00020	0.00694	0.0228	0.00020	8348621
Total Zinc (Zn)	mg/L	0.120	0.0657	0.0035	0.206	0.317	0.0010	8348621
RDL = Reportable Detection Limit								

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PD1494	PD1495	PD1496	PD1498	PD1499		
Sampling Date		2016/07/26 20:49	2016/07/26 10:43	2016/07/26 12:00	2016/07/26 10:20	2016/07/26 09:30		
COC Number		08425835	08425835	08425835	08425835	08425835		
	UNITS	BH95G-21	BH95G-25S	MW15-11D	BH95G-25D	BH95G-29	RDL	QC Batch
Total Zirconium (Zr)	mg/L	0.00686	0.00080	0.00092	0.00493	0.00238	0.00010	8348621
Total Calcium (Ca)	mg/L	69.9	149	66.1	154	94.2	0.25	8345216
Total Magnesium (Mg)	mg/L	15.0	46.5	19.4	61.0	15.9	0.25	8345216
Total Potassium (K)	mg/L	2.86	8.58	3.21	5.57	5.90	0.25	8345216
Total Sodium (Na)	mg/L	1.10	3.80	2.76	2.32	1.52	0.25	8345216
Total Sulphur (S)	mg/L	15.8	66.4	18.2	89.5	15.8	3.0	8345216
RDL = Reportable Detection Limit								

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PD1516	PD1517	PD1519		PD1521		
Sampling Date		2016/07/27 15:35	2016/07/27 14:28	2016/07/27 17:30		2016/07/27 10:40		
COC Number		08425836	08425836	08425836		08425836		
	UNITS	MW15-08S	MW15-06	MW16-15S	RDL	DUP 3	RDL	QC Batch
<b>Calculated Parameters</b>								
Total Hardness (CaCO3)	mg/L	220	205	145	0.50	1910	0.50	8344964
<b>Elements</b>								
Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	0.0000227	0.0000020	<0.0000020	0.0000020	8349994
<b>Total Metals by ICPMS</b>								
Total Aluminum (Al)	mg/L	3.72	0.973	5.67	0.0030	1.51	0.030	8348621
Total Antimony (Sb)	mg/L	0.000099	0.000063	0.0103	0.000020	<0.00020	0.00020	8348621
Total Arsenic (As)	mg/L	0.00303	0.000496	0.160	0.000020	0.00079	0.00020	8348621
Total Barium (Ba)	mg/L	0.143	0.0912	0.217	0.000050	0.382	0.00050	8348621
Total Beryllium (Be)	mg/L	0.000088	0.000048	0.000255	0.000010	0.00114	0.00010	8348621
Total Bismuth (Bi)	mg/L	0.000052	0.000026	0.00139	0.000010	0.00018	0.00010	8348621
Total Boron (B)	mg/L	<0.010	<0.010	<0.010	0.010	<0.10	0.10	8348621
Total Cadmium (Cd)	mg/L	0.000340	0.000295	0.00532	0.0000050	0.00145	0.000050	8348621
Total Chromium (Cr)	mg/L	0.00808	0.00213	0.0141	0.00010	0.0034	0.0010	8348621
Total Cobalt (Co)	mg/L	0.00468	0.000998	0.0102	0.000010	0.00146	0.00010	8348621
Total Copper (Cu)	mg/L	0.0217	0.00863	0.206	0.00010	0.0075	0.0010	8348621
Total Iron (Fe)	mg/L	7.81	1.58	18.7	0.0050	28.8	0.050	8348621
Total Lead (Pb)	mg/L	0.0178	0.00251	0.568	0.000020	0.0114	0.00020	8348621
Total Lithium (Li)	mg/L	0.00365	0.00202	0.00855	0.00050	0.225	0.0050	8348621
Total Manganese (Mn)	mg/L	0.111	0.0228	0.845	0.00010	4.91	0.0010	8348621
Total Molybdenum (Mo)	mg/L	0.00175	0.00271	0.00254	0.000050	<0.00050	0.00050	8348621
Total Nickel (Ni)	mg/L	0.0112	0.00385	0.0207	0.00010	0.0023	0.0010	8348621
Total Phosphorus (P)	mg/L	0.211	0.0731	0.253	0.0050	0.100	0.050	8348621
Total Selenium (Se)	mg/L	0.00177	0.00255	0.00354	0.000040	<0.00040	0.00040	8348621
Total Silicon (Si)	mg/L	7.82	4.37	11.2	0.050	34.7	0.50	8348621
Total Silver (Ag)	mg/L	0.000387	0.000063	0.00410	0.000010	0.00077	0.00010	8348621
Total Strontium (Sr)	mg/L	0.223	0.207	0.117	0.000050	2.30	0.00050	8348621
Total Thallium (Tl)	mg/L	0.0000630	0.0000260	0.000353	0.0000020	<0.000020	0.000020	8348621
Total Tin (Sn)	mg/L	0.00022	<0.00020	0.00080	0.00020	<0.0020	0.0020	8348621
Total Titanium (Ti)	mg/L	0.153	0.0488	0.327	0.0020	0.065	0.020	8348621
Total Uranium (U)	mg/L	0.00270	0.00313	0.00966	0.0000050	0.000410	0.000050	8348621
Total Vanadium (V)	mg/L	0.0138	0.00312	0.0152	0.00020	0.0053	0.0020	8348621
Total Zinc (Zn)	mg/L	0.0674	0.0226	0.799	0.0010	0.012	0.010	8348621
RDL = Reportable Detection Limit								



Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PD1516	PD1517	PD1519		PD1521		
Sampling Date		2016/07/27 15:35	2016/07/27 14:28	2016/07/27 17:30		2016/07/27 10:40		
COC Number		08425836	08425836	08425836		08425836		
	UNITS	MW15-08S	MW15-06	MW16-15S	RDL	DUP 3	RDL	QC Batch
Total Zirconium (Zr)	mg/L	0.00086	0.00023	0.00074	0.00010	0.0018	0.0010	8348621
Total Calcium (Ca)	mg/L	74.2	71.0	43.3	0.25	644	2.5	8345216
Total Magnesium (Mg)	mg/L	8.41	6.74	8.96	0.25	74.5	2.5	8345216
Total Potassium (K)	mg/L	1.86	1.88	4.04	0.25	7.9	2.5	8345216
Total Sodium (Na)	mg/L	1.37	1.45	0.91	0.25	21.9	2.5	8345216
Total Sulphur (S)	mg/L	8.0	7.4	13.9	3.0	<30	30	8345216
RDL = Reportable Detection Limit								

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PD1522		PD1523		PD1524		
Sampling Date		2016/07/27 10:15		2016/07/27 11:00		2016/07/27 11:40		
COC Number		08425836		08425836		08425836		
	UNITS	MW15-10S	RDL	MW15-10D	RDL	MW15-07S	RDL	QC Batch
<b>Calculated Parameters</b>								
Total Hardness (CaCO3)	mg/L	464	0.50	1890	0.50	204	0.50	8344964
<b>Elements</b>								
Total Mercury (Hg)	mg/L	<0.000020	0.000020	<0.000020	0.000020	<0.000020	0.000020	8349994
<b>Total Metals by ICMS</b>								
Total Aluminum (Al)	mg/L	40.8	0.015	1.99	0.030	0.0420	0.0030	8348621
Total Antimony (Sb)	mg/L	0.00037	0.00010	<0.00020	0.00020	<0.000020	0.000020	8348621
Total Arsenic (As)	mg/L	0.0346	0.00010	0.00111	0.00020	0.00165	0.000020	8348621
Total Barium (Ba)	mg/L	0.977	0.00025	0.409	0.00050	0.0324	0.000050	8348621
Total Beryllium (Be)	mg/L	0.00179	0.000050	0.00114	0.00010	<0.000010	0.000010	8348621
Total Bismuth (Bi)	mg/L	0.00112	0.000050	0.00021	0.00010	<0.000010	0.000010	8348621
Total Boron (B)	mg/L	<0.050	0.050	<0.10	0.10	<0.010	0.010	8348621
Total Cadmium (Cd)	mg/L	0.00665	0.000025	0.00170	0.000050	<0.0000050	0.0000050	8348621
Total Chromium (Cr)	mg/L	0.159	0.00050	0.0051	0.0010	0.00019	0.00010	8348621
Total Cobalt (Co)	mg/L	0.0595	0.000050	0.00188	0.00010	0.000131	0.000010	8348621
Total Copper (Cu)	mg/L	0.230	0.00050	0.0094	0.0010	0.00046	0.00010	8348621
Total Iron (Fe)	mg/L	84.3	0.025	29.7	0.050	0.624	0.0050	8348621
Total Lead (Pb)	mg/L	0.162	0.00010	0.0157	0.00020	0.000054	0.000020	8348621
Total Lithium (Li)	mg/L	0.0377	0.0025	0.230	0.0050	0.00661	0.00050	8348621
Total Manganese (Mn)	mg/L	2.29	0.00050	5.06	0.0010	0.153	0.00010	8348621
Total Molybdenum (Mo)	mg/L	0.00300	0.00025	0.00084	0.00050	0.000222	0.000050	8348621
Total Nickel (Ni)	mg/L	0.138	0.00050	0.0031	0.0010	0.00029	0.00010	8348621
Total Phosphorus (P)	mg/L	2.16	0.025	0.123	0.050	0.0102	0.0050	8348621
Total Selenium (Se)	mg/L	0.00250	0.00020	<0.00040	0.00040	<0.000040	0.000040	8348621
Total Silicon (Si)	mg/L	46.6	0.25	35.8	0.50	6.71	0.050	8348621
Total Silver (Ag)	mg/L	0.00476	0.000050	0.00063	0.00010	0.000018	0.000010	8348621
Total Strontium (Sr)	mg/L	0.623	0.00025	2.39	0.00050	0.264	0.000050	8348621
Total Thallium (Tl)	mg/L	0.000698	0.000010	<0.000020	0.000020	<0.0000020	0.0000020	8348621
Total Tin (Sn)	mg/L	<0.0010	0.0010	<0.0020	0.0020	<0.00020	0.00020	8348621
Total Titanium (Ti)	mg/L	0.872	0.010	0.078	0.020	<0.0020	0.0020	8348621
Total Uranium (U)	mg/L	0.00915	0.000025	0.000381	0.000050	0.00174	0.0000050	8348621
Total Vanadium (V)	mg/L	0.131	0.0010	0.0066	0.0020	0.00021	0.00020	8348621
Total Zinc (Zn)	mg/L	0.587	0.0050	0.015	0.010	<0.0010	0.0010	8348621
RDL = Reportable Detection Limit								

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PD1522		PD1523		PD1524		
Sampling Date		2016/07/27 10:15		2016/07/27 11:00		2016/07/27 11:40		
COC Number		08425836		08425836		08425836		
	UNITS	MW15-10S	RDL	MW15-10D	RDL	MW15-07S	RDL	QC Batch
Total Zirconium (Zr)	mg/L	0.00180	0.00050	0.0017	0.0010	0.00013	0.00010	8348621
Total Calcium (Ca)	mg/L	135	1.3	629	2.5	64.9	0.25	8345216
Total Magnesium (Mg)	mg/L	30.8	1.3	77.7	2.5	10.2	0.25	8345216
Total Potassium (K)	mg/L	8.5	1.3	8.3	2.5	1.32	0.25	8345216
Total Sodium (Na)	mg/L	10.3	1.3	22.2	2.5	3.52	0.25	8345216
Total Sulphur (S)	mg/L	<15	15	<30	30	11.3	3.0	8345216
RDL = Reportable Detection Limit								

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PD1525	PD1526		
Sampling Date		2016/07/26 12:20	2016/07/27 09:40		
COC Number		08425836	08425836		
	UNITS	MW15-11S	MW15-09S	RDL	QC Batch
<b>Calculated Parameters</b>					
Total Hardness (CaCO3)	mg/L	304	228	0.50	8344964
<b>Elements</b>					
Total Mercury (Hg)	mg/L	<0.000020	<0.000020	0.000020	8349994
<b>Total Metals by ICPMS</b>					
Total Aluminum (Al)	mg/L	0.142	1.04	0.0030	8348621
Total Antimony (Sb)	mg/L	0.000171	0.000120	0.000020	8348621
Total Arsenic (As)	mg/L	0.00190	0.00136	0.000020	8348621
Total Barium (Ba)	mg/L	0.0642	0.214	0.000050	8348621
Total Beryllium (Be)	mg/L	0.000019	0.000121	0.000010	8348621
Total Bismuth (Bi)	mg/L	0.000010	0.000036	0.000010	8348621
Total Boron (B)	mg/L	<0.010	<0.010	0.010	8348621
Total Cadmium (Cd)	mg/L	0.0000840	0.000134	0.0000050	8348621
Total Chromium (Cr)	mg/L	0.00040	0.00250	0.00010	8348621
Total Cobalt (Co)	mg/L	0.000547	0.000807	0.000010	8348621
Total Copper (Cu)	mg/L	0.00155	0.00459	0.00010	8348621
Total Iron (Fe)	mg/L	2.44	3.72	0.0050	8348621
Total Lead (Pb)	mg/L	0.000753	0.00213	0.000020	8348621
Total Lithium (Li)	mg/L	0.00981	0.00382	0.00050	8348621
Total Manganese (Mn)	mg/L	0.840	0.168	0.00010	8348621
Total Molybdenum (Mo)	mg/L	0.00128	0.00532	0.000050	8348621
Total Nickel (Ni)	mg/L	0.00111	0.00186	0.00010	8348621
Total Phosphorus (P)	mg/L	0.0233	0.0448	0.0050	8348621
Total Selenium (Se)	mg/L	<0.000040	0.00105	0.000040	8348621
Total Silicon (Si)	mg/L	4.52	6.41	0.050	8348621
Total Silver (Ag)	mg/L	0.000388	0.000579	0.000010	8348621
Total Strontium (Sr)	mg/L	0.472	0.247	0.000050	8348621
Total Thallium (Tl)	mg/L	0.0000070	0.0000180	0.0000020	8348621
Total Tin (Sn)	mg/L	<0.00020	<0.00020	0.00020	8348621
Total Titanium (Ti)	mg/L	0.0075	0.0300	0.0020	8348621
Total Uranium (U)	mg/L	0.0104	0.00350	0.0000050	8348621
Total Vanadium (V)	mg/L	0.00041	0.00226	0.00020	8348621
Total Zinc (Zn)	mg/L	0.0035	0.0086	0.0010	8348621
RDL = Reportable Detection Limit					

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PD1525	PD1526		
Sampling Date		2016/07/26 12:20	2016/07/27 09:40		
COC Number		08425836	08425836		
	UNITS	MW15-11S	MW15-09S	RDL	QC Batch
Total Zirconium (Zr)	mg/L	0.00113	0.00047	0.00010	8348621
Total Calcium (Ca)	mg/L	79.5	72.0	0.25	8345216
Total Magnesium (Mg)	mg/L	25.6	11.8	0.25	8345216
Total Potassium (K)	mg/L	4.03	1.96	0.25	8345216
Total Sodium (Na)	mg/L	3.59	3.14	0.25	8345216
Total Sulphur (S)	mg/L	21.8	5.8	3.0	8345216
RDL = Reportable Detection Limit					

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** PD1490  
**Sample ID:** MW15-01  
**Matrix:** Water

**Collected:** 2016/07/26  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8346037	N/A	2016/08/01	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8345820	2016/07/29	2016/07/30	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8348087	N/A	2016/07/29	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8348797	N/A	2016/08/02	Isabel Choi
Conductance - water	AT/ALK	8345821	N/A	2016/07/30	Maria Maclean
Fluoride	ISE/ISE	8345979	N/A	2016/07/29	Balwinder Bassi
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8344964	N/A	2016/08/04	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8344822	N/A	2016/08/04	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8349667	N/A	2016/08/03	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8349989	2016/08/03	2016/08/03	Edwin Lamigo
Ion Balance	CALC	8345464	N/A	2016/08/04	Automated Statchk
Sum of cations, anions	CALC	8345465	N/A	2016/08/04	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8344823	N/A	2016/08/04	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8348505	N/A	2016/08/04	Greg Sparrow
Elements by ICPMS Digested LL (total)	ICP/CRCM	8348621	2016/08/02	2016/08/02	John Choo
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8345216	N/A	2016/08/04	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8346034	N/A	2016/08/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8346009	N/A	2016/07/29	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8346010	N/A	2016/07/29	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8344863	N/A	2016/07/30	Automated Statchk
Filter and HNO <sub>3</sub> Preserve for Metals	ICP	8345300	N/A	2016/07/29	Bonnie Tsang
pH Water	AT/ALK	8345822	N/A	2016/07/30	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8348088	N/A	2016/07/29	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8348559	2016/08/02	2016/08/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8348713	N/A	2016/08/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8345975	2016/08/02	2016/08/03	Wendy Fong

**Maxxam ID:** PD1491  
**Sample ID:** DUP 2  
**Matrix:** Water

**Collected:** 2016/07/26  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8346037	N/A	2016/08/01	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8345820	2016/07/29	2016/07/30	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8348087	N/A	2016/07/29	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8348797	N/A	2016/08/02	Isabel Choi
Conductance - water	AT/ALK	8345821	N/A	2016/07/30	Maria Maclean
Fluoride	ISE/ISE	8345979	N/A	2016/07/29	Balwinder Bassi
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8344964	N/A	2016/08/04	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8344822	N/A	2016/08/04	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8349667	N/A	2016/08/03	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8349989	2016/08/03	2016/08/03	Edwin Lamigo
Ion Balance	CALC	8345464	N/A	2016/08/04	Automated Statchk
Sum of cations, anions	CALC	8345465	N/A	2016/08/04	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8344823	N/A	2016/08/04	Automated Statchk

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** PD1491  
**Sample ID:** DUP 2  
**Matrix:** Water

**Collected:** 2016/07/26  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8348505	N/A	2016/08/04	Greg Sparrow
Elements by ICPMS Digested LL (total)	ICP/CRCM	8348621	2016/08/02	2016/08/02	John Choo
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8345216	N/A	2016/08/04	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8369486	N/A	2016/08/19	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8346011	N/A	2016/07/29	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8346012	N/A	2016/07/29	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8344863	N/A	2016/07/30	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8345300	N/A	2016/07/29	Bonnie Tsang
pH Water	AT/ALK	8345822	N/A	2016/07/30	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8348088	N/A	2016/07/29	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8348559	2016/08/02	2016/08/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8348713	N/A	2016/08/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8345975	2016/08/02	2016/08/03	Wendy Fong

**Maxxam ID:** PD1491 Dup  
**Sample ID:** DUP 2  
**Matrix:** Water

**Collected:** 2016/07/26  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chloride by Automated Colourimetry	KONE/COL	8348087	N/A	2016/07/29	Balwinder Bassi
Sulphate by Automated Colourimetry	KONE/COL	8348088	N/A	2016/07/29	Balwinder Bassi

**Maxxam ID:** PD1492  
**Sample ID:** BH95G-32  
**Matrix:** Water

**Collected:** 2016/07/26  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8346037	N/A	2016/08/01	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8345820	2016/07/29	2016/07/30	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8348087	N/A	2016/07/29	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8348801	N/A	2016/08/02	Isabel Choi
Conductance - water	AT/ALK	8345821	N/A	2016/07/30	Maria Maclean
Fluoride	ISE/ISE	8345979	N/A	2016/07/29	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8344964	N/A	2016/08/04	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8344822	N/A	2016/08/04	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8349667	N/A	2016/08/03	Edwin Lamigo
Mercury (Total-LowLevel) by CVAF	CV/AF	8349989	2016/08/03	2016/08/03	Edwin Lamigo
Ion Balance	CALC	8345464	N/A	2016/08/04	Automated Statchk
Sum of cations, anions	CALC	8345465	N/A	2016/08/04	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8344823	N/A	2016/08/04	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8348505	N/A	2016/08/04	Greg Sparrow
Elements by ICPMS Digested LL (total)	ICP/CRCM	8348621	2016/08/02	2016/08/02	John Choo
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8345216	N/A	2016/08/04	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8346035	N/A	2016/08/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8346009	N/A	2016/07/29	Isaac Wang

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** PD1492  
**Sample ID:** BH95G-32  
**Matrix:** Water

**Collected:** 2016/07/26  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrite (N) (low level)	TRAA/COL	8346010	N/A	2016/07/29	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8344863	N/A	2016/07/30	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8345300	N/A	2016/07/29	Bonnie Tsang
pH Water	AT/ALK	8345822	N/A	2016/07/30	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8348088	N/A	2016/07/29	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8348559	2016/08/02	2016/08/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8348713	N/A	2016/08/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8345975	2016/08/02	2016/08/03	Wendy Fong

**Maxxam ID:** PD1492 Dup  
**Sample ID:** BH95G-32  
**Matrix:** Water

**Collected:** 2016/07/26  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8348559	2016/08/02	2016/08/02	Diana Cruz

**Maxxam ID:** PD1493  
**Sample ID:** BH95G-33D  
**Matrix:** Water

**Collected:** 2016/07/26  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8350392	N/A	2016/08/02	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8345826	2016/07/29	2016/07/30	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8349449	N/A	2016/08/02	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8348797	N/A	2016/08/02	Isabel Choi
Conductance - water	AT/ALK	8345830	N/A	2016/07/30	Maria Maclean
Fluoride	ISE/ISE	8345988	N/A	2016/07/29	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8344964	N/A	2016/08/04	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8344822	N/A	2016/08/04	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8349667	N/A	2016/08/03	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8349994	2016/08/03	2016/08/03	Rob McClelland
Ion Balance	CALC	8345464	N/A	2016/08/04	Automated Statchk
Sum of cations, anions	CALC	8345465	N/A	2016/08/04	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8344823	N/A	2016/08/04	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8348505	N/A	2016/08/04	Greg Sparrow
Elements by ICPMS Digested LL (total)	ICP/CRCM	8348621	2016/08/02	2016/08/02	John Choo
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8345216	N/A	2016/08/04	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8346034	N/A	2016/08/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8346011	N/A	2016/07/29	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8346012	N/A	2016/07/29	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8344863	N/A	2016/07/30	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8345300	N/A	2016/07/29	Bonnie Tsang
pH Water	AT/ALK	8345832	N/A	2016/07/30	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8349456	N/A	2016/08/02	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8348712	2016/08/02	2016/08/02	Diana Cruz



Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**TEST SUMMARY**

**Maxxam ID:** PD1493  
**Sample ID:** BH95G-33D  
**Matrix:** Water

**Collected:** 2016/07/26  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Phosphorus - unpreserved	KONE/COL	8348715	N/A	2016/08/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8345975	2016/08/02	2016/08/03	Wendy Fong

**Maxxam ID:** PD1494  
**Sample ID:** BH95G-21  
**Matrix:** Water

**Collected:** 2016/07/26  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8346037	N/A	2016/08/01	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8345820	2016/07/29	2016/07/30	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8348087	N/A	2016/07/29	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8348801	N/A	2016/08/02	Isabel Choi
Conductance - water	AT/ALK	8345821	N/A	2016/07/30	Maria Maclean
Fluoride	ISE/ISE	8345979	N/A	2016/07/29	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8344964	N/A	2016/08/04	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8344822	N/A	2016/08/04	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8349667	N/A	2016/08/03	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8349994	2016/08/03	2016/08/03	Rob McClelland
Ion Balance	CALC	8345464	N/A	2016/08/04	Automated Statchk
Sum of cations, anions	CALC	8345465	N/A	2016/08/04	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8344823	N/A	2016/08/04	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8348505	N/A	2016/08/04	Greg Sparrow
Elements by ICPMS Digested LL (total)	ICP/CRCM	8348621	2016/08/02	2016/08/02	John Choo
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8345216	N/A	2016/08/04	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8369486	N/A	2016/08/19	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8346011	N/A	2016/07/29	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8346012	N/A	2016/07/29	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8344863	N/A	2016/07/30	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8345300	N/A	2016/07/29	Bonnie Tsang
pH Water	AT/ALK	8345822	N/A	2016/07/30	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8348088	N/A	2016/07/29	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8348559	2016/08/02	2016/08/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8348713	N/A	2016/08/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8345975	2016/08/02	2016/08/03	Wendy Fong

**Maxxam ID:** PD1495  
**Sample ID:** BH95G-25S  
**Matrix:** Water

**Collected:** 2016/07/26  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8346037	N/A	2016/08/01	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8345820	2016/07/29	2016/07/30	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8348087	N/A	2016/07/29	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8348801	N/A	2016/08/02	Isabel Choi
Conductance - water	AT/ALK	8345821	N/A	2016/07/30	Maria Maclean

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** PD1495  
**Sample ID:** BH95G-25S  
**Matrix:** Water

**Collected:** 2016/07/26  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Fluoride	ISE/ISE	8345988	N/A	2016/07/29	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8344964	N/A	2016/08/04	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8344822	N/A	2016/08/04	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8349667	N/A	2016/08/03	Edwin Lamigo
Mercury (Total-LowLevel) by CVAF	CV/AF	8349994	2016/08/03	2016/08/03	Rob McClelland
Ion Balance	CALC	8345464	N/A	2016/08/04	Automated Statchk
Sum of cations, anions	CALC	8345465	N/A	2016/08/04	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8344823	N/A	2016/08/04	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8348505	N/A	2016/08/04	Greg Sparrow
Elements by ICPMS Digested LL (total)	ICP/CRCM	8348621	2016/08/02	2016/08/02	John Choo
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8345216	N/A	2016/08/04	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8346035	N/A	2016/08/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8346011	N/A	2016/07/29	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8346012	N/A	2016/07/29	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8344863	N/A	2016/07/30	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8345300	N/A	2016/07/29	Bonnie Tsang
pH Water	AT/ALK	8345822	N/A	2016/07/30	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8348088	N/A	2016/07/29	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8348559	2016/08/02	2016/08/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8348713	N/A	2016/08/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8345975	2016/08/02	2016/08/03	Wendy Fong

**Maxxam ID:** PD1496  
**Sample ID:** MW15-11D  
**Matrix:** Water

**Collected:** 2016/07/26  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8350392	N/A	2016/08/02	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8345826	2016/07/29	2016/07/30	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8348087	N/A	2016/07/29	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8348801	N/A	2016/08/02	Isabel Choi
Conductance - water	AT/ALK	8345830	N/A	2016/07/30	Maria Maclean
Fluoride	ISE/ISE	8345988	N/A	2016/07/29	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8344964	N/A	2016/08/04	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8353872	N/A	2016/08/08	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8349667	N/A	2016/08/03	Edwin Lamigo
Mercury (Total-LowLevel) by CVAF	CV/AF	8349994	2016/08/03	2016/08/03	Rob McClelland
Ion Balance	CALC	8353995	N/A	2016/08/08	Automated Statchk
Sum of cations, anions	CALC	8353996	N/A	2016/08/06	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8353967	N/A	2016/08/08	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8355011	N/A	2016/08/08	Greg Sparrow
Elements by ICPMS Digested LL (total)	ICP/CRCM	8348621	2016/08/02	2016/08/04	John Choo
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8345216	N/A	2016/08/04	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8346035	N/A	2016/08/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8346011	N/A	2016/07/29	Isaac Wang

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** PD1496  
**Sample ID:** MW15-11D  
**Matrix:** Water

**Collected:** 2016/07/26  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrite (N) (low level)	TRAA/COL	8346012	N/A	2016/07/29	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8344863	N/A	2016/07/30	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8345300	N/A	2016/07/29	Bonnie Tsang
pH Water	AT/ALK	8345832	N/A	2016/07/30	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8348088	N/A	2016/07/29	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8348559	2016/08/02	2016/08/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8348715	N/A	2016/08/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8345975	2016/08/02	2016/08/03	Wendy Fong

**Maxxam ID:** PD1496 Dup  
**Sample ID:** MW15-11D  
**Matrix:** Water

**Collected:** 2016/07/26  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Elements by ICPMS Digested LL (total)	ICP/CRCM	8348621	2016/08/02	2016/08/04	John Choo

**Maxxam ID:** PD1497  
**Sample ID:** FB-GW  
**Matrix:** Water

**Collected:** 2016/07/26  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8346037	N/A	2016/08/01	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8345820	2016/07/29	2016/07/30	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8348087	N/A	2016/07/29	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8348801	N/A	2016/08/02	Isabel Choi
Conductance - water	AT/ALK	8345821	N/A	2016/07/30	Maria Maclean
Fluoride	ISE/ISE	8345988	N/A	2016/07/29	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8344964	N/A	2016/08/06	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8344822	N/A	2016/08/04	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8349667	N/A	2016/08/03	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8349994	2016/08/03	2016/08/03	Rob McClelland
Ion Balance	CALC	8345464	N/A	2016/08/04	Automated Statchk
Sum of cations, anions	CALC	8345465	N/A	2016/08/04	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8344823	N/A	2016/08/04	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8348505	N/A	2016/08/04	Greg Sparrow
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8345216	N/A	2016/08/06	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8349895	N/A	2016/08/06	Greg Sparrow
Ammonia-N (Preserved)	KONE/COL	8346035	N/A	2016/08/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8346011	N/A	2016/07/29	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8346012	N/A	2016/07/29	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8344863	N/A	2016/07/30	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8345300	N/A	2016/07/29	Bonnie Tsang
pH Water	AT/ALK	8345822	N/A	2016/07/30	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8348088	N/A	2016/07/29	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8348559	2016/08/02	2016/08/02	Diana Cruz

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** PD1497  
**Sample ID:** FB-GW  
**Matrix:** Water

**Collected:** 2016/07/26  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Phosphorus - unpreserved	KONE/COL	8348713	N/A	2016/08/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8345975	2016/08/02	2016/08/03	Wendy Fong

**Maxxam ID:** PD1497 Dup  
**Sample ID:** FB-GW  
**Matrix:** Water

**Collected:** 2016/07/26  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Fluoride	ISE/ISE	8345988	N/A	2016/07/29	Balwinder Bassi
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8348505	N/A	2016/08/04	Greg Sparrow

**Maxxam ID:** PD1498  
**Sample ID:** BH95G-25D  
**Matrix:** Water

**Collected:** 2016/07/26  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8350392	N/A	2016/08/02	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8354073	2016/08/08	2016/08/08	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8355558	N/A	2016/08/08	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8348801	N/A	2016/08/02	Isabel Choi
Conductance - water	AT/ALK	8345830	N/A	2016/07/30	Maria Maclean
Fluoride	ISE/ISE	8345988	N/A	2016/07/29	Balwinder Bassi
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8344964	N/A	2016/08/04	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8353872	N/A	2016/08/08	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8349667	N/A	2016/08/03	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8349994	2016/08/03	2016/08/03	Rob McClelland
Ion Balance	CALC	8353995	N/A	2016/08/08	Automated Statchk
Sum of cations, anions	CALC	8353996	N/A	2016/08/06	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8353967	N/A	2016/08/08	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8355011	N/A	2016/08/08	Greg Sparrow
Elements by ICPMS Digested LL (total)	ICP/CRCM	8348621	2016/08/02	2016/08/02	John Choo
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8345216	N/A	2016/08/04	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8346034	N/A	2016/08/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8346011	N/A	2016/07/29	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8346012	N/A	2016/07/29	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8344863	N/A	2016/07/30	Automated Statchk
Filter and HNO <sub>3</sub> Preserve for Metals	ICP	8345300	N/A	2016/07/29	Bonnie Tsang
pH Water	AT/ALK	8345832	N/A	2016/07/30	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8355560	N/A	2016/08/08	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8348712	2016/08/02	2016/08/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8348715	N/A	2016/08/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8345975	2016/08/02	2016/08/03	Wendy Fong

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** PD1498 Dup  
**Sample ID:** BH95G-25D  
**Matrix:** Water

**Collected:** 2016/07/26  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbon (DOC) - field filtered/preserved	TRAA/COL	8348801	N/A	2016/08/02	Isabel Choi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8348712	2016/08/02	2016/08/02	Diana Cruz

**Maxxam ID:** PD1499  
**Sample ID:** BH95G-29  
**Matrix:** Water

**Collected:** 2016/07/26  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8350392	N/A	2016/08/02	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8345826	2016/07/29	2016/07/30	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8348090	N/A	2016/07/29	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8348801	N/A	2016/08/02	Isabel Choi
Conductance - water	AT/ALK	8345830	N/A	2016/07/30	Maria Maclean
Fluoride	ISE/ISE	8345988	N/A	2016/07/29	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8344964	N/A	2016/08/04	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8344822	N/A	2016/08/04	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8349667	N/A	2016/08/03	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8349994	2016/08/03	2016/08/03	Rob McClelland
Ion Balance	CALC	8345464	N/A	2016/08/04	Automated Statchk
Sum of cations, anions	CALC	8345465	N/A	2016/08/04	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8344823	N/A	2016/08/04	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8348505	N/A	2016/08/04	Greg Sparrow
Elements by ICPMS Digested LL (total)	ICP/CRCM	8348621	2016/08/02	2016/08/02	John Choo
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8345216	N/A	2016/08/04	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8346035	N/A	2016/08/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8346011	N/A	2016/07/29	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8346012	N/A	2016/07/29	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8344863	N/A	2016/07/30	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8345300	N/A	2016/07/29	Bonnie Tsang
pH Water	AT/ALK	8345832	N/A	2016/07/30	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8348091	N/A	2016/07/29	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8348712	2016/08/02	2016/08/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8348715	N/A	2016/08/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8345975	2016/08/02	2016/08/03	Wendy Fong

**Maxxam ID:** PD1499 Dup  
**Sample ID:** BH95G-29  
**Matrix:** Water

**Collected:** 2016/07/26  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chloride by Automated Colourimetry	KONE/COL	8348090	N/A	2016/07/29	Balwinder Bassi
Sulphate by Automated Colourimetry	KONE/COL	8348091	N/A	2016/07/29	Balwinder Bassi

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**TEST SUMMARY**

**Maxxam ID:** PD1516  
**Sample ID:** MW15-08S  
**Matrix:** Water

**Collected:** 2016/07/27  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8350392	N/A	2016/08/02	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8345826	2016/07/29	2016/07/30	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8348087	N/A	2016/07/29	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8348801	N/A	2016/08/02	Isabel Choi
Conductance - water	AT/ALK	8345830	N/A	2016/07/30	Maria Maclean
Fluoride	ISE/ISE	8345988	N/A	2016/07/29	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8344964	N/A	2016/08/04	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8344822	N/A	2016/08/04	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8349667	N/A	2016/08/03	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8349994	2016/08/03	2016/08/03	Rob McClelland
Ion Balance	CALC	8345464	N/A	2016/08/04	Automated Statchk
Sum of cations, anions	CALC	8345465	N/A	2016/08/04	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8344823	N/A	2016/08/04	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8348505	N/A	2016/08/04	Greg Sparrow
Elements by ICPMS Digested LL (total)	ICP/CRCM	8348621	2016/08/02	2016/08/02	John Choo
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8345216	N/A	2016/08/04	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8346035	N/A	2016/08/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8346011	N/A	2016/07/29	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8346012	N/A	2016/07/29	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8344863	N/A	2016/07/30	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8345300	N/A	2016/07/29	Bonnie Tsang
pH Water	AT/ALK	8345832	N/A	2016/07/30	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8348088	N/A	2016/07/29	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8348559	2016/08/02	2016/08/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8348715	N/A	2016/08/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8345975	2016/08/02	2016/08/03	Wendy Fong

**Maxxam ID:** PD1517  
**Sample ID:** MW15-06  
**Matrix:** Water

**Collected:** 2016/07/27  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8346037	N/A	2016/08/01	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8345826	2016/07/29	2016/07/30	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8348087	N/A	2016/07/29	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8348801	N/A	2016/08/02	Isabel Choi
Conductance - water	AT/ALK	8345830	N/A	2016/07/30	Maria Maclean
Fluoride	ISE/ISE	8345988	N/A	2016/07/29	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8344964	N/A	2016/08/04	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8344822	N/A	2016/08/04	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8349667	N/A	2016/08/03	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8349994	2016/08/03	2016/08/03	Rob McClelland
Ion Balance	CALC	8345464	N/A	2016/08/04	Automated Statchk
Sum of cations, anions	CALC	8345465	N/A	2016/08/04	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8344823	N/A	2016/08/04	Automated Statchk



Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**TEST SUMMARY**

**Maxxam ID:** PD1517  
**Sample ID:** MW15-06  
**Matrix:** Water

**Collected:** 2016/07/27  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8348505	N/A	2016/08/04	Greg Sparrow
Elements by ICPMS Digested LL (total)	ICP/CRCM	8348621	2016/08/02	2016/08/02	John Choo
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8345216	N/A	2016/08/04	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8346035	N/A	2016/08/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8346011	N/A	2016/07/29	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8346012	N/A	2016/07/29	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8344863	N/A	2016/07/30	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8345300	N/A	2016/07/29	Bonnie Tsang
pH Water	AT/ALK	8345832	N/A	2016/07/30	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8348088	N/A	2016/07/29	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8348559	2016/08/02	2016/08/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8348715	N/A	2016/08/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8345975	2016/08/02	2016/08/03	Wendy Fong

**Maxxam ID:** PD1517 Dup  
**Sample ID:** MW15-06  
**Matrix:** Water

**Collected:** 2016/07/27  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Water	AT/ALK	8345826	2016/07/29	2016/07/30	Maria Maclean
Nitrate+Nitrite (N) (low level)	TRAA/COL	8346011	N/A	2016/07/29	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8346012	N/A	2016/07/29	Isaac Wang
pH Water	AT/ALK	8345832	N/A	2016/07/30	Maria Maclean
Total Phosphorus - unpreserved	KONE/COL	8348715	N/A	2016/08/02	Diana Cruz

**Maxxam ID:** PD1518  
**Sample ID:** MW15-07D  
**Matrix:** Water

**Collected:** 2016/07/27  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8350392	N/A	2016/08/02	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8345826	2016/07/29	2016/07/30	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8349449	N/A	2016/08/02	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8348801	N/A	2016/08/02	Isabel Choi
Conductance - water	AT/ALK	8345830	N/A	2016/07/30	Maria Maclean
Fluoride	ISE/ISE	8345988	N/A	2016/07/29	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8344964	N/A	2016/08/06	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8344822	N/A	2016/08/04	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8349728	N/A	2016/08/03	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8349994	2016/08/03	2016/08/03	Rob McClelland
Ion Balance	CALC	8345464	N/A	2016/08/04	Automated Statchk
Sum of cations, anions	CALC	8345465	N/A	2016/08/04	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8344823	N/A	2016/08/04	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8348505	N/A	2016/08/04	Greg Sparrow
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8345216	N/A	2016/08/06	Automated Statchk

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**TEST SUMMARY**

**Maxxam ID:** PD1518  
**Sample ID:** MW15-07D  
**Matrix:** Water

**Collected:** 2016/07/27  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Elements by ICPMS Low Level (total)	ICP/CRCM	8349895	N/A	2016/08/06	Greg Sparrow
Ammonia-N (Preserved)	KONE/COL	8346035	N/A	2016/08/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8346011	N/A	2016/07/29	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8346012	N/A	2016/07/29	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8344863	N/A	2016/07/30	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8345300	N/A	2016/07/29	Bonnie Tsang
pH Water	AT/ALK	8345832	N/A	2016/07/30	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8349456	N/A	2016/08/02	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8348712	2016/08/02	2016/08/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8348715	N/A	2016/08/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8345975	2016/08/02	2016/08/03	Wendy Fong

**Maxxam ID:** PD1518 Dup  
**Sample ID:** MW15-07D  
**Matrix:** Water

**Collected:** 2016/07/27  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8350392	N/A	2016/08/02	Wilson Au Yueng

**Maxxam ID:** PD1519  
**Sample ID:** MW16-15S  
**Matrix:** Water

**Collected:** 2016/07/27  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8350392	N/A	2016/08/02	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8345826	2016/07/29	2016/07/30	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8348087	N/A	2016/07/29	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8348801	N/A	2016/08/02	Isabel Choi
Conductance - water	AT/ALK	8345830	N/A	2016/07/30	Maria Maclean
Fluoride	ISE/ISE	8345988	N/A	2016/07/29	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8344964	N/A	2016/08/04	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8344822	N/A	2016/08/04	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8349728	N/A	2016/08/03	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8349994	2016/08/03	2016/08/03	Rob McClelland
Ion Balance	CALC	8345464	N/A	2016/08/04	Automated Statchk
Sum of cations, anions	CALC	8345465	N/A	2016/08/04	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8344823	N/A	2016/08/04	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8348505	N/A	2016/08/04	Greg Sparrow
Elements by ICPMS Digested LL (total)	ICP/CRCM	8348621	2016/08/02	2016/08/02	John Choo
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8345216	N/A	2016/08/04	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8346035	N/A	2016/08/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8346011	N/A	2016/07/29	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8346012	N/A	2016/07/29	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8344863	N/A	2016/07/30	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8345300	N/A	2016/07/29	Bonnie Tsang



Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**TEST SUMMARY**

**Maxxam ID:** PD1519  
**Sample ID:** MW16-15S  
**Matrix:** Water

**Collected:** 2016/07/27  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
pH Water	AT/ALK	8345832	N/A	2016/07/30	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8348088	N/A	2016/07/29	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8348559	2016/08/02	2016/08/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8348715	N/A	2016/08/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8345975	2016/08/02	2016/08/03	Wendy Fong

**Maxxam ID:** PD1520  
**Sample ID:** TRIP BLANK  
**Matrix:** Water

**Collected:** 2016/07/28  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8350392	N/A	2016/08/02	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8345826	2016/07/29	2016/07/30	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8348087	N/A	2016/07/29	Balwinder Bassi
Carbon (DOC) - unfiltered/unpreserved	TRAA/COL	8346758	N/A	2016/08/02	Isabel Choi
Conductance - water	AT/ALK	8345830	N/A	2016/07/30	Maria Maclean
Fluoride	ISE/ISE	8345988	N/A	2016/07/29	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8344964	N/A	2016/08/06	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8344822	N/A	2016/08/04	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8349728	N/A	2016/08/03	Edwin Lamigo
Mercury (Total-LowLevel) by CVAF	CV/AF	8349994	2016/08/03	2016/08/03	Rob McClelland
Ion Balance	CALC	8345464	N/A	2016/08/04	Automated Statchk
Sum of cations, anions	CALC	8345465	N/A	2016/08/04	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8344823	N/A	2016/08/04	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8348505	N/A	2016/08/04	Greg Sparrow
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8345216	N/A	2016/08/06	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8349895	N/A	2016/08/05	Greg Sparrow
Ammonia-N (Unpreserved)	KONE/COL	8345078	N/A	2016/07/29	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8346011	N/A	2016/07/29	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8346012	N/A	2016/07/29	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8344863	N/A	2016/07/30	Automated Statchk
pH Water	AT/ALK	8345832	N/A	2016/07/30	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8348088	N/A	2016/07/29	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8348559	2016/08/02	2016/08/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8348715	N/A	2016/08/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8345975	2016/08/02	2016/08/03	Wendy Fong

**Maxxam ID:** PD1520 Dup  
**Sample ID:** TRIP BLANK  
**Matrix:** Water

**Collected:** 2016/07/28  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8349728	N/A	2016/08/03	Edwin Lamigo
Mercury (Total-LowLevel) by CVAF	CV/AF	8349994	2016/08/03	2016/08/03	Rob McClelland

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**TEST SUMMARY**

**Maxxam ID:** PD1521  
**Sample ID:** DUP 3  
**Matrix:** Water

**Collected:** 2016/07/27  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8350392	N/A	2016/08/02	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8354073	2016/08/08	2016/08/08	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8355558	N/A	2016/08/08	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8348797	N/A	2016/08/02	Isabel Choi
Conductance - water	AT/ALK	8345830	N/A	2016/07/30	Maria Maclean
Fluoride	ISE/ISE	8345988	N/A	2016/07/29	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8344964	N/A	2016/08/04	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8353872	N/A	2016/08/08	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8349728	N/A	2016/08/03	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8349994	2016/08/03	2016/08/03	Rob McClelland
Ion Balance	CALC	8353995	N/A	2016/08/08	Automated Statchk
Sum of cations, anions	CALC	8353996	N/A	2016/08/06	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8353967	N/A	2016/08/08	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8355011	N/A	2016/08/08	Greg Sparrow
Elements by ICPMS Digested LL (total)	ICP/CRCM	8348621	2016/08/02	2016/08/04	John Choo
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8345216	N/A	2016/08/04	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8369486	N/A	2016/08/19	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8346011	N/A	2016/07/29	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8346012	N/A	2016/07/29	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8344863	N/A	2016/07/30	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8345300	N/A	2016/07/29	Bonnie Tsang
pH Water	AT/ALK	8345832	N/A	2016/07/30	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8355560	N/A	2016/08/08	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8348559	2016/08/02	2016/08/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8348715	N/A	2016/08/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8345978	2016/08/02	2016/08/03	Wendy Fong

**Maxxam ID:** PD1522  
**Sample ID:** MW15-10S  
**Matrix:** Water

**Collected:** 2016/07/27  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8350392	N/A	2016/08/02	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8345826	2016/07/29	2016/07/30	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8348087	N/A	2016/07/29	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8348797	N/A	2016/08/02	Isabel Choi
Conductance - water	AT/ALK	8345830	N/A	2016/07/30	Maria Maclean
Fluoride	ISE/ISE	8345988	N/A	2016/07/29	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8344964	N/A	2016/08/04	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8344822	N/A	2016/08/04	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8349728	N/A	2016/08/03	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8349994	2016/08/03	2016/08/03	Rob McClelland
Ion Balance	CALC	8345464	N/A	2016/08/04	Automated Statchk
Sum of cations, anions	CALC	8345465	N/A	2016/08/04	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8344823	N/A	2016/08/04	Automated Statchk

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** PD1522  
**Sample ID:** MW15-10S  
**Matrix:** Water

**Collected:** 2016/07/27  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8348505	N/A	2016/08/04	Greg Sparrow
Elements by ICPMS Digested LL (total)	ICP/CRCM	8348621	2016/08/02	2016/08/04	John Choo
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8345216	N/A	2016/08/04	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8346034	N/A	2016/08/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8346011	N/A	2016/07/29	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8346012	N/A	2016/07/29	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8344863	N/A	2016/07/30	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8345300	N/A	2016/07/29	Bonnie Tsang
pH Water	AT/ALK	8345832	N/A	2016/07/30	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8348088	N/A	2016/07/29	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8348559	2016/08/02	2016/08/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8348715	N/A	2016/08/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8345978	2016/08/02	2016/08/03	Wendy Fong

**Maxxam ID:** PD1523  
**Sample ID:** MW15-10D  
**Matrix:** Water

**Collected:** 2016/07/27  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8350392	N/A	2016/08/02	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8354073	2016/08/08	2016/08/08	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8355558	N/A	2016/08/08	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8348797	N/A	2016/08/02	Isabel Choi
Conductance - water	AT/ALK	8345830	N/A	2016/07/30	Maria Maclean
Fluoride	ISE/ISE	8345988	N/A	2016/07/29	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8344964	N/A	2016/08/04	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8353872	N/A	2016/08/08	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8349728	N/A	2016/08/03	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8349994	2016/08/03	2016/08/03	Rob McClelland
Ion Balance	CALC	8353995	N/A	2016/08/08	Automated Statchk
Sum of cations, anions	CALC	8353996	N/A	2016/08/06	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8353967	N/A	2016/08/08	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8355011	N/A	2016/08/08	Greg Sparrow
Elements by ICPMS Digested LL (total)	ICP/CRCM	8348621	2016/08/02	2016/08/04	John Choo
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8345216	N/A	2016/08/04	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8369486	N/A	2016/08/19	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8346011	N/A	2016/07/29	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8346012	N/A	2016/07/29	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8344863	N/A	2016/07/30	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8345300	N/A	2016/07/29	Bonnie Tsang
pH Water	AT/ALK	8345832	N/A	2016/07/30	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8355560	N/A	2016/08/08	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8348712	2016/08/02	2016/08/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8348715	N/A	2016/08/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8345978	2016/08/02	2016/08/03	Wendy Fong

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** PD1524  
**Sample ID:** MW15-07S  
**Matrix:** Water

**Collected:** 2016/07/27  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8350392	N/A	2016/08/02	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8345826	2016/07/29	2016/07/30	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8348087	N/A	2016/07/29	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8348797	N/A	2016/08/02	Isabel Choi
Conductance - water	AT/ALK	8345830	N/A	2016/07/30	Maria Maclean
Fluoride	ISE/ISE	8345988	N/A	2016/07/29	Balwinder Bassi
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8344964	N/A	2016/08/04	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8344822	N/A	2016/08/04	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8349728	N/A	2016/08/03	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8349994	2016/08/03	2016/08/03	Rob McClelland
Ion Balance	CALC	8345464	N/A	2016/08/04	Automated Statchk
Sum of cations, anions	CALC	8345465	N/A	2016/08/04	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8344823	N/A	2016/08/04	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8348505	N/A	2016/08/04	Greg Sparrow
Elements by ICPMS Digested LL (total)	ICP/CRCM	8348621	2016/08/02	2016/08/04	John Choo
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8345216	N/A	2016/08/04	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8346034	N/A	2016/08/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8346011	N/A	2016/07/29	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8346012	N/A	2016/07/29	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8344863	N/A	2016/07/30	Automated Statchk
Filter and HNO <sub>3</sub> Preserve for Metals	ICP	8345300	N/A	2016/07/29	Bonnie Tsang
pH Water	AT/ALK	8345832	N/A	2016/07/30	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8348088	N/A	2016/07/29	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8348559	2016/08/02	2016/08/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8348715	N/A	2016/08/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8345978	2016/08/02	2016/08/03	Wendy Fong

**Maxxam ID:** PD1525  
**Sample ID:** MW15-11S  
**Matrix:** Water

**Collected:** 2016/07/26  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8350392	N/A	2016/08/02	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8345826	2016/07/29	2016/07/30	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8348087	N/A	2016/07/29	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8348797	N/A	2016/08/02	Isabel Choi
Conductance - water	AT/ALK	8345830	N/A	2016/07/30	Maria Maclean
Fluoride	ISE/ISE	8345988	N/A	2016/07/29	Balwinder Bassi
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8344964	N/A	2016/08/04	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8344822	N/A	2016/08/04	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8349728	N/A	2016/08/03	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8349994	2016/08/03	2016/08/03	Rob McClelland
Ion Balance	CALC	8345464	N/A	2016/08/04	Automated Statchk
Sum of cations, anions	CALC	8345465	N/A	2016/08/04	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8344823	N/A	2016/08/04	Automated Statchk

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** PD1525  
**Sample ID:** MW15-11S  
**Matrix:** Water

**Collected:** 2016/07/26  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8348505	N/A	2016/08/04	Greg Sparrow
Elements by ICPMS Digested LL (total)	ICP/CRCM	8348621	2016/08/02	2016/08/02	John Choo
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8345216	N/A	2016/08/04	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8346034	N/A	2016/08/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8346011	N/A	2016/07/29	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8346012	N/A	2016/07/29	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8344863	N/A	2016/07/30	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8345300	N/A	2016/07/29	Bonnie Tsang
pH Water	AT/ALK	8345832	N/A	2016/07/30	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8348088	N/A	2016/07/29	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8348559	2016/08/02	2016/08/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8348715	N/A	2016/08/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8345978	2016/08/02	2016/08/03	Wendy Fong

**Maxxam ID:** PD1526  
**Sample ID:** MW15-09S  
**Matrix:** Water

**Collected:** 2016/07/27  
**Shipped:**  
**Received:** 2016/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8350392	N/A	2016/08/02	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8345826	2016/07/29	2016/07/30	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8348087	N/A	2016/07/29	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8348797	N/A	2016/08/02	Isabel Choi
Conductance - water	AT/ALK	8345830	N/A	2016/07/30	Maria Maclean
Fluoride	ISE/ISE	8345988	N/A	2016/07/29	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8344964	N/A	2016/08/04	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8344822	N/A	2016/08/04	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8349728	N/A	2016/08/03	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8349994	2016/08/03	2016/08/03	Rob McClelland
Ion Balance	CALC	8345464	N/A	2016/08/04	Automated Statchk
Sum of cations, anions	CALC	8345465	N/A	2016/08/04	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8344823	N/A	2016/08/04	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8348630	N/A	2016/08/04	Greg Sparrow
Elements by ICPMS Digested LL (total)	ICP/CRCM	8348621	2016/08/02	2016/08/03	John Choo
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8345216	N/A	2016/08/04	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8346034	N/A	2016/08/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8346011	N/A	2016/07/29	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8346012	N/A	2016/07/29	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8344863	N/A	2016/07/30	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8345300	N/A	2016/07/29	Bonnie Tsang
pH Water	AT/ALK	8345832	N/A	2016/07/30	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8348088	N/A	2016/07/29	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8355299	2016/08/08	2016/08/08	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8355296	N/A	2016/08/08	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8345978	2016/08/02	2016/08/03	Wendy Fong

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	6.7°C
Package 2	7.0°C
Package 3	9.0°C
Package 4	7.0°C
Package 5	7.7°C

Revised Report V3 (M\_S, 2016/09/12): Report includes revised results for Ammonia on samples DUP 2, BH95G-21, DUP 3, and MW15-10D.  
Revised Report V2 (M\_S, 2016/08/19) Changed sample ID from BH96G-25D to BH95G-25D as per client request.

Sample PD1490-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PD1491-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PD1492-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PD1493-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PD1494-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PD1495-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PD1496-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PD1498-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PD1499-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PD1516-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PD1517-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PD1519-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PD1521-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PD1522-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PD1523-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit



Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### GENERAL COMMENTS

for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PD1524-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PD1525-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PD1526-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

#### **LL TOTAL METALS (DIGESTED) WITH CV HG Comments**

Sample PD1521-07 Elements by ICPMS Digested LL (total): RDL raised due to sample matrix interference.

Sample PD1522-07 Elements by ICPMS Digested LL (total): RDL raised due to sample matrix interference.

Sample PD1523-07 Elements by ICPMS Digested LL (total): RDL raised due to sample matrix interference.

Sample PD1493, Elements by ICPMS Low Level (dissolved): Test repeated.

Sample PD1494, Elements by ICPMS Low Level (dissolved): Test repeated.

Sample PD1523, Elements by ICPMS Low Level (dissolved): Test repeated.

**Results relate only to the items tested.**

Maxxam Job #: B662698  
Report Date: 2016/09/12

**QUALITY ASSURANCE REPORT**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8345078	Total Ammonia (N)	2016/07/29	98	80 - 120	104	80 - 120	<0.0050	mg/L	NC	20
8345820	Alkalinity (PP as CaCO3)	2016/07/30					<0.50	mg/L	NC	20
8345820	Alkalinity (Total as CaCO3)	2016/07/30	NC	80 - 120	99	80 - 120	<0.50	mg/L	0.79	20
8345820	Bicarbonate (HCO3)	2016/07/30					<0.50	mg/L	0.79	20
8345820	Carbonate (CO3)	2016/07/30					<0.50	mg/L	NC	20
8345820	Hydroxide (OH)	2016/07/30					<0.50	mg/L	NC	20
8345821	Conductivity	2016/07/30			102	80 - 120	<1.0	uS/cm		
8345822	pH	2016/07/30			102	97 - 103			0.69	N/A
8345826	Alkalinity (PP as CaCO3)	2016/07/30					<0.50	mg/L	NC	20
8345826	Alkalinity (Total as CaCO3)	2016/07/30	NC	80 - 120	96	80 - 120	<0.50	mg/L	0.81	20
8345826	Bicarbonate (HCO3)	2016/07/30					<0.50	mg/L	0.81	20
8345826	Carbonate (CO3)	2016/07/30					<0.50	mg/L	NC	20
8345826	Hydroxide (OH)	2016/07/30					<0.50	mg/L	NC	20
8345830	Conductivity	2016/07/30			102	80 - 120	1.0, RDL=1.0	uS/cm		
8345832	pH	2016/07/30			102	97 - 103			0.49	N/A
8345975	Total Suspended Solids	2016/08/03			105	80 - 120	<1.0	mg/L		
8345978	Total Suspended Solids	2016/08/03			101	80 - 120	<1.0	mg/L		
8345979	Fluoride (F)	2016/07/29			104	80 - 120	<0.010	mg/L		
8345988	Fluoride (F)	2016/07/29	108	80 - 120	104	80 - 120	<0.010	mg/L	NC	20
8346009	Nitrate plus Nitrite (N)	2016/07/29			107	80 - 120	<0.0020	mg/L		
8346010	Nitrite (N)	2016/07/29			97	80 - 120	<0.0020	mg/L		
8346011	Nitrate plus Nitrite (N)	2016/07/29	NC	80 - 120	103	80 - 120	<0.0020	mg/L	0.79	25
8346012	Nitrite (N)	2016/07/29	97	80 - 120	94	80 - 120	<0.0020	mg/L	NC	25
8346034	Total Ammonia (N)	2016/08/03	NC	80 - 120	100	80 - 120	<0.0050	mg/L		
8346035	Total Ammonia (N)	2016/08/03	NC	80 - 120	98	80 - 120	<0.0050	mg/L	2.1	20
8346037	Acidity (pH 4.5)	2016/07/29					<0.50	mg/L		
8346037	Acidity (pH 8.3)	2016/07/29			100	80 - 120	<0.50	mg/L		
8346758	Dissolved Organic Carbon (C)	2016/08/02	109	80 - 120	104	80 - 120	<0.50	mg/L	NC	20
8348087	Dissolved Chloride (Cl)	2016/07/29	104	80 - 120	100	80 - 120	<0.50	mg/L	NC	20
8348088	Dissolved Sulphate (SO4)	2016/07/29	NC	80 - 120	92	80 - 120	<0.50	mg/L	1.0	20
8348090	Dissolved Chloride (Cl)	2016/07/29	109	80 - 120	100	80 - 120	<0.50	mg/L	NC	20



Maxxam Job #: B662698  
Report Date: 2016/09/12

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8348091	Dissolved Sulphate (SO4)	2016/07/29	NC	80 - 120	92	80 - 120	<0.50	mg/L	2.0	20
8348505	Dissolved Aluminum (Al)	2016/08/04	109	80 - 120	108	80 - 120	<0.00050	mg/L	NC	20
8348505	Dissolved Antimony (Sb)	2016/08/04	97	80 - 120	98	80 - 120	<0.000020	mg/L	NC	20
8348505	Dissolved Arsenic (As)	2016/08/04	95	80 - 120	93	80 - 120	<0.000020	mg/L	NC	20
8348505	Dissolved Barium (Ba)	2016/08/04	103	80 - 120	103	80 - 120	<0.000020	mg/L	NC	20
8348505	Dissolved Beryllium (Be)	2016/08/04	99	80 - 120	99	80 - 120	<0.000010	mg/L	NC	20
8348505	Dissolved Bismuth (Bi)	2016/08/04	97	80 - 120	99	80 - 120	<0.0000050	mg/L	NC	20
8348505	Dissolved Boron (B)	2016/08/04	97	80 - 120	98	80 - 120	<0.010	mg/L	NC	20
8348505	Dissolved Cadmium (Cd)	2016/08/04	101	80 - 120	99	80 - 120	<0.0000050	mg/L	NC	20
8348505	Dissolved Chromium (Cr)	2016/08/04	98	80 - 120	96	80 - 120	<0.00010	mg/L	NC	20
8348505	Dissolved Cobalt (Co)	2016/08/04	97	80 - 120	95	80 - 120	<0.0000050	mg/L	NC	20
8348505	Dissolved Copper (Cu)	2016/08/04	94	80 - 120	93	80 - 120	<0.000050	mg/L	NC	20
8348505	Dissolved Iron (Fe)	2016/08/04	106	80 - 120	104	80 - 120	<0.0010	mg/L	NC	20
8348505	Dissolved Lead (Pb)	2016/08/04	98	80 - 120	99	80 - 120	<0.0000050	mg/L	NC	20
8348505	Dissolved Lithium (Li)	2016/08/04	100	80 - 120	100	80 - 120	<0.00050	mg/L	NC	20
8348505	Dissolved Manganese (Mn)	2016/08/04	102	80 - 120	97	80 - 120	<0.000050	mg/L	NC	20
8348505	Dissolved Molybdenum (Mo)	2016/08/04	100	80 - 120	99	80 - 120	<0.000050	mg/L	NC	20
8348505	Dissolved Nickel (Ni)	2016/08/04	99	80 - 120	97	80 - 120	<0.000020	mg/L	NC	20
8348505	Dissolved Phosphorus (P)	2016/08/04					<0.0020	mg/L	NC	20
8348505	Dissolved Selenium (Se)	2016/08/04	99	80 - 120	98	80 - 120	<0.000040	mg/L	NC	20
8348505	Dissolved Silicon (Si)	2016/08/04					<0.050	mg/L	NC	20
8348505	Dissolved Silver (Ag)	2016/08/04	102	80 - 120	101	80 - 120	<0.0000050	mg/L	NC	20
8348505	Dissolved Strontium (Sr)	2016/08/04	97	80 - 120	92	80 - 120	<0.000050	mg/L	NC	20
8348505	Dissolved Thallium (Tl)	2016/08/04	96	80 - 120	98	80 - 120	<0.0000020	mg/L	NC	20
8348505	Dissolved Tin (Sn)	2016/08/04	100	80 - 120	99	80 - 120	<0.00020	mg/L	NC	20
8348505	Dissolved Titanium (Ti)	2016/08/04	92	80 - 120	101	80 - 120	<0.00050	mg/L	NC	20
8348505	Dissolved Uranium (U)	2016/08/04	99	80 - 120	102	80 - 120	<0.0000020	mg/L	NC	20
8348505	Dissolved Vanadium (V)	2016/08/04	97	80 - 120	97	80 - 120	<0.00020	mg/L	NC	20
8348505	Dissolved Zinc (Zn)	2016/08/04	100	80 - 120	84	80 - 120	<0.00010	mg/L	NC	20
8348505	Dissolved Zirconium (Zr)	2016/08/04					<0.00010	mg/L	NC	20
8348559	Dissolved Phosphorus (P)	2016/08/02	116	80 - 120	104	80 - 120	<0.0020	mg/L	NC	20

Maxxam Job #: B662698  
Report Date: 2016/09/12

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8348621	Total Aluminum (Al)	2016/08/04	97	80 - 120	116	80 - 120	<0.0030	mg/L	0.97	20
8348621	Total Antimony (Sb)	2016/08/04	108	80 - 120	111	80 - 120	<0.000020	mg/L	NC	20
8348621	Total Arsenic (As)	2016/08/04	106	80 - 120	105	80 - 120	<0.000020	mg/L	0.90	20
8348621	Total Barium (Ba)	2016/08/04	NC	80 - 120	107	80 - 120	<0.000050	mg/L	3.4	20
8348621	Total Beryllium (Be)	2016/08/04	94	80 - 120	95	80 - 120	<0.000010	mg/L	NC	20
8348621	Total Bismuth (Bi)	2016/08/04	102	80 - 120	112	80 - 120	<0.000010	mg/L	NC	20
8348621	Total Boron (B)	2016/08/04	92	80 - 120	92	80 - 120	<0.010	mg/L	NC	20
8348621	Total Cadmium (Cd)	2016/08/04	103	80 - 120	101	80 - 120	<0.0000050	mg/L	16	20
8348621	Total Chromium (Cr)	2016/08/04	101	80 - 120	105	80 - 120	<0.00010	mg/L	NC	20
8348621	Total Cobalt (Co)	2016/08/04	97	80 - 120	104	80 - 120	<0.000010	mg/L	15	20
8348621	Total Copper (Cu)	2016/08/04	96	80 - 120	111	80 - 120	<0.00010	mg/L	15	20
8348621	Total Iron (Fe)	2016/08/04	NC	80 - 120	114	80 - 120	<0.0050	mg/L	3.5	20
8348621	Total Lead (Pb)	2016/08/04	100	80 - 120	108	80 - 120	<0.000020	mg/L	14	20
8348621	Total Lithium (Li)	2016/08/04	NC	80 - 120	89	80 - 120	<0.00050	mg/L	0.34	20
8348621	Total Manganese (Mn)	2016/08/04	NC	80 - 120	106	80 - 120	<0.00010	mg/L	1.6	20
8348621	Total Molybdenum (Mo)	2016/08/04	104	80 - 120	101	80 - 120	<0.000050	mg/L	4.5	20
8348621	Total Nickel (Ni)	2016/08/04	99	80 - 120	107	80 - 120	<0.00010	mg/L	NC	20
8348621	Total Phosphorus (P)	2016/08/04					<0.0050	mg/L	NC	20
8348621	Total Selenium (Se)	2016/08/04	107	80 - 120	108	80 - 120	<0.000040	mg/L	NC	20
8348621	Total Silicon (Si)	2016/08/04					<0.050	mg/L	1.8	20
8348621	Total Silver (Ag)	2016/08/04	111	80 - 120	111	80 - 120	<0.000010	mg/L	8.9	20
8348621	Total Strontium (Sr)	2016/08/04	NC	80 - 120	102	80 - 120	<0.000050	mg/L	0.16	20
8348621	Total Thallium (Tl)	2016/08/04	102	80 - 120	110	80 - 120	<0.0000020	mg/L	NC	20
8348621	Total Tin (Sn)	2016/08/04	101	80 - 120	107	80 - 120	<0.00020	mg/L	NC	20
8348621	Total Titanium (Ti)	2016/08/04	106	80 - 120	98	80 - 120	<0.0020	mg/L	NC	20
8348621	Total Uranium (U)	2016/08/04	NC	80 - 120	110	80 - 120	<0.0000050	mg/L	5.0	20
8348621	Total Vanadium (V)	2016/08/04	104	80 - 120	105	80 - 120	<0.00020	mg/L	NC	20
8348621	Total Zinc (Zn)	2016/08/04	101	80 - 120	107	80 - 120	<0.0010	mg/L	NC	20
8348621	Total Zirconium (Zr)	2016/08/04					<0.00010	mg/L	0.76	20
8348630	Dissolved Aluminum (Al)	2016/08/04	107	80 - 120	117	80 - 120	<0.00050	mg/L	NC	20
8348630	Dissolved Antimony (Sb)	2016/08/04	97	80 - 120	106	80 - 120	<0.000020	mg/L	NC	20

Maxxam Job #: B662698  
Report Date: 2016/09/12

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8348630	Dissolved Arsenic (As)	2016/08/04	94	80 - 120	101	80 - 120	<0.000020	mg/L	NC	20
8348630	Dissolved Barium (Ba)	2016/08/04	100	80 - 120	110	80 - 120	<0.000020	mg/L	NC	20
8348630	Dissolved Beryllium (Be)	2016/08/04	99	80 - 120	108	80 - 120	<0.000010	mg/L	NC	20
8348630	Dissolved Bismuth (Bi)	2016/08/04	97	80 - 120	108	80 - 120	<0.0000050	mg/L	NC	20
8348630	Dissolved Boron (B)	2016/08/04	93	80 - 120	111	80 - 120	<0.010	mg/L	NC	20
8348630	Dissolved Cadmium (Cd)	2016/08/04	101	80 - 120	109	80 - 120	<0.0000050	mg/L	NC	20
8348630	Dissolved Chromium (Cr)	2016/08/04	96	80 - 120	107	80 - 120	<0.00010	mg/L	NC	20
8348630	Dissolved Cobalt (Co)	2016/08/04	95	80 - 120	103	80 - 120	<0.0000050	mg/L	NC	20
8348630	Dissolved Copper (Cu)	2016/08/04	93	80 - 120	103	80 - 120	<0.000050	mg/L	NC	20
8348630	Dissolved Iron (Fe)	2016/08/04	103	80 - 120	114	80 - 120	<0.0010	mg/L	NC	20
8348630	Dissolved Lead (Pb)	2016/08/04	98	80 - 120	108	80 - 120	<0.0000050	mg/L	NC	20
8348630	Dissolved Lithium (Li)	2016/08/04	100	80 - 120	110	80 - 120	<0.00050	mg/L	NC	20
8348630	Dissolved Manganese (Mn)	2016/08/04	97	80 - 120	106	80 - 120	<0.000050	mg/L	NC	20
8348630	Dissolved Molybdenum (Mo)	2016/08/04	98	80 - 120	107	80 - 120	<0.000050	mg/L	NC	20
8348630	Dissolved Nickel (Ni)	2016/08/04	98	80 - 120	107	80 - 120	<0.000020	mg/L	NC	20
8348630	Dissolved Phosphorus (P)	2016/08/04					0.0021, RDL=0.0020	mg/L		
8348630	Dissolved Selenium (Se)	2016/08/04	99	80 - 120	107	80 - 120	<0.000040	mg/L	NC	20
8348630	Dissolved Silicon (Si)	2016/08/04					<0.050	mg/L	NC	20
8348630	Dissolved Silver (Ag)	2016/08/04	100	80 - 120	110	80 - 120	<0.0000050	mg/L	NC	20
8348630	Dissolved Strontium (Sr)	2016/08/04	94	80 - 120	101	80 - 120	<0.000050	mg/L	NC	20
8348630	Dissolved Thallium (Tl)	2016/08/04	95	80 - 120	105	80 - 120	<0.0000020	mg/L	NC	20
8348630	Dissolved Tin (Sn)	2016/08/04	98	80 - 120	107	80 - 120	<0.00020	mg/L	NC	20
8348630	Dissolved Titanium (Ti)	2016/08/04	98	80 - 120	107	80 - 120	<0.00050	mg/L	NC	20
8348630	Dissolved Uranium (U)	2016/08/04	98	80 - 120	109	80 - 120	<0.0000020	mg/L	NC	20
8348630	Dissolved Vanadium (V)	2016/08/04	96	80 - 120	105	80 - 120	<0.00020	mg/L	NC	20
8348630	Dissolved Zinc (Zn)	2016/08/04	96	80 - 120	94	80 - 120	<0.00010	mg/L	NC	20
8348630	Dissolved Zirconium (Zr)	2016/08/04					<0.00010	mg/L	NC	20
8348712	Dissolved Phosphorus (P)	2016/08/02	NC	80 - 120	102	80 - 120	<0.0020	mg/L	0.53	20
8348713	Total Phosphorus (P)	2016/08/02			102	80 - 120	<0.0020	mg/L		
8348715	Total Phosphorus (P)	2016/08/02	NC	80 - 120	107	80 - 120	<0.0020	mg/L	4.3	20

Maxxam Job #: B662698  
Report Date: 2016/09/12

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8348797	Dissolved Organic Carbon (C)	2016/08/02	NC	80 - 120	113	80 - 120	<0.50	mg/L	10	20
8348801	Dissolved Organic Carbon (C)	2016/08/02	105	80 - 120	109	80 - 120	<0.50	mg/L	NC	20
8349449	Dissolved Chloride (Cl)	2016/08/02			102	80 - 120	<0.50	mg/L		
8349456	Dissolved Sulphate (SO4)	2016/08/02			100	80 - 120	0.58, RDL=0.50	mg/L	1.1	20
8349667	Dissolved Mercury (Hg)	2016/08/03	94	80 - 120	103	80 - 120	<0.0000020	mg/L	NC	20
8349728	Dissolved Mercury (Hg)	2016/08/03	100	80 - 120	101	80 - 120	<0.0000020	mg/L	NC	20
8349895	Total Aluminum (Al)	2016/08/05	111	80 - 120	116	80 - 120	<0.00050	mg/L	NC	20
8349895	Total Antimony (Sb)	2016/08/05	102	80 - 120	104	80 - 120	<0.000020	mg/L	NC	20
8349895	Total Arsenic (As)	2016/08/05	101	80 - 120	102	80 - 120	<0.000020	mg/L	NC	20
8349895	Total Barium (Ba)	2016/08/05	105	80 - 120	106	80 - 120	<0.000020	mg/L	NC	20
8349895	Total Beryllium (Be)	2016/08/05	100	80 - 120	105	80 - 120	<0.000010	mg/L	NC	20
8349895	Total Bismuth (Bi)	2016/08/05	100	80 - 120	108	80 - 120	<0.0000050	mg/L	NC	20
8349895	Total Boron (B)	2016/08/05	102	80 - 120	110	80 - 120	<0.010	mg/L	NC	20
8349895	Total Cadmium (Cd)	2016/08/05	102	80 - 120	106	80 - 120	<0.0000050	mg/L	NC	20
8349895	Total Chromium (Cr)	2016/08/05	100	80 - 120	103	80 - 120	<0.00010	mg/L	NC	20
8349895	Total Cobalt (Co)	2016/08/05	94	80 - 120	103	80 - 120	<0.0000050	mg/L	NC	20
8349895	Total Copper (Cu)	2016/08/05	98	80 - 120	105	80 - 120	<0.000050	mg/L	NC	20
8349895	Total Iron (Fe)	2016/08/05	106	80 - 120	108	80 - 120	<0.0010	mg/L	NC	20
8349895	Total Lead (Pb)	2016/08/05	104	80 - 120	107	80 - 120	<0.0000050	mg/L	NC	20
8349895	Total Lithium (Li)	2016/08/05	106	80 - 120	109	80 - 120	<0.00050	mg/L	NC	20
8349895	Total Manganese (Mn)	2016/08/05	101	80 - 120	106	80 - 120	<0.000050	mg/L	NC	20
8349895	Total Molybdenum (Mo)	2016/08/05	103	80 - 120	106	80 - 120	<0.000050	mg/L	NC	20
8349895	Total Nickel (Ni)	2016/08/05	100	80 - 120	104	80 - 120	<0.000020	mg/L	NC	20
8349895	Total Phosphorus (P)	2016/08/06					<0.0020	mg/L		
8349895	Total Selenium (Se)	2016/08/05	102	80 - 120	108	80 - 120	<0.000040	mg/L	NC	20
8349895	Total Silicon (Si)	2016/08/05					<0.050	mg/L	NC	20
8349895	Total Silver (Ag)	2016/08/05	100	80 - 120	108	80 - 120	<0.0000050	mg/L	NC	20
8349895	Total Strontium (Sr)	2016/08/05	103	80 - 120	105	80 - 120	<0.000050	mg/L	NC	20
8349895	Total Thallium (Tl)	2016/08/05	101	80 - 120	107	80 - 120	<0.0000020	mg/L	NC	20
8349895	Total Tin (Sn)	2016/08/05	94	80 - 120	108	80 - 120	<0.00020	mg/L	NC	20
8349895	Total Titanium (Ti)	2016/08/05	95	80 - 120	96	80 - 120	<0.00050	mg/L	NC	20

Maxxam Job #: B662698  
Report Date: 2016/09/12

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8349895	Total Uranium (U)	2016/08/05	103	80 - 120	107	80 - 120	<0.0000020	mg/L	NC	20
8349895	Total Vanadium (V)	2016/08/05	100	80 - 120	104	80 - 120	<0.00020	mg/L	NC	20
8349895	Total Zinc (Zn)	2016/08/05	100	80 - 120	104	80 - 120	<0.00010	mg/L	NC	20
8349895	Total Zirconium (Zr)	2016/08/05					<0.00010	mg/L	NC	20
8349989	Total Mercury (Hg)	2016/08/03	92	80 - 120	90	80 - 120	<0.0000020	mg/L	NC	20
8349994	Total Mercury (Hg)	2016/08/03	93	80 - 120	106	80 - 120	<0.0000020	mg/L	NC	20
8350392	Acidity (pH 4.5)	2016/08/02					<0.50	mg/L	NC	20
8350392	Acidity (pH 8.3)	2016/08/02			104	80 - 120	<0.50	mg/L	NC	20
8354073	Alkalinity (PP as CaCO3)	2016/08/07					<0.50	mg/L	NC	20
8354073	Alkalinity (Total as CaCO3)	2016/08/07			100	80 - 120	0.72, RDL=0.50	mg/L	NC	20
8354073	Bicarbonate (HCO3)	2016/08/07					0.88, RDL=0.50	mg/L	NC	20
8354073	Carbonate (CO3)	2016/08/07					<0.50	mg/L	NC	20
8354073	Hydroxide (OH)	2016/08/07					<0.50	mg/L	NC	20
8355011	Dissolved Aluminum (Al)	2016/08/08			113	80 - 120	<0.00050	mg/L		
8355011	Dissolved Antimony (Sb)	2016/08/08			100	80 - 120	<0.000020	mg/L		
8355011	Dissolved Arsenic (As)	2016/08/08			100	80 - 120	<0.000020	mg/L		
8355011	Dissolved Barium (Ba)	2016/08/08			99	80 - 120	<0.000020	mg/L		
8355011	Dissolved Beryllium (Be)	2016/08/08			104	80 - 120	<0.000010	mg/L		
8355011	Dissolved Bismuth (Bi)	2016/08/08			101	80 - 120	<0.0000050	mg/L		
8355011	Dissolved Boron (B)	2016/08/08			102	80 - 120	<0.010	mg/L		
8355011	Dissolved Cadmium (Cd)	2016/08/08			102	80 - 120	<0.0000050	mg/L		
8355011	Dissolved Chromium (Cr)	2016/08/08			100	80 - 120	<0.00010	mg/L		
8355011	Dissolved Cobalt (Co)	2016/08/08			101	80 - 120	<0.0000050	mg/L		
8355011	Dissolved Copper (Cu)	2016/08/08			101	80 - 120	<0.000050	mg/L		
8355011	Dissolved Iron (Fe)	2016/08/08			107	80 - 120	<0.0010	mg/L		
8355011	Dissolved Lead (Pb)	2016/08/08			97	80 - 120	<0.0000050	mg/L		
8355011	Dissolved Lithium (Li)	2016/08/08			101	80 - 120	<0.00050	mg/L		
8355011	Dissolved Manganese (Mn)	2016/08/08			104	80 - 120	<0.000050	mg/L		
8355011	Dissolved Molybdenum (Mo)	2016/08/08			101	80 - 120	<0.000050	mg/L		
8355011	Dissolved Nickel (Ni)	2016/08/08			103	80 - 120	<0.000020	mg/L		
8355011	Dissolved Phosphorus (P)	2016/08/08					<0.0020	mg/L		

Maxxam Job #: B662698  
Report Date: 2016/09/12

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8355011	Dissolved Selenium (Se)	2016/08/08			102	80 - 120	<0.000040	mg/L		
8355011	Dissolved Silicon (Si)	2016/08/08					<0.050	mg/L		
8355011	Dissolved Silver (Ag)	2016/08/08			102	80 - 120	<0.0000050	mg/L		
8355011	Dissolved Strontium (Sr)	2016/08/08			102	80 - 120	<0.000050	mg/L		
8355011	Dissolved Thallium (Tl)	2016/08/08			100	80 - 120	<0.0000020	mg/L		
8355011	Dissolved Tin (Sn)	2016/08/08			99	80 - 120	<0.00020	mg/L		
8355011	Dissolved Titanium (Ti)	2016/08/08			96	80 - 120	<0.00050	mg/L		
8355011	Dissolved Uranium (U)	2016/08/08			98	80 - 120	<0.0000020	mg/L		
8355011	Dissolved Vanadium (V)	2016/08/08			99	80 - 120	<0.00020	mg/L		
8355011	Dissolved Zinc (Zn)	2016/08/08			103	80 - 120	<0.00010	mg/L		
8355011	Dissolved Zirconium (Zr)	2016/08/08					<0.00010	mg/L		
8355296	Total Phosphorus (P)	2016/08/08	NC	80 - 120	108	80 - 120	<0.0020	mg/L	1.5	20
8355299	Dissolved Phosphorus (P)	2016/08/08	NC	80 - 120	104	80 - 120	<0.0020	mg/L	2.7	20
8355558	Dissolved Chloride (Cl)	2016/08/08			100	80 - 120	<0.50	mg/L		
8355560	Dissolved Sulphate (SO4)	2016/08/08			96	80 - 120	0.54, RDL=0.50	mg/L		
8369486	Total Ammonia (N)	2016/08/19	86	80 - 120	95	80 - 120	<0.0050	mg/L	NC	20
8371830	Dissolved Silver (Ag)	2016/08/22			99	80 - 120	<0.0000050	mg/L		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

Maxxam Job #: B662698  
Report Date: 2016/09/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



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David Huang, M.Sc., P.Chem., QP, Scientific Services Manager

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.





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BBY FCD-00077/05

Page 2 of 2

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5. Toll Free (800) 665-8566

COC #:

Invoice Information		Report Information (if differs from invoice)				Project Information (where applicable)										Turnaround Time (TAT) Required		
Company Name: <b>BMC MINERALS LTD.</b>		Company Name: <b>ALEXCO ENVIRONMENTAL</b>				Quotation #: <b>860751</b>										<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses)		
Contact Name:		Contact Name: <b>KAI WOLOSHYN</b>				P.O. #/ AFE#:										PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS		
Address: <b>530-1130 WEST PENDER ST</b> Vancouver, BC PC: V6E 4A4		Address: <b>UNIT 3 151 INDUSTRIAL RD</b> Whitehorse, YK PC: V1A 2V3				Project #: <b>BMC-16-01</b>										Rush TAT (Surcharges will be applied)		
Phone:		Phone: <b>(867) 668-6463</b>				Site Location: <b>Kudz Zq Kayah</b>										<input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days		
Email:		Email: <b>kwoloshyn@alexcoresource.com</b>				Site #:										<input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days		
						Sampled By: <b>Leia Fougere</b>										Date Required:		
Regulatory Criteria		Special Instructions				Analysis Requested										Rush Confirmation #:		
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> BC CSR Water <input type="checkbox"/> CCME (Specify) <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC Water Quality		<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify) <b>USE SCENARIO # 12485</b>				TOTAL LOW LEVEL METALS INCL. MERCURY DISSOLVED LOW LEVEL METALS INCL. MERCURY LOW LEVEL TSS ANIONS (Cl, F, SO4, NO2, NO3) AMMONIA CONDUCTIVITY pH ALKALINITY & ACIDITY DOC TOTAL PHOSPHORUS - LOW LEVEL DISSOLVED PHOSPHORUS - LOW LEVEL # OF CONTAINERS SUBMITTED HOLD - DO NOT ANALYZE										LABORATORY USE ONLY CUSTODY SEAL Y / N Present    Intact N/A      4,4,4/2,1,3 5,6,3/7,6,5 7,6,3 COOLING MEDIA PRESENT Y / N COMMENTS		
SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM																		
Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	TOTAL LOW LEVEL METALS INCL. MERCURY	DISSOLVED LOW LEVEL METALS INCL. MERCURY	LOW LEVEL TSS	ANIONS (Cl, F, SO4, NO2, NO3)	AMMONIA	CONDUCTIVITY	pH	ALKALINITY & ACIDITY	DOC	TOTAL PHOSPHORUS - LOW LEVEL	DISSOLVED PHOSPHORUS - LOW LEVEL	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	COMMENTS
1	MW15-08s	27-Jul-16	15:35	Water	x	x	x	x	x	x	x	x	x	x	x	10		
2	MW15-06	27-Jul-16	14:28	Water	x	x	x	x	x	x	x	x	x	x	x	10		
3	MW15-07d	27-Jul-16	13:10	Water	x	x	x	x	x	x	x	x	x	x	x	10		
4	MW16-15s	27-Jul-16	17:30	Water	x	x	x	x	x	x	x	x	x	x	x	10		
5	Trip Blank	27-Jul-16		Water	x	x	x	x	x	x	x	x	x	x	x	10		
6	Dup 3	27-Jul-16	10:40	Water	x	x	x	x	x	x	x	x	x	x	x	10		
7	MW15-10s	27-Jul-16	10:15	Water	x	x	x	x	x	x	x	x	x	x	x	10		
8	MW15-10d	27-Jul-16	11:00	Water	x	x	x	x	x	x	x	x	x	x	x	10		
9	MW15-07s	27-Jul-16	11:40	Water	x	x	x	x	x	x	x	x	x	x	x	10		
10	MW15-11s	26-Jul-16	12:20	Water	x	x	x	x	x	x	x	x	x	x	x	10		
11	MW15-09s	27-Jul-16	9:40	Water	x	x	x	x	x	x	x	x	x	x	x	10		
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)		TIME: (HH:MM)		RECEIVED BY: (Signature/Print)				DATE: (YYYY/MM/DD)		TIME: (HH:MM)		MAXXAM JOB #				
Leia Fougere		28/07/2016		7:30		Veronica de Guzman <i>[Signature]</i>				2016/07/29		09:20		B662698				

RECEIVED IN WHITEHORSE  
BY: *[Signature]*  
2016-07-29  
TEMP: *[Handwritten]*

COOLANT #  
↑ 2  
↑ 3  
↑ 4  
↑ 5  
↑ 6  
↑ 7  
↑ 8  
↑ 9  
↑ 10





CHAIN OF CUSTODY RE



BBY FCD-00077/05

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5. Toll Free (800) 665-8566

COC #: 08425835

Page 1 of 2

Invoice Information		Report Information (If differs from invoice)				Project Information (where applicable)				Turnaround Time (TAT) Required							
Company Name: <b>BMC MINERALS LTD.</b>	Company Name: <b>ALEXCO ENVIRONMENTAL</b>	Quotation #: <b>B60751</b>	<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses)		<b>PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS</b>				<b>Rush TAT (Surcharges will be applied)</b>								
Contact Name:	Contact Name: <b>KAI WOLOSHYN</b>	P.O. #/ AFE#:	<input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days														
Address: <b>530-1130 WEST PENDER ST</b>	Address: <b>UNIT 3 151 INDUSTRIAL RD</b>	Project #: <b>BMC-16-01</b>	<input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days		<b>Date Required:</b>												
Address: <b>Vancouver, BC PC: V6E 4A4</b>	Address: <b>Whitehorse, YK PC: V1A 2V3</b>	Site Location: <b>Kudz Za Kayah</b>															
Phone:	Phone: <b>(857) 668-6463</b>	Site #:															
Email:	Email: <b>kwoloshyn@alexcoresource.com</b>	Sampled By: <b>Leia Fougere</b>															
Regulatory Criteria		Special Instructions		Analysis Requested								Rush Confirmation #:					
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> BC CSR Water <input type="checkbox"/> CCME (Specify) <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Drinking Water <input type="checkbox"/> W. Water Quality		<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify) <b>USE SCENARIO # 12485</b>		TOTAL LOW LEVEL METALS INCL. MERCURY      DISSOLVED LOW LEVEL METALS INCL. MERCURY      LOW LEVEL TSS      ANIONS (Cl, F, SO4, NO2, NO3)      AMMONIA      CONDUCTIVITY      pH      ALKALINITY & ACIDITY      DOC      TOTAL PHOSPHORUS - LOW LEVEL      DISSOLVED PHOSPHORUS - LOW LEVEL								<b>LABORATORY USE ONLY</b> CUSTODY SEAL Y / N      COOLER TEMPERATURES Present      Intact N/A      4,4,4/2,1,3 5,6,3/7,6,5 7,6,3 COOLING MEDIA PRESENT Y / N COMMENTS					
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM																	
Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	TOTAL LOW LEVEL METALS INCL. MERCURY	DISSOLVED LOW LEVEL METALS INCL. MERCURY	LOW LEVEL TSS	ANIONS (Cl, F, SO4, NO2, NO3)	AMMONIA	CONDUCTIVITY	pH	ALKALINITY & ACIDITY	DOC	TOTAL PHOSPHORUS - LOW LEVEL	DISSOLVED PHOSPHORUS - LOW LEVEL	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE
1	MW15-01	26-Jul-16	14:20	Water	X	X	X	X	X	X	X	X	X	X	X	11	
2	Dup 2	26-Jul-16	20:30	Water	X	X	X	X	X	X	X	X	X	X	X	11	
3	BH95G-32	26-Jul-16	17:00	Water	X	X	X	X	X	X	X	X	X	X	X	11	
4	BH95G-33d	26-Jul-16	17:40	Water	X	X	X	X	X	X	X	X	X	X	X	11	
5	BH95G-21	26-Jul-16	20:49	Water	X	X	X	X	X	X	X	X	X	X	X	11	
6	BH95G-25s	26-Jul-16	10:43	Water	X	X	X	X	X	X	X	X	X	X	X	11	
7	MW15-11d	26-Jul-16	12:00	Water	X	X	X	X	X	X	X	X	X	X	X	11	
8	FB-GW	26-Jul-16	10:00	Water	X	X	X	X	X	X	X	X	X	X	X	11	
9	BH96G-25d	26-Jul-16	10:20	Water	X	X	X	X	X	X	X	X	X	X	X	11	
10	BH95G-29	26-Jul-16	9:30	Water	X	X	X	X	X	X	X	X	X	X	X	11	
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #									
Leia Fougere		7/28/2016	7:30	Veronica de Guzman VP		2016/07/29	09:20	3662698									

Your Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Your C.O.C. #: 08425868

**Attention: KAI WOLOSHYN**

ALEXCO ENVIRONMENTAL GROUP INC.  
Unit 3 Calcite Business Centre  
151 Industrial Road  
WHITEHORSE, YT  
Canada Y1A 2V3

**Report Date: 2016/08/06**  
Report #: R2230556  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B663164**

**Received: 2016/07/29, 16:40**

Sample Matrix: Water  
# Samples Received: 9

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Acidity pH 4.5 & pH 8.3 (as CaCO3)	9	N/A	2016/08/02	BBY6SOP-00037	SM 22 2310 B m
Alkalinity - Water	3	2016/08/03	2016/08/03	BBY6SOP-00026	SM 22 2320 B m
Alkalinity - Water	6	2016/08/03	2016/08/04	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry	9	N/A	2016/08/02	BBY6SOP-00011	SM 22 4500-Cl- E m
Carbon (DOC) - field filtered/preserved (1)	9	N/A	2016/08/03	BBY6SOP-00003	SM 22 5310 C m
Conductance - water	3	N/A	2016/08/03	BBY6SOP-00026	SM 22 2510 B m
Conductance - water	6	N/A	2016/08/04	BBY6SOP-00026	SM 22 2510 B m
Fluoride	9	N/A	2016/08/02	BBY6SOP-00048	SM 22 4500-F C m
Hardness Total (calculated as CaCO3)	7	N/A	2016/08/05	BBY WI-00033	Auto Calc
Hardness Total (calculated as CaCO3)	2	N/A	2016/08/06	BBY WI-00033	Auto Calc
Hardness (calculated as CaCO3)	9	N/A	2016/08/04	BBY WI-00033	Auto Calc
Mercury (Dissolved-LowLevel) by CVAF	9	N/A	2016/08/04	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total-LowLevel) by CVAF	9	2016/08/04	2016/08/04	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Ion Balance	9	N/A	2016/08/04	BBY WI-00033	SM 22 1030E
Sum of cations, anions	9	N/A	2016/08/04	Calc	
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	9	N/A	2016/08/04	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Low Level (dissolved)	9	N/A	2016/08/04	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Digested LL (total)	7	2016/08/03	2016/08/05	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Na, K, Ca, Mg, S by CRC ICPMS (total)	7	N/A	2016/08/05	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Na, K, Ca, Mg, S by CRC ICPMS (total)	2	N/A	2016/08/06	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Elements by ICPMS Low Level (total)	1	N/A	2016/08/05	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Elements by ICPMS Low Level (total)	1	N/A	2016/08/06	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Ammonia-N (Preserved)	9	N/A	2016/08/03	BBY6SOP-00009	SM 22 4500-NH3- G m
Nitrate+Nitrite (N) (low level)	9	N/A	2016/07/30	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) (low level)	9	N/A	2016/07/30	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N)	9	N/A	2016/08/03	BBY6SOP-00010	SM 22 4500-NO3- I m
Filter and HNO3 Preserve for Metals	9	N/A	2016/08/02	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (2)	3	N/A	2016/08/03	BBY6SOP-00026	SM 22 4500-H+ B m
pH Water (2)	6	N/A	2016/08/04	BBY6SOP-00026	SM 22 4500-H+ B m

Your Project #: BMC-16-01  
 Site Location: KUDZ ZE KAYAH  
 Your C.O.C. #: 08425868

**Attention:KAI WOLOSHYN**

ALEXCO ENVIRONMENTAL GROUP INC.  
 Unit 3 Calcite Business Centre  
 151 Industrial Road  
 WHITEHORSE, YT  
 Canada Y1A 2V3

**Report Date: 2016/08/06**  
 Report #: R2230556  
 Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B663164**

**Received: 2016/07/29, 16:40**

Sample Matrix: Water  
 # Samples Received: 9

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
Sulphate by Automated Colourimetry	8	N/A	2016/08/02	BBY6SOP-00017	SM 22 4500-SO42- E m
Sulphate by Automated Colourimetry	1	N/A	2016/08/03	BBY6SOP-00017	SM 22 4500-SO42- E m
Phosphorus-P (LL Tot, dissolved) - UF/UP	9	2016/08/02	2016/08/02	BBY6SOP-00013	SM 22 4500-P E m
Total Phosphorus - unpreserved	9	N/A	2016/08/02	BBY6SOP-00013	SM 22 4500-P E m
Total Suspended Solids-Low Level	9	2016/08/03	2016/08/04	BBY6SOP-00034	SM 22 2540 D

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) DOC present in the sample should be considered as non-purgeable DOC.

(2) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

**Encryption Key**

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Megan Smith, Project Manager

Email: msmith@maxxam.ca

Phone# (604) 734 7276

=====

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B663164  
Report Date: 2016/08/06

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PD4497			PD4498		PD4499		
Sampling Date		2016/07/29 11:30			2016/07/29 11:55		2016/07/28 15:50		
COC Number		08425868			08425868		08425868		
	UNITS	BH95G-146	RDL	QC Batch	BH95G-129	QC Batch	BH95G-30	RDL	QC Batch
<b>Calculated Parameters</b>									
Anion Sum	meq/L	8.5	N/A	8346346	4.1	8346346	4.0	N/A	8346346
Cation Sum	meq/L	8.1	N/A	8346346	4.0	8346346	4.2	N/A	8346346
Filter and HNO3 Preservation	N/A	LAB	N/A	8348252	LAB	8348252	LAB	N/A	8348252
Ion Balance	N/A	0.95	0.010	8346345	0.97	8346345	1.0	0.010	8346345
Nitrate (N)	mg/L	0.0026	0.0020	8346511	0.0023	8346511	0.341	0.0020	8346511
<b>Misc. Inorganics</b>									
Fluoride (F)	mg/L	0.310	0.010	8348730	0.180	8348755	0.140	0.010	8348755
Dissolved Organic Carbon (C)	mg/L	<0.50	0.50	8350371	<0.50	8350371	1.62	0.50	8350371
Acidity (pH 4.5)	mg/L	<0.50	0.50	8348722	<0.50	8348731	<0.50	0.50	8348731
Alkalinity (Total as CaCO3)	mg/L	135	0.50	8349380	148	8349380	174	0.50	8349380
Acidity (pH 8.3)	mg/L	1.62	0.50	8348722	<0.50	8348731	<0.50	0.50	8348731
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8349380	<0.50	8349380	<0.50	0.50	8349380
Bicarbonate (HCO3)	mg/L	164	0.50	8349380	181	8349380	212	0.50	8349380
Carbonate (CO3)	mg/L	<0.50	0.50	8349380	<0.50	8349380	<0.50	0.50	8349380
Hydroxide (OH)	mg/L	<0.50	0.50	8349380	<0.50	8349380	<0.50	0.50	8349380
<b>Anions</b>									
Dissolved Sulphate (SO4)	mg/L	279 (1)	5.0	8348818	54.6	8348818	24.5	0.50	8350405
Dissolved Chloride (Cl)	mg/L	<0.50	0.50	8348817	<0.50	8348817	<0.50	0.50	8348817
<b>Nutrients</b>									
Dissolved Phosphorus (P)	mg/L	0.0139 (2)	0.0020	8348732	0.0103 (2)	8348732	0.0179 (2)	0.0020	8348732
Total Ammonia (N)	mg/L	0.045	0.0050	8348909	0.035	8348909	0.018	0.0050	8348909
Nitrate plus Nitrite (N)	mg/L	0.0026	0.0020	8349538	0.0045	8349538	0.341	0.0020	8349538
Nitrite (N)	mg/L	<0.0020	0.0020	8349540	0.0022	8349540	<0.0020	0.0020	8349540
Total Phosphorus (P)	mg/L	0.0147 (2)	0.0020	8348724	0.0105 (2)	8348724	0.0229 (2)	0.0020	8348724
<b>Physical Properties</b>									
Conductivity	uS/cm	758	1.0	8349388	361	8349388	371	1.0	8349388
pH	pH	8.18		8349393	8.26	8349393	8.14		8349393
<b>Physical Properties</b>									
Total Suspended Solids	mg/L	6.8	1.0	8349515	1.5	8349515	10.4	1.0	8349515
RDL = Reportable Detection Limit N/A = Not Applicable (1) Detection limits raised due to dilution to bring analyte within the calibrated range. (2) Sample preserved to extend hold time.									

Maxxam Job #: B663164  
Report Date: 2016/08/06

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PD4500		PD4501			PD4502		
Sampling Date		2016/07/28 17:45		2016/07/28 12:18			2016/07/28 16:10		
COC Number		08425868		08425868			08425868		
	UNITS	MW16-15D	RDL	BH95G-131	RDL	QC Batch	BH95G-2	RDL	QC Batch
<b>Calculated Parameters</b>									
Anion Sum	meq/L	4.4	N/A	13	N/A	8346346	5.0	N/A	8346346
Cation Sum	meq/L	4.1	N/A	14	N/A	8346346	5.0	N/A	8346346
Filter and HNO3 Preservation	N/A	LAB	N/A	LAB	N/A	8348252	LAB	N/A	8348252
Ion Balance	N/A	0.93	0.010	1.0	0.010	8346345	0.99	0.010	8346345
Nitrate (N)	mg/L	0.0032	0.0020	0.0033	0.0020	8346511	0.509	0.0020	8346511
<b>Misc. Inorganics</b>									
Fluoride (F)	mg/L	0.130	0.010	0.094	0.010	8348755	0.041	0.010	8348730
Dissolved Organic Carbon (C)	mg/L	0.55	0.50	0.75	0.50	8350371	3.58	0.50	8350371
Acidity (pH 4.5)	mg/L	<0.50	0.50	<0.50	0.50	8348731	<0.50	0.50	8348722
Alkalinity (Total as CaCO3)	mg/L	134	0.50	401	0.50	8349380	221	0.50	8349370
Acidity (pH 8.3)	mg/L	<0.50	0.50	13.0	0.50	8348731	0.62	0.50	8348722
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	<0.50	0.50	8349380	0.85	0.50	8349370
Bicarbonate (HCO3)	mg/L	163	0.50	489	0.50	8349380	267	0.50	8349370
Carbonate (CO3)	mg/L	<0.50	0.50	<0.50	0.50	8349380	1.02	0.50	8349370
Hydroxide (OH)	mg/L	<0.50	0.50	<0.50	0.50	8349380	<0.50	0.50	8349370
<b>Anions</b>									
Dissolved Sulphate (SO4)	mg/L	82.6	0.50	247 (1)	5.0	8348818	26.0	0.50	8348818
Dissolved Chloride (Cl)	mg/L	0.63	0.50	0.65	0.50	8348817	<0.50	0.50	8348817
<b>Nutrients</b>									
Dissolved Phosphorus (P)	mg/L	0.0268 (2)	0.0020	0.178 (2)	0.0020	8348732	1.02 (3)	0.020	8348732
Total Ammonia (N)	mg/L	0.050	0.0050	0.049	0.0050	8348909	0.036	0.0050	8348909
Nitrate plus Nitrite (N)	mg/L	0.0032	0.0020	0.0033	0.0020	8349538	0.512	0.0020	8349538
Nitrite (N)	mg/L	<0.0020	0.0020	<0.0020	0.0020	8349540	0.0024	0.0020	8349540
Total Phosphorus (P)	mg/L	0.0286 (2)	0.0020	0.189 (2)	0.0020	8348724	1.01 (3)	0.020	8348724
<b>Physical Properties</b>									
Conductivity	uS/cm	387	1.0	1090	1.0	8349388	438	1.0	8349373
pH	pH	8.26		7.79		8349393	8.31		8349374
RDL = Reportable Detection Limit N/A = Not Applicable (1) Detection limits raised due to dilution to bring analyte within the calibrated range. (2) Sample preserved to extend hold time. (3) Detection limits raised due to dilution to bring analyte within the calibrated range. Sample preserved to extend hold time.									

Maxxam Job #: B663164  
Report Date: 2016/08/06

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		PD4500		PD4501			PD4502		
<b>Sampling Date</b>		2016/07/28 17:45		2016/07/28 12:18			2016/07/28 16:10		
<b>COC Number</b>		08425868		08425868			08425868		
	<b>UNITS</b>	<b>MW16-15D</b>	<b>RDL</b>	<b>BH95G-131</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH95G-2</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Physical Properties</b>									
Total Suspended Solids	mg/L	44.5	1.0	126 (1)	3.3	8349515	1290 (1)	20	8349550
RDL = Reportable Detection Limit									
(1) RDL raised due to high concentration of solids in the sample.									



Maxxam Job #: B663164  
Report Date: 2016/08/06

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PD4503		PD4504	PD4505		
Sampling Date		2016/07/29 10:30		2016/07/29 09:15	2016/07/29 08:15		
COC Number		08425868		08425868	08425868		
	UNITS	MW15-02	RDL	BH95G-22	BH95G-31	RDL	QC Batch
<b>Calculated Parameters</b>							
Anion Sum	meq/L	5.1	N/A	4.0	3.2	N/A	8346346
Cation Sum	meq/L	5.0	N/A	3.8	3.2	N/A	8346346
Filter and HNO3 Preservation	N/A	LAB	N/A	LAB	LAB	N/A	8348252
Ion Balance	N/A	0.98	0.010	0.96	0.99	0.010	8346345
Nitrate (N)	mg/L	0.228	0.0020	0.370	0.206	0.0020	8346511
<b>Misc. Inorganics</b>							
Fluoride (F)	mg/L	0.088	0.010	0.055	0.098	0.010	8348730
Dissolved Organic Carbon (C)	mg/L	<0.50	0.50	<0.50	0.98	0.50	8350371
Acidity (pH 4.5)	mg/L	<0.50	0.50	<0.50	<0.50	0.50	8348722
Alkalinity (Total as CaCO3)	mg/L	186	0.50	144	132	0.50	8349380
Acidity (pH 8.3)	mg/L	<0.50	0.50	0.90	<0.50	0.50	8348722
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	<0.50	<0.50	0.50	8349380
Bicarbonate (HCO3)	mg/L	228	0.50	175	161	0.50	8349380
Carbonate (CO3)	mg/L	<0.50	0.50	<0.50	<0.50	0.50	8349380
Hydroxide (OH)	mg/L	<0.50	0.50	<0.50	<0.50	0.50	8349380
<b>Anions</b>							
Dissolved Sulphate (SO4)	mg/L	65.6	0.50	51.3	25.4	0.50	8348818
Dissolved Chloride (Cl)	mg/L	0.53	0.50	<0.50	<0.50	0.50	8348817
<b>Nutrients</b>							
Dissolved Phosphorus (P)	mg/L	<0.0020 (1)	0.0020	0.196 (1)	0.239 (1)	0.0020	8348732
Total Ammonia (N)	mg/L	0.018	0.0050	0.036	0.037	0.0050	8348909
Nitrate plus Nitrite (N)	mg/L	0.228	0.0020	0.370	0.206	0.0020	8349538
Nitrite (N)	mg/L	<0.0020	0.0020	<0.0020	<0.0020	0.0020	8349540
Total Phosphorus (P)	mg/L	<0.0020 (1)	0.0020	0.500 (1)	0.237 (1)	0.0020	8348724
<b>Physical Properties</b>							
Conductivity	uS/cm	452	1.0	356	294	1.0	8349388
pH	pH	8.30		8.20	8.23		8349393
<b>Physical Properties</b>							
Total Suspended Solids	mg/L	<1.0	1.0	3090 (2)	1450 (2)	20	8349550
RDL = Reportable Detection Limit N/A = Not Applicable (1) Sample preserved to extend hold time. (2) RDL raised due to high concentration of solids in the sample.							

Maxxam Job #: B663164  
Report Date: 2016/08/06

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PD4497		PD4498		PD4499		
Sampling Date		2016/07/29 11:30		2016/07/29 11:55		2016/07/28 15:50		
COC Number		08425868		08425868		08425868		
	UNITS	BH95G-146	RDL	BH95G-129	QC Batch	BH95G-30	RDL	QC Batch
<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO3)	mg/L	397	0.50	194	8346232	206	0.50	8346232
<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	<0.000020	0.000020	<0.000020	8350889	<0.000020	0.000020	8350959
<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	<0.0050	0.0050	0.00082	8348638	0.00296	0.00050	8350070
Dissolved Antimony (Sb)	mg/L	<0.00020	0.00020	0.000222	8348638	0.000040	0.000020	8350070
Dissolved Arsenic (As)	mg/L	0.00040	0.00020	0.00209	8348638	0.000067	0.000020	8350070
Dissolved Barium (Ba)	mg/L	0.00997	0.00020	0.0380	8348638	0.0690	0.000020	8350070
Dissolved Beryllium (Be)	mg/L	<0.00010	0.00010	<0.000010	8348638	<0.000010	0.000010	8350070
Dissolved Bismuth (Bi)	mg/L	<0.000050	0.000050	<0.0000050	8348638	<0.0000050	0.0000050	8350070
Dissolved Boron (B)	mg/L	<0.10	0.10	<0.010	8348638	<0.010	0.010	8350070
Dissolved Cadmium (Cd)	mg/L	<0.000050	0.000050	<0.0000050	8348638	0.000156	0.0000050	8350070
Dissolved Chromium (Cr)	mg/L	<0.0010	0.0010	<0.00010	8348638	<0.00010	0.00010	8350070
Dissolved Cobalt (Co)	mg/L	<0.000050	0.000050	0.000132	8348638	0.0000110	0.0000050	8350070
Dissolved Copper (Cu)	mg/L	<0.00050	0.00050	0.000052	8348638	0.000437	0.000050	8350070
Dissolved Iron (Fe)	mg/L	<0.010	0.010	0.0011	8348638	<0.0010	0.0010	8350070
Dissolved Lead (Pb)	mg/L	<0.000050	0.000050	0.0000060	8348638	0.0000200	0.0000050	8350070
Dissolved Lithium (Li)	mg/L	0.0223	0.0050	0.00638	8348638	0.00166	0.00050	8350070
Dissolved Manganese (Mn)	mg/L	0.0171	0.00050	0.105	8348638	0.000063	0.000050	8350070
Dissolved Molybdenum (Mo)	mg/L	<0.00050	0.00050	0.000936	8348638	0.00219	0.000050	8350070
Dissolved Nickel (Ni)	mg/L	<0.00020	0.00020	0.000293	8348638	0.00104	0.000020	8350070
Dissolved Phosphorus (P)	mg/L	<0.020	0.020	<0.0020	8348638	<0.0020	0.0020	8350070
Dissolved Selenium (Se)	mg/L	<0.00040	0.00040	<0.000040	8348638	0.00259	0.000040	8350070
Dissolved Silicon (Si)	mg/L	16.4	0.50	4.62	8348638	3.31	0.050	8350070
Dissolved Silver (Ag)	mg/L	<0.000050	0.000050	<0.0000050	8348638	<0.0000050	0.0000050	8350070
Dissolved Strontium (Sr)	mg/L	0.381	0.00050	0.164	8348638	0.223	0.000050	8350070
Dissolved Thallium (Tl)	mg/L	<0.000020	0.000020	<0.0000020	8348638	0.0000020	0.0000020	8350070
Dissolved Tin (Sn)	mg/L	<0.0020	0.0020	<0.00020	8348638	<0.00020	0.00020	8350070
Dissolved Titanium (Ti)	mg/L	<0.0050	0.0050	<0.00050	8348638	<0.00050	0.00050	8350070
Dissolved Uranium (U)	mg/L	0.00169	0.000020	0.00951	8348638	0.00260	0.0000020	8350070
Dissolved Vanadium (V)	mg/L	<0.0020	0.0020	<0.00020	8348638	<0.00020	0.00020	8350070
RDL = Reportable Detection Limit								



Maxxam Job #: B663164  
Report Date: 2016/08/06

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PD4497		PD4498		PD4499		
Sampling Date		2016/07/29 11:30		2016/07/29 11:55		2016/07/28 15:50		
COC Number		08425868		08425868		08425868		
	UNITS	BH95G-146	RDL	BH95G-129	QC Batch	BH95G-30	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	<0.0010	0.0010	<0.00010	8348638	0.00803	0.00010	8350070
Dissolved Zirconium (Zr)	mg/L	<0.0010	0.0010	<0.00010	8348638	<0.00010	0.00010	8350070
Dissolved Calcium (Ca)	mg/L	121	0.50	61.4	8346233	71.2	0.050	8346233
Dissolved Magnesium (Mg)	mg/L	23.0	0.50	9.98	8346233	6.89	0.050	8346233
Dissolved Potassium (K)	mg/L	2.31	0.50	1.81	8346233	1.64	0.050	8346233
Dissolved Sodium (Na)	mg/L	3.29	0.50	1.10	8346233	1.35	0.050	8346233
Dissolved Sulphur (S)	mg/L	92	30	15.9	8346233	8.0	3.0	8346233
RDL = Reportable Detection Limit								

Maxxam Job #: B663164  
Report Date: 2016/08/06

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PD4500	PD4501	PD4502		PD4503		
Sampling Date		2016/07/28 17:45	2016/07/28 12:18	2016/07/28 16:10		2016/07/29 10:30		
COC Number		08425868	08425868	08425868		08425868		
	<b>UNITS</b>	<b>MW16-15D</b>	<b>BH95G-131</b>	<b>BH95G-2</b>	<b>QC Batch</b>	<b>MW15-02</b>	<b>RDL</b>	<b>QC Batch</b>

Misc. Inorganics								
Dissolved Hardness (CaCO3)	mg/L	194	676	246	8346232	248	0.50	8346232
Elements								
Dissolved Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	8350959	<0.0000020	0.0000020	8350959
Dissolved Metals by ICPMS								
Dissolved Aluminum (Al)	mg/L	0.0107	<0.00050	0.00281	8350070	0.00075	0.00050	8348638
Dissolved Antimony (Sb)	mg/L	0.000762	0.00297	0.000022	8350070	<0.000020	0.000020	8348638
Dissolved Arsenic (As)	mg/L	0.0153	0.00186	0.000119	8350070	0.000820	0.000020	8348638
Dissolved Barium (Ba)	mg/L	0.0405	0.0215	0.0215	8350070	0.0937	0.000020	8348638
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	8350070	<0.000010	0.000010	8348638
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	8350070	<0.0000050	0.0000050	8348638
Dissolved Boron (B)	mg/L	<0.010	<0.010	<0.010	8350070	<0.010	0.010	8348638
Dissolved Cadmium (Cd)	mg/L	0.0000670	0.0000160	0.00153	8350070	<0.0000050	0.0000050	8348638
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	<0.00010	8350070	<0.00010	0.00010	8348638
Dissolved Cobalt (Co)	mg/L	0.000159	0.0000490	0.0000270	8350070	0.0000300	0.0000050	8348638
Dissolved Copper (Cu)	mg/L	0.000151	0.000108	0.00239	8350070	0.000058	0.000050	8348638
Dissolved Iron (Fe)	mg/L	<0.0010	<0.0010	0.0020	8350070	<0.0010	0.0010	8348638
Dissolved Lead (Pb)	mg/L	0.0000110	0.000214	0.0000230	8350070	<0.0000050	0.0000050	8348638
Dissolved Lithium (Li)	mg/L	0.00406	0.0161	0.00123	8350070	0.00187	0.00050	8348638
Dissolved Manganese (Mn)	mg/L	0.120	0.157	0.00187	8350070	<0.000050	0.000050	8348638
Dissolved Molybdenum (Mo)	mg/L	0.00110	0.000098	0.00139	8350070	0.000756	0.000050	8348638
Dissolved Nickel (Ni)	mg/L	0.000279	0.000144	0.000614	8350070	0.000140	0.000020	8348638
Dissolved Phosphorus (P)	mg/L	<0.0020	<0.0020	<0.0020	8350070	<0.0020	0.0020	8348638
Dissolved Selenium (Se)	mg/L	0.000074	0.000047	0.00330	8350070	0.00188	0.000040	8348638
Dissolved Silicon (Si)	mg/L	3.35	13.4	3.04	8350070	2.53	0.050	8348638
Dissolved Silver (Ag)	mg/L	<0.0000050	0.0000060	<0.0000050	8350070	<0.0000050	0.0000050	8348638
Dissolved Strontium (Sr)	mg/L	0.184	0.819	0.183	8350070	0.286	0.000050	8348638
Dissolved Thallium (Tl)	mg/L	0.0000040	0.0000130	<0.0000020	8350070	<0.0000020	0.0000020	8348638
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	8350070	<0.00020	0.00020	8348638
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	<0.00050	8350070	<0.00050	0.00050	8348638
Dissolved Uranium (U)	mg/L	0.00833	0.0143	0.00157	8350070	0.00327	0.0000020	8348638
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	8350070	<0.00020	0.00020	8348638

RDL = Reportable Detection Limit

Maxxam Job #: B663164  
Report Date: 2016/08/06

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PD4500	PD4501	PD4502		PD4503		
Sampling Date		2016/07/28 17:45	2016/07/28 12:18	2016/07/28 16:10		2016/07/29 10:30		
COC Number		08425868	08425868	08425868		08425868		
	UNITS	MW16-15D	BH95G-131	BH95G-2	QC Batch	MW15-02	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	<0.00010	0.00224	0.0168	8350070	<0.00010	0.00010	8348638
Dissolved Zirconium (Zr)	mg/L	<0.00010	0.00322	<0.00010	8350070	<0.00010	0.00010	8348638
Dissolved Calcium (Ca)	mg/L	62.7	171	59.7	8346233	80.7	0.050	8346233
Dissolved Magnesium (Mg)	mg/L	9.19	60.7	23.6	8346233	11.4	0.050	8346233
Dissolved Potassium (K)	mg/L	4.02	3.57	0.366	8346233	2.17	0.050	8346233
Dissolved Sodium (Na)	mg/L	2.80	2.41	0.597	8346233	0.689	0.050	8346233
Dissolved Sulphur (S)	mg/L	23.1	79.5	7.9	8346233	19.9	3.0	8346233
RDL = Reportable Detection Limit								

Maxxam Job #: B663164  
Report Date: 2016/08/06

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PD4504		PD4505		
Sampling Date		2016/07/29 09:15		2016/07/29 08:15		
COC Number		08425868		08425868		
	UNITS	BH95G-22	QC Batch	BH95G-31	RDL	QC Batch
<b>Misc. Inorganics</b>						
Dissolved Hardness (CaCO3)	mg/L	188	8346232	153	0.50	8346232
<b>Elements</b>						
Dissolved Mercury (Hg)	mg/L	<0.0000020	8350959	<0.0000020	0.0000020	8350959
<b>Dissolved Metals by ICPMS</b>						
Dissolved Aluminum (Al)	mg/L	0.00089	8350070	0.00289	0.00050	8348638
Dissolved Antimony (Sb)	mg/L	0.000070	8350070	<0.000020	0.000020	8348638
Dissolved Arsenic (As)	mg/L	0.000302	8350070	0.000248	0.000020	8348638
Dissolved Barium (Ba)	mg/L	0.107	8350070	0.128	0.000020	8348638
Dissolved Beryllium (Be)	mg/L	<0.000010	8350070	<0.000010	0.000010	8348638
Dissolved Bismuth (Bi)	mg/L	<0.0000050	8350070	<0.0000050	0.0000050	8348638
Dissolved Boron (B)	mg/L	<0.010	8350070	<0.010	0.010	8348638
Dissolved Cadmium (Cd)	mg/L	0.000133	8350070	0.0000230	0.0000050	8348638
Dissolved Chromium (Cr)	mg/L	<0.00010	8350070	0.00011	0.00010	8348638
Dissolved Cobalt (Co)	mg/L	<0.0000050	8350070	0.0000320	0.0000050	8348638
Dissolved Copper (Cu)	mg/L	0.000549	8350070	0.000738	0.000050	8348638
Dissolved Iron (Fe)	mg/L	0.0024	8350070	0.0013	0.0010	8348638
Dissolved Lead (Pb)	mg/L	0.0000080	8350070	0.0000320	0.0000050	8348638
Dissolved Lithium (Li)	mg/L	0.00197	8350070	0.00114	0.00050	8348638
Dissolved Manganese (Mn)	mg/L	0.00153	8350070	0.00139	0.000050	8348638
Dissolved Molybdenum (Mo)	mg/L	0.000296	8350070	0.00158	0.000050	8348638
Dissolved Nickel (Ni)	mg/L	0.000596	8350070	0.000396	0.000020	8348638
Dissolved Phosphorus (P)	mg/L	<0.0020	8350070	<0.0020	0.0020	8348638
Dissolved Selenium (Se)	mg/L	0.000857	8350070	0.00163	0.000040	8348638
Dissolved Silicon (Si)	mg/L	3.53	8350070	3.11	0.050	8348638
Dissolved Silver (Ag)	mg/L	<0.0000050	8350070	<0.0000050	0.0000050	8348638
Dissolved Strontium (Sr)	mg/L	0.164	8350070	0.175	0.000050	8348638
Dissolved Thallium (Tl)	mg/L	0.0000030	8350070	0.0000040	0.0000020	8348638
Dissolved Tin (Sn)	mg/L	<0.00020	8350070	<0.00020	0.00020	8348638
Dissolved Titanium (Ti)	mg/L	<0.00050	8350070	<0.00050	0.00050	8348638
Dissolved Uranium (U)	mg/L	0.00169	8350070	0.000975	0.0000020	8348638
Dissolved Vanadium (V)	mg/L	<0.00020	8350070	<0.00020	0.00020	8348638
RDL = Reportable Detection Limit						

Maxxam Job #: B663164  
Report Date: 2016/08/06

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PD4504		PD4505		
Sampling Date		2016/07/29 09:15		2016/07/29 08:15		
COC Number		08425868		08425868		
	UNITS	BH95G-22	QC Batch	BH95G-31	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	0.00330	8350070	<0.00010	0.00010	8348638
Dissolved Zirconium (Zr)	mg/L	<0.00010	8350070	<0.00010	0.00010	8348638
Dissolved Calcium (Ca)	mg/L	59.8	8346233	56.7	0.050	8346233
Dissolved Magnesium (Mg)	mg/L	9.37	8346233	2.81	0.050	8346233
Dissolved Potassium (K)	mg/L	1.32	8346233	2.56	0.050	8346233
Dissolved Sodium (Na)	mg/L	0.900	8346233	0.954	0.050	8346233
Dissolved Sulphur (S)	mg/L	15.2	8346233	7.7	3.0	8346233
RDL = Reportable Detection Limit						

Maxxam Job #: B663164  
Report Date: 2016/08/06

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		PD4498	PD4503		
Sampling Date		2016/07/29 11:55	2016/07/29 10:30		
COC Number		08425868	08425868		
	UNITS	BH95G-129	MW15-02	RDL	QC Batch
<b>Calculated Parameters</b>					
Total Hardness (CaCO3)	mg/L	194	260	0.50	8346344
<b>Elements</b>					
Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	0.0000020	8350896
<b>Total Metals by ICPMS</b>					
Total Aluminum (Al)	mg/L	0.00770	0.00100	0.00050	8349895
Total Antimony (Sb)	mg/L	0.000289	<0.000020	0.000020	8349895
Total Arsenic (As)	mg/L	0.00520	0.000861	0.000020	8349895
Total Barium (Ba)	mg/L	0.0435	0.0977	0.000020	8349895
Total Beryllium (Be)	mg/L	<0.000010	<0.000010	0.000010	8349895
Total Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	0.0000050	8349895
Total Boron (B)	mg/L	<0.010	<0.010	0.010	8349895
Total Cadmium (Cd)	mg/L	0.0000080	<0.0000050	0.0000050	8349895
Total Chromium (Cr)	mg/L	<0.00010	<0.00010	0.00010	8349895
Total Cobalt (Co)	mg/L	0.000165	0.0000350	0.0000050	8349895
Total Copper (Cu)	mg/L	0.000320	0.000080	0.000050	8349895
Total Iron (Fe)	mg/L	0.706	<0.0010	0.0010	8349895
Total Lead (Pb)	mg/L	0.00154	<0.0000050	0.0000050	8349895
Total Lithium (Li)	mg/L	0.00634	0.00189	0.00050	8349895
Total Manganese (Mn)	mg/L	0.112	<0.000050	0.000050	8349895
Total Molybdenum (Mo)	mg/L	0.000957	0.000809	0.000050	8349895
Total Nickel (Ni)	mg/L	0.000351	0.000152	0.000020	8349895
Total Phosphorus (P)	mg/L	0.0109	<0.0020	0.0020	8349895
Total Selenium (Se)	mg/L	<0.000040	0.00185	0.000040	8349895
Total Silicon (Si)	mg/L	4.46	2.36	0.050	8349895
Total Silver (Ag)	mg/L	<0.0000050	<0.0000050	0.0000050	8349895
Total Strontium (Sr)	mg/L	0.172	0.303	0.000050	8349895
Total Thallium (Tl)	mg/L	<0.0000020	<0.0000020	0.0000020	8349895
Total Tin (Sn)	mg/L	<0.00020	<0.00020	0.00020	8349895
Total Titanium (Ti)	mg/L	0.00051	<0.00050	0.00050	8349895
Total Uranium (U)	mg/L	0.00976	0.00353	0.0000020	8349895
Total Vanadium (V)	mg/L	<0.00020	<0.00020	0.00020	8349895
RDL = Reportable Detection Limit					

Maxxam Job #: B663164  
Report Date: 2016/08/06

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		PD4498	PD4503		
Sampling Date		2016/07/29 11:55	2016/07/29 10:30		
COC Number		08425868	08425868		
	UNITS	BH95G-129	MW15-02	RDL	QC Batch
Total Zinc (Zn)	mg/L	0.00279	0.00020	0.00010	8349895
Total Zirconium (Zr)	mg/L	0.00029	<0.00010	0.00010	8349895
Total Calcium (Ca)	mg/L	61.2	84.6	0.050	8346708
Total Magnesium (Mg)	mg/L	10.1	11.9	0.050	8346708
Total Potassium (K)	mg/L	1.98	2.44	0.050	8346708
Total Sodium (Na)	mg/L	1.15	0.735	0.050	8346708
Total Sulphur (S)	mg/L	16.5	20.9	3.0	8346708
RDL = Reportable Detection Limit					

Maxxam Job #: B663164  
Report Date: 2016/08/06

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PD4497		PD4499		PD4500		
Sampling Date		2016/07/29 11:30		2016/07/28 15:50		2016/07/28 17:45		
COC Number		08425868		08425868		08425868		
	UNITS	BH95G-146	RDL	BH95G-30	RDL	MW16-15D	RDL	QC Batch
<b>Calculated Parameters</b>								
Total Hardness (CaCO3)	mg/L	327	0.50	200	0.50	192	0.50	8346344
<b>Elements</b>								
Total Mercury (Hg)	mg/L	<0.000020	0.000020	<0.000020	0.000020	<0.000020	0.000020	8350896
<b>Total Metals by ICPMS</b>								
Total Aluminum (Al)	mg/L	0.0174	0.0030	0.095	0.030	0.888	0.030	8350125
Total Antimony (Sb)	mg/L	0.000106	0.000020	<0.00020	0.00020	0.00087	0.00020	8350125
Total Arsenic (As)	mg/L	0.000547	0.000020	0.00020	0.00020	0.0193	0.00020	8350125
Total Barium (Ba)	mg/L	0.0110	0.000050	0.0760	0.00050	0.0550	0.00050	8350125
Total Beryllium (Be)	mg/L	<0.000010	0.000010	<0.00010	0.00010	0.00010	0.00010	8350125
Total Bismuth (Bi)	mg/L	<0.000010	0.000010	<0.00010	0.00010	0.00011	0.00010	8350125
Total Boron (B)	mg/L	<0.010	0.010	<0.10	0.10	<0.10	0.10	8350125
Total Cadmium (Cd)	mg/L	0.0000340	0.0000050	0.000213	0.000050	0.00103	0.000050	8350125
Total Chromium (Cr)	mg/L	<0.00010	0.00010	<0.0010	0.0010	0.0013	0.0010	8350125
Total Cobalt (Co)	mg/L	0.000023	0.000010	0.00018	0.00010	0.00079	0.00010	8350125
Total Copper (Cu)	mg/L	0.00056	0.00010	0.0028	0.0010	0.0089	0.0010	8350125
Total Iron (Fe)	mg/L	0.685	0.0050	0.211	0.050	2.31	0.050	8350125
Total Lead (Pb)	mg/L	0.00204	0.000020	0.00137	0.00020	0.00783	0.00020	8350125
Total Lithium (Li)	mg/L	0.0189	0.00050	<0.0050	0.0050	0.0063	0.0050	8350125
Total Manganese (Mn)	mg/L	0.0155	0.00010	0.0070	0.0010	0.190	0.0010	8350125
Total Molybdenum (Mo)	mg/L	0.000197	0.000050	0.00220	0.00050	0.00108	0.00050	8350125
Total Nickel (Ni)	mg/L	0.00014	0.00010	0.0015	0.0010	0.0014	0.0010	8350125
Total Phosphorus (P)	mg/L	0.0054	0.0050	<0.050	0.050	<0.050	0.050	8350125
Total Selenium (Se)	mg/L	<0.000040	0.000040	0.00248	0.00040	<0.00040	0.00040	8350125
Total Silicon (Si)	mg/L	11.9	0.050	3.38	0.50	4.64	0.50	8350125
Total Silver (Ag)	mg/L	<0.000010	0.000010	<0.00010	0.00010	0.00012	0.00010	8350125
Total Strontium (Sr)	mg/L	0.333	0.000050	0.231	0.00050	0.191	0.00050	8350125
Total Thallium (Tl)	mg/L	0.0000040	0.0000020	<0.000020	0.000020	0.000027	0.000020	8350125
Total Tin (Sn)	mg/L	<0.00020	0.00020	<0.0020	0.0020	<0.0020	0.0020	8350125
Total Titanium (Ti)	mg/L	<0.0020	0.0020	<0.020	0.020	0.052	0.020	8350125
Total Uranium (U)	mg/L	0.00141	0.0000050	0.00264	0.000050	0.00866	0.000050	8350125
Total Vanadium (V)	mg/L	<0.00020	0.00020	<0.0020	0.0020	0.0023	0.0020	8350125
RDL = Reportable Detection Limit								



Maxxam Job #: B663164  
Report Date: 2016/08/06

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PD4497		PD4499		PD4500		
Sampling Date		2016/07/29 11:30		2016/07/28 15:50		2016/07/28 17:45		
COC Number		08425868		08425868		08425868		
	UNITS	BH95G-146	RDL	BH95G-30	RDL	MW16-15D	RDL	QC Batch
Total Zinc (Zn)	mg/L	0.0065	0.0010	0.020	0.010	0.182	0.010	8350125
Total Zirconium (Zr)	mg/L	0.00032	0.00010	<0.0010	0.0010	0.0058	0.0010	8350125
Total Calcium (Ca)	mg/L	101	0.25	68.5	2.5	60.3	2.5	8346708
Total Magnesium (Mg)	mg/L	18.2	0.25	7.0	2.5	10.0	2.5	8346708
Total Potassium (K)	mg/L	1.90	0.25	1.60	0.50	4.4	2.5	8346708
Total Sodium (Na)	mg/L	2.82	0.25	<2.5	2.5	2.9	2.5	8346708
Total Sulphur (S)	mg/L	74.5	3.0	<30	30	<30	30	8346708
RDL = Reportable Detection Limit								

Maxxam Job #: B663164  
Report Date: 2016/08/06

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PD4501	PD4502	PD4504	PD4505		
Sampling Date		2016/07/28 12:18	2016/07/28 16:10	2016/07/29 09:15	2016/07/29 08:15		
COC Number		08425868	08425868	08425868	08425868		
	UNITS	BH95G-131	BH95G-2	BH95G-22	BH95G-31	RDL	QC Batch
<b>Calculated Parameters</b>							
Total Hardness (CaCO3)	mg/L	682	400	303	239	0.50	8346344
<b>Elements</b>							
Total Mercury (Hg)	mg/L	<0.0000020	0.0000028	0.0000037	<0.0000020	0.0000020	8350896
<b>Total Metals by ICPMS</b>							
Total Aluminum (Al)	mg/L	1.39	19.3	33.1	15.0	0.030	8350125
Total Antimony (Sb)	mg/L	0.0289	0.00041	0.00146	0.00029	0.00020	8350125
Total Arsenic (As)	mg/L	0.0857	0.0195	0.0340	0.0300	0.00020	8350125
Total Barium (Ba)	mg/L	0.104	0.355	1.21	0.865	0.00050	8350125
Total Beryllium (Be)	mg/L	0.00022	0.00104	0.00233	0.00066	0.00010	8350125
Total Bismuth (Bi)	mg/L	0.00019	0.00063	0.00615	0.00121	0.00010	8350125
Total Boron (B)	mg/L	<0.10	<0.10	<0.10	<0.10	0.10	8350125
Total Cadmium (Cd)	mg/L	0.00176	0.0440	0.0238	0.00284	0.000050	8350125
Total Chromium (Cr)	mg/L	0.0030	0.0492	0.0701	0.0454	0.0010	8350125
Total Cobalt (Co)	mg/L	0.00092	0.0494	0.102	0.0645	0.00010	8350125
Total Copper (Cu)	mg/L	0.0096	0.520	0.984	0.610	0.0010	8350125
Total Iron (Fe)	mg/L	13.9	55.5	187	81.6	0.050	8350125
Total Lead (Pb)	mg/L	0.348	0.170	0.855	0.278	0.00020	8350125
Total Lithium (Li)	mg/L	0.0213	0.0210	0.0366	0.0148	0.0050	8350125
Total Manganese (Mn)	mg/L	0.243	1.10	8.10	1.15	0.0010	8350125
Total Molybdenum (Mo)	mg/L	<0.00050	0.00277	0.00050	0.00150	0.00050	8350125
Total Nickel (Ni)	mg/L	0.0021	0.237	0.171	0.140	0.0010	8350125
Total Phosphorus (P)	mg/L	0.244	9.46	1.79	1.41	0.050	8350125
Total Selenium (Se)	mg/L	0.00043	0.00364	0.00116	0.00197	0.00040	8350125
Total Silicon (Si)	mg/L	15.8	27.2	54.6	28.4	0.50	8350125
Total Silver (Ag)	mg/L	0.00063	0.00328	0.0144	0.00616	0.00010	8350125
Total Strontium (Sr)	mg/L	0.767	0.317	0.255	0.261	0.00050	8350125
Total Thallium (Tl)	mg/L	0.000111	0.000439	0.000838	0.000266	0.000020	8350125
Total Tin (Sn)	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	0.0020	8350125
Total Titanium (Ti)	mg/L	0.052	0.202	0.613	0.923	0.020	8350125
Total Uranium (U)	mg/L	0.0163	0.00626	0.0141	0.00248	0.000050	8350125
Total Vanadium (V)	mg/L	0.0034	0.117	0.0869	0.103	0.0020	8350125
RDL = Reportable Detection Limit							

Maxxam Job #: B663164  
Report Date: 2016/08/06

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PD4501	PD4502	PD4504	PD4505		
Sampling Date		2016/07/28 12:18	2016/07/28 16:10	2016/07/29 09:15	2016/07/29 08:15		
COC Number		08425868	08425868	08425868	08425868		
	UNITS	BH95G-131	BH95G-2	BH95G-22	BH95G-31	RDL	QC Batch
Total Zinc (Zn)	mg/L	0.315	4.51	3.06	0.296	0.010	8350125
Total Zirconium (Zr)	mg/L	0.0531	0.0086	0.0050	0.0033	0.0010	8350125
Total Calcium (Ca)	mg/L	163	94.1	74.6	75.4	2.5	8346708
Total Magnesium (Mg)	mg/L	66.9	40.1	28.3	12.2	2.5	8346708
Total Potassium (K)	mg/L	4.0	3.7	9.1	6.6	2.5	8346708
Total Sodium (Na)	mg/L	2.7	<2.5	<2.5	<2.5	2.5	8346708
Total Sulphur (S)	mg/L	82	<30	<30	<30	30	8346708
RDL = Reportable Detection Limit							

Maxxam Job #: B663164  
Report Date: 2016/08/06

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

### TEST SUMMARY

**Maxxam ID:** PD4497  
**Sample ID:** BH95G-146  
**Matrix:** Water

**Collected:** 2016/07/29  
**Shipped:**  
**Received:** 2016/07/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8348722	N/A	2016/08/02	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8349380	2016/08/03	2016/08/04	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8348817	N/A	2016/08/02	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8350371	N/A	2016/08/03	Isabel Choi
Conductance - water	AT/ALK	8349388	N/A	2016/08/04	Maria Maclean
Fluoride	ISE/ISE	8348730	N/A	2016/08/02	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8346344	N/A	2016/08/05	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8346232	N/A	2016/08/04	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8350889	N/A	2016/08/04	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8350896	2016/08/04	2016/08/04	Edwin Lamigo
Ion Balance	CALC	8346345	N/A	2016/08/04	Automated Statchk
Sum of cations, anions	CALC	8346346	N/A	2016/08/04	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8346233	N/A	2016/08/04	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8348638	N/A	2016/08/04	Greg Sparrow
Elements by ICPMS Digested LL (total)	ICP/CRCM	8350125	2016/08/03	2016/08/05	John Choo
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8346708	N/A	2016/08/05	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8348909	N/A	2016/08/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8349538	N/A	2016/07/30	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8349540	N/A	2016/07/30	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8346511	N/A	2016/08/03	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8348252	N/A	2016/08/02	Lucy Luo
pH Water	AT/ALK	8349393	N/A	2016/08/04	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8348818	N/A	2016/08/02	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8348732	2016/08/02	2016/08/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8348724	N/A	2016/08/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8349515	2016/08/03	2016/08/04	Jamie Sun

**Maxxam ID:** PD4497 Dup  
**Sample ID:** BH95G-146  
**Matrix:** Water

**Collected:** 2016/07/29  
**Shipped:**  
**Received:** 2016/07/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbon (DOC) - field filtered/preserved	TRAA/COL	8350371	N/A	2016/08/03	Isabel Choi
Elements by ICPMS Digested LL (total)	ICP/CRCM	8350125	2016/08/03	2016/08/05	John Choo

**Maxxam ID:** PD4498  
**Sample ID:** BH95G-129  
**Matrix:** Water

**Collected:** 2016/07/29  
**Shipped:**  
**Received:** 2016/07/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8348731	N/A	2016/08/02	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8349380	2016/08/03	2016/08/04	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8348817	N/A	2016/08/02	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8350371	N/A	2016/08/03	Isabel Choi

Maxxam Job #: B663164  
Report Date: 2016/08/06

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

### TEST SUMMARY

**Maxxam ID:** PD4498  
**Sample ID:** BH95G-129  
**Matrix:** Water

**Collected:** 2016/07/29  
**Shipped:**  
**Received:** 2016/07/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductance - water	AT/ALK	8349388	N/A	2016/08/04	Maria Maclean
Fluoride	ISE/ISE	8348755	N/A	2016/08/02	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8346344	N/A	2016/08/06	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8346232	N/A	2016/08/04	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8350889	N/A	2016/08/04	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8350896	2016/08/04	2016/08/04	Edwin Lamigo
Ion Balance	CALC	8346345	N/A	2016/08/04	Automated Statchk
Sum of cations, anions	CALC	8346346	N/A	2016/08/04	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8346233	N/A	2016/08/04	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8348638	N/A	2016/08/04	Greg Sparrow
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8346708	N/A	2016/08/06	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8349895	N/A	2016/08/05	Greg Sparrow
Ammonia-N (Preserved)	KONE/COL	8348909	N/A	2016/08/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8349538	N/A	2016/07/30	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8349540	N/A	2016/07/30	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8346511	N/A	2016/08/03	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8348252	N/A	2016/08/02	Lucy Luo
pH Water	AT/ALK	8349393	N/A	2016/08/04	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8348818	N/A	2016/08/02	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8348732	2016/08/02	2016/08/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8348724	N/A	2016/08/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8349515	2016/08/03	2016/08/04	Jamie Sun

**Maxxam ID:** PD4499  
**Sample ID:** BH95G-30  
**Matrix:** Water

**Collected:** 2016/07/28  
**Shipped:**  
**Received:** 2016/07/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8348731	N/A	2016/08/02	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8349380	2016/08/03	2016/08/04	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8348817	N/A	2016/08/02	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8350371	N/A	2016/08/03	Isabel Choi
Conductance - water	AT/ALK	8349388	N/A	2016/08/04	Maria Maclean
Fluoride	ISE/ISE	8348755	N/A	2016/08/02	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8346344	N/A	2016/08/05	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8346232	N/A	2016/08/04	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8350959	N/A	2016/08/04	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8350896	2016/08/04	2016/08/04	Edwin Lamigo
Ion Balance	CALC	8346345	N/A	2016/08/04	Automated Statchk
Sum of cations, anions	CALC	8346346	N/A	2016/08/04	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8346233	N/A	2016/08/04	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8350070	N/A	2016/08/04	Greg Sparrow
Elements by ICPMS Digested LL (total)	ICP/CRCM	8350125	2016/08/03	2016/08/05	John Choo
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8346708	N/A	2016/08/05	Automated Statchk

Maxxam Job #: B663164  
Report Date: 2016/08/06

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

### TEST SUMMARY

**Maxxam ID:** PD4499  
**Sample ID:** BH95G-30  
**Matrix:** Water

**Collected:** 2016/07/28  
**Shipped:**  
**Received:** 2016/07/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Ammonia-N (Preserved)	KONE/COL	8348909	N/A	2016/08/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8349538	N/A	2016/07/30	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8349540	N/A	2016/07/30	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8346511	N/A	2016/08/03	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8348252	N/A	2016/08/02	Lucy Luo
pH Water	AT/ALK	8349393	N/A	2016/08/04	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8350405	N/A	2016/08/03	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8348732	2016/08/02	2016/08/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8348724	N/A	2016/08/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8349515	2016/08/03	2016/08/04	Jamie Sun

**Maxxam ID:** PD4499 Dup  
**Sample ID:** BH95G-30  
**Matrix:** Water

**Collected:** 2016/07/28  
**Shipped:**  
**Received:** 2016/07/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8348731	N/A	2016/08/02	Wilson Au Yueng

**Maxxam ID:** PD4500  
**Sample ID:** MW16-15D  
**Matrix:** Water

**Collected:** 2016/07/28  
**Shipped:**  
**Received:** 2016/07/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8348731	N/A	2016/08/02	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8349380	2016/08/03	2016/08/04	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8348817	N/A	2016/08/02	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8350371	N/A	2016/08/03	Isabel Choi
Conductance - water	AT/ALK	8349388	N/A	2016/08/04	Maria Maclean
Fluoride	ISE/ISE	8348755	N/A	2016/08/02	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8346344	N/A	2016/08/05	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8346232	N/A	2016/08/04	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8350959	N/A	2016/08/04	Edwin Lamigo
Mercury (Total-LowLevel) by CVAF	CV/AF	8350896	2016/08/04	2016/08/04	Edwin Lamigo
Ion Balance	CALC	8346345	N/A	2016/08/04	Automated Statchk
Sum of cations, anions	CALC	8346346	N/A	2016/08/04	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8346233	N/A	2016/08/04	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8350070	N/A	2016/08/04	Greg Sparrow
Elements by ICPMS Digested LL (total)	ICP/CRCM	8350125	2016/08/03	2016/08/05	John Choo
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8346708	N/A	2016/08/05	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8348909	N/A	2016/08/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8349538	N/A	2016/07/30	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8349540	N/A	2016/07/30	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8346511	N/A	2016/08/03	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8348252	N/A	2016/08/02	Lucy Luo

Maxxam Job #: B663164  
Report Date: 2016/08/06

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

### TEST SUMMARY

**Maxxam ID:** PD4500  
**Sample ID:** MW16-15D  
**Matrix:** Water

**Collected:** 2016/07/28  
**Shipped:**  
**Received:** 2016/07/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
pH Water	AT/ALK	8349393	N/A	2016/08/04	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8348818	N/A	2016/08/02	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8348732	2016/08/02	2016/08/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8348724	N/A	2016/08/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8349515	2016/08/03	2016/08/04	Jamie Sun

**Maxxam ID:** PD4500 Dup  
**Sample ID:** MW16-15D  
**Matrix:** Water

**Collected:** 2016/07/28  
**Shipped:**  
**Received:** 2016/07/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Fluoride	ISE/ISE	8348755	N/A	2016/08/02	Balwinder Bassi

**Maxxam ID:** PD4501  
**Sample ID:** BH95G-131  
**Matrix:** Water

**Collected:** 2016/07/28  
**Shipped:**  
**Received:** 2016/07/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8348731	N/A	2016/08/02	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8349380	2016/08/03	2016/08/04	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8348817	N/A	2016/08/02	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8350371	N/A	2016/08/03	Isabel Choi
Conductance - water	AT/ALK	8349388	N/A	2016/08/04	Maria Maclean
Fluoride	ISE/ISE	8348755	N/A	2016/08/02	Balwinder Bassi
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8346344	N/A	2016/08/05	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8346232	N/A	2016/08/04	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8350959	N/A	2016/08/04	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8350896	2016/08/04	2016/08/04	Edwin Lamigo
Ion Balance	CALC	8346345	N/A	2016/08/04	Automated Statchk
Sum of cations, anions	CALC	8346346	N/A	2016/08/04	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8346233	N/A	2016/08/04	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8350070	N/A	2016/08/04	Greg Sparrow
Elements by ICPMS Digested LL (total)	ICP/CRCM	8350125	2016/08/03	2016/08/05	John Choo
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8346708	N/A	2016/08/05	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8348909	N/A	2016/08/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8349538	N/A	2016/07/30	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8349540	N/A	2016/07/30	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8346511	N/A	2016/08/03	Automated Statchk
Filter and HNO <sub>3</sub> Preserve for Metals	ICP	8348252	N/A	2016/08/02	Lucy Luo
pH Water	AT/ALK	8349393	N/A	2016/08/04	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8348818	N/A	2016/08/02	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8348732	2016/08/02	2016/08/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8348724	N/A	2016/08/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8349515	2016/08/03	2016/08/04	Jamie Sun



Maxxam Job #: B663164  
Report Date: 2016/08/06

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**TEST SUMMARY**

**Maxxam ID:** PD4501 Dup  
**Sample ID:** BH95G-131  
**Matrix:** Water

**Collected:** 2016/07/28  
**Shipped:**  
**Received:** 2016/07/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Ammonia-N (Preserved)	KONE/COL	8348909	N/A	2016/08/03	Clare Kwok

**Maxxam ID:** PD4502  
**Sample ID:** BH95G-2  
**Matrix:** Water

**Collected:** 2016/07/28  
**Shipped:**  
**Received:** 2016/07/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8348722	N/A	2016/08/02	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8349370	2016/08/03	2016/08/03	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8348817	N/A	2016/08/02	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8350371	N/A	2016/08/03	Isabel Choi
Conductance - water	AT/ALK	8349373	N/A	2016/08/03	Maria Maclean
Fluoride	ISE/ISE	8348730	N/A	2016/08/02	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8346344	N/A	2016/08/05	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8346232	N/A	2016/08/04	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8350959	N/A	2016/08/04	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8350896	2016/08/04	2016/08/04	Edwin Lamigo
Ion Balance	CALC	8346345	N/A	2016/08/04	Automated Statchk
Sum of cations, anions	CALC	8346346	N/A	2016/08/04	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8346233	N/A	2016/08/04	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8350070	N/A	2016/08/04	Greg Sparrow
Elements by ICPMS Digested LL (total)	ICP/CRCM	8350125	2016/08/03	2016/08/05	John Choo
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8346708	N/A	2016/08/05	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8348909	N/A	2016/08/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8349538	N/A	2016/07/30	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8349540	N/A	2016/07/30	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8346511	N/A	2016/08/03	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8348252	N/A	2016/08/02	Lucy Luo
pH Water	AT/ALK	8349374	N/A	2016/08/03	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8348818	N/A	2016/08/02	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8348732	2016/08/02	2016/08/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8348724	N/A	2016/08/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8349550	2016/08/03	2016/08/04	Jamie Sun

**Maxxam ID:** PD4502 Dup  
**Sample ID:** BH95G-2  
**Matrix:** Water

**Collected:** 2016/07/28  
**Shipped:**  
**Received:** 2016/07/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Fluoride	ISE/ISE	8348730	N/A	2016/08/02	Balwinder Bassi



Maxxam Job #: B663164  
Report Date: 2016/08/06

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

### TEST SUMMARY

**Maxxam ID:** PD4503  
**Sample ID:** MW15-02  
**Matrix:** Water

**Collected:** 2016/07/29  
**Shipped:**  
**Received:** 2016/07/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8348722	N/A	2016/08/02	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8349380	2016/08/03	2016/08/03	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8348817	N/A	2016/08/02	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8350371	N/A	2016/08/03	Isabel Choi
Conductance - water	AT/ALK	8349388	N/A	2016/08/03	Maria Maclean
Fluoride	ISE/ISE	8348730	N/A	2016/08/02	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8346344	N/A	2016/08/06	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8346232	N/A	2016/08/04	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8350959	N/A	2016/08/04	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8350896	2016/08/04	2016/08/04	Edwin Lamigo
Ion Balance	CALC	8346345	N/A	2016/08/04	Automated Statchk
Sum of cations, anions	CALC	8346346	N/A	2016/08/04	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8346233	N/A	2016/08/04	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8348638	N/A	2016/08/04	Greg Sparrow
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8346708	N/A	2016/08/06	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8349895	N/A	2016/08/06	Greg Sparrow
Ammonia-N (Preserved)	KONE/COL	8348909	N/A	2016/08/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8349538	N/A	2016/07/30	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8349540	N/A	2016/07/30	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8346511	N/A	2016/08/03	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8348252	N/A	2016/08/02	Lucy Luo
pH Water	AT/ALK	8349393	N/A	2016/08/03	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8348818	N/A	2016/08/02	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8348732	2016/08/02	2016/08/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8348724	N/A	2016/08/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8349550	2016/08/03	2016/08/04	Jamie Sun

**Maxxam ID:** PD4504  
**Sample ID:** BH95G-22  
**Matrix:** Water

**Collected:** 2016/07/29  
**Shipped:**  
**Received:** 2016/07/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8348722	N/A	2016/08/02	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8349380	2016/08/03	2016/08/03	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8348817	N/A	2016/08/02	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8350371	N/A	2016/08/03	Isabel Choi
Conductance - water	AT/ALK	8349388	N/A	2016/08/03	Maria Maclean
Fluoride	ISE/ISE	8348730	N/A	2016/08/02	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8346344	N/A	2016/08/05	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8346232	N/A	2016/08/04	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8350959	N/A	2016/08/04	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8350896	2016/08/04	2016/08/04	Edwin Lamigo
Ion Balance	CALC	8346345	N/A	2016/08/04	Automated Statchk
Sum of cations, anions	CALC	8346346	N/A	2016/08/04	Automated Statchk

Maxxam Job #: B663164  
Report Date: 2016/08/06

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

### TEST SUMMARY

**Maxxam ID:** PD4504  
**Sample ID:** BH95G-22  
**Matrix:** Water

**Collected:** 2016/07/29  
**Shipped:**  
**Received:** 2016/07/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8346233	N/A	2016/08/04	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8350070	N/A	2016/08/04	Greg Sparrow
Elements by ICPMS Digested LL (total)	ICP/CRCM	8350125	2016/08/03	2016/08/05	John Choo
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8346708	N/A	2016/08/05	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8348909	N/A	2016/08/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8349538	N/A	2016/07/30	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8349540	N/A	2016/07/30	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8346511	N/A	2016/08/03	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8348252	N/A	2016/08/02	Lucy Luo
pH Water	AT/ALK	8349393	N/A	2016/08/03	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8348818	N/A	2016/08/02	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8348732	2016/08/02	2016/08/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8348724	N/A	2016/08/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8349550	2016/08/03	2016/08/04	Jamie Sun

**Maxxam ID:** PD4505  
**Sample ID:** BH95G-31  
**Matrix:** Water

**Collected:** 2016/07/29  
**Shipped:**  
**Received:** 2016/07/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8348722	N/A	2016/08/02	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8349380	2016/08/03	2016/08/04	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8348817	N/A	2016/08/02	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8350371	N/A	2016/08/03	Isabel Choi
Conductance - water	AT/ALK	8349388	N/A	2016/08/04	Maria Maclean
Fluoride	ISE/ISE	8348730	N/A	2016/08/02	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8346344	N/A	2016/08/05	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8346232	N/A	2016/08/04	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8350959	N/A	2016/08/04	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8350896	2016/08/04	2016/08/04	Edwin Lamigo
Ion Balance	CALC	8346345	N/A	2016/08/04	Automated Statchk
Sum of cations, anions	CALC	8346346	N/A	2016/08/04	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8346233	N/A	2016/08/04	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8348638	N/A	2016/08/04	Greg Sparrow
Elements by ICPMS Digested LL (total)	ICP/CRCM	8350125	2016/08/03	2016/08/05	John Choo
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8346708	N/A	2016/08/05	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8348909	N/A	2016/08/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8349538	N/A	2016/07/30	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8349540	N/A	2016/07/30	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8346511	N/A	2016/08/03	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8348252	N/A	2016/08/02	Lucy Luo
pH Water	AT/ALK	8349393	N/A	2016/08/04	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8348818	N/A	2016/08/02	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8348732	2016/08/02	2016/08/02	Diana Cruz

Maxxam Job #: B663164  
Report Date: 2016/08/06

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**TEST SUMMARY**

**Maxxam ID:** PD4505  
**Sample ID:** BH95G-31  
**Matrix:** Water

**Collected:** 2016/07/29  
**Shipped:**  
**Received:** 2016/07/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Phosphorus - unpreserved	KONE/COL	8348724	N/A	2016/08/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8349550	2016/08/03	2016/08/04	Jamie Sun

**Maxxam ID:** PD4505 Dup  
**Sample ID:** BH95G-31  
**Matrix:** Water

**Collected:** 2016/07/29  
**Shipped:**  
**Received:** 2016/07/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8350959	N/A	2016/08/04	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8350896	2016/08/04	2016/08/04	Edwin Lamigo

Maxxam Job #: B663164  
Report Date: 2016/08/06

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

**GENERAL COMMENTS**

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	5.7°C
Package 2	6.7°C

Sample PD4497-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PD4499-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PD4500-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PD4501-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PD4502-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PD4504-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PD4505-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER) Comments**

Sample PD4497-08 Elements by ICPMS Low Level (dissolved): Detection limits raised due to matrix interference.

**LL TOTAL METALS (DIGESTED) WITH CV HG Comments**

Sample PD4499-07 Elements by ICPMS Digested LL (total): RDL raised due to sample matrix interference.

Sample PD4500-07 Elements by ICPMS Digested LL (total): RDL raised due to sample matrix interference.

Sample PD4501-07 Elements by ICPMS Digested LL (total): RDL raised due to sample matrix interference.

Sample PD4502-07 Elements by ICPMS Digested LL (total): RDL raised due to sample matrix interference.

Sample PD4504-07 Elements by ICPMS Digested LL (total): RDL raised due to sample matrix interference.

Sample PD4505-07 Elements by ICPMS Digested LL (total): RDL raised due to sample matrix interference.

**Results relate only to the items tested.**

Maxxam Job #: B663164  
Report Date: 2016/08/06

**QUALITY ASSURANCE REPORT**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8348638	Dissolved Aluminum (Al)	2016/08/04	108	80 - 120	115	80 - 120	<0.00050	mg/L	NC	20
8348638	Dissolved Antimony (Sb)	2016/08/04	98	80 - 120	106	80 - 120	<0.000020	mg/L	NC	20
8348638	Dissolved Arsenic (As)	2016/08/04	94	80 - 120	102	80 - 120	<0.000020	mg/L	NC	20
8348638	Dissolved Barium (Ba)	2016/08/04	99	80 - 120	109	80 - 120	<0.000020	mg/L	0.50	20
8348638	Dissolved Beryllium (Be)	2016/08/04	101	80 - 120	109	80 - 120	<0.000010	mg/L	NC	20
8348638	Dissolved Bismuth (Bi)	2016/08/04	101	80 - 120	106	80 - 120	<0.0000050	mg/L	NC	20
8348638	Dissolved Boron (B)	2016/08/04	101	80 - 120	111	80 - 120	<0.010	mg/L	NC	20
8348638	Dissolved Cadmium (Cd)	2016/08/04	101	80 - 120	108	80 - 120	<0.0000050	mg/L	NC	20
8348638	Dissolved Chromium (Cr)	2016/08/04	96	80 - 120	107	80 - 120	<0.00010	mg/L	NC	20
8348638	Dissolved Cobalt (Co)	2016/08/04	94	80 - 120	103	80 - 120	<0.0000050	mg/L	NC	20
8348638	Dissolved Copper (Cu)	2016/08/04	93	80 - 120	101	80 - 120	<0.000050	mg/L	NC	20
8348638	Dissolved Iron (Fe)	2016/08/04	102	80 - 120	112	80 - 120	<0.0010	mg/L	NC	20
8348638	Dissolved Lead (Pb)	2016/08/04	100	80 - 120	107	80 - 120	0.0000090, RDL=0.0000050	mg/L	NC	20
8348638	Dissolved Lithium (Li)	2016/08/04	102	80 - 120	110	80 - 120	<0.00050	mg/L	NC	20
8348638	Dissolved Manganese (Mn)	2016/08/04	99	80 - 120	106	80 - 120	<0.000050	mg/L	NC	20
8348638	Dissolved Molybdenum (Mo)	2016/08/04	98	80 - 120	106	80 - 120	<0.000050	mg/L	NC	20
8348638	Dissolved Nickel (Ni)	2016/08/04	96	80 - 120	107	80 - 120	<0.000020	mg/L	NC	20
8348638	Dissolved Phosphorus (P)	2016/08/04					0.0021, RDL=0.0020	mg/L		
8348638	Dissolved Selenium (Se)	2016/08/04	98	80 - 120	105	80 - 120	<0.000040	mg/L	NC	20
8348638	Dissolved Silicon (Si)	2016/08/04					<0.050	mg/L	NC	20
8348638	Dissolved Silver (Ag)	2016/08/04	100	80 - 120	109	80 - 120	<0.0000050	mg/L	NC	20
8348638	Dissolved Strontium (Sr)	2016/08/04	95	80 - 120	101	80 - 120	<0.000050	mg/L	7.3	20
8348638	Dissolved Thallium (Tl)	2016/08/04	98	80 - 120	105	80 - 120	<0.0000020	mg/L	NC	20
8348638	Dissolved Tin (Sn)	2016/08/04	102	80 - 120	111	80 - 120	<0.00020	mg/L	NC	20
8348638	Dissolved Titanium (Ti)	2016/08/04	98	80 - 120	108	80 - 120	<0.00050	mg/L	NC	20
8348638	Dissolved Uranium (U)	2016/08/04	101	80 - 120	106	80 - 120	<0.0000020	mg/L	NC	20
8348638	Dissolved Vanadium (V)	2016/08/04	97	80 - 120	104	80 - 120	<0.00020	mg/L	NC	20
8348638	Dissolved Zinc (Zn)	2016/08/04	105	80 - 120	100	80 - 120	<0.00010	mg/L	NC	20
8348638	Dissolved Zirconium (Zr)	2016/08/04					<0.00010	mg/L	NC	20

Maxxam Job #: B663164  
Report Date: 2016/08/06

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8348722	Acidity (pH 4.5)	2016/08/02					<0.50	mg/L	NC	20
8348722	Acidity (pH 8.3)	2016/08/02			99	80 - 120	<0.50	mg/L	NC	20
8348724	Total Phosphorus (P)	2016/08/02			103	80 - 120	<0.0020	mg/L		
8348730	Fluoride (F)	2016/08/02			98	80 - 120	0.014, RDL=0.010	mg/L	NC	20
8348731	Acidity (pH 4.5)	2016/08/02					<0.50	mg/L	NC	20
8348731	Acidity (pH 8.3)	2016/08/02			102	80 - 120	<0.50	mg/L	NC	20
8348732	Dissolved Phosphorus (P)	2016/08/02			110	80 - 120	<0.0020	mg/L		
8348755	Fluoride (F)	2016/08/02	112	80 - 120	102	80 - 120	<0.010	mg/L	0	20
8348817	Dissolved Chloride (Cl)	2016/08/02	NC	80 - 120	102	80 - 120	<0.50	mg/L	6.5	20
8348818	Dissolved Sulphate (SO4)	2016/08/02	NC	80 - 120	100	80 - 120	0.64, RDL=0.50	mg/L	NC	20
8348909	Total Ammonia (N)	2016/08/03	107	80 - 120	102	80 - 120	<0.0050	mg/L	2.2	20
8349370	Alkalinity (PP as CaCO3)	2016/08/03					<0.50	mg/L	NC	20
8349370	Alkalinity (Total as CaCO3)	2016/08/03	NC	80 - 120	95	80 - 120	<0.50	mg/L	0.36	20
8349370	Bicarbonate (HCO3)	2016/08/03					<0.50	mg/L	0.36	20
8349370	Carbonate (CO3)	2016/08/03					<0.50	mg/L	NC	20
8349370	Hydroxide (OH)	2016/08/03					<0.50	mg/L	NC	20
8349373	Conductivity	2016/08/03			99	80 - 120	<1.0	uS/cm	0.18	20
8349374	pH	2016/08/03			101	97 - 103			0.49	N/A
8349380	Alkalinity (PP as CaCO3)	2016/08/04					<0.50	mg/L	NC	20
8349380	Alkalinity (Total as CaCO3)	2016/08/04	NC	80 - 120	102	80 - 120	<0.50	mg/L	0.32	20
8349380	Bicarbonate (HCO3)	2016/08/04					<0.50	mg/L	0.32	20
8349380	Carbonate (CO3)	2016/08/04					<0.50	mg/L	NC	20
8349380	Hydroxide (OH)	2016/08/04					<0.50	mg/L	NC	20
8349388	Conductivity	2016/08/04			101	80 - 120	<1.0	uS/cm	0	20
8349393	pH	2016/08/04			101	97 - 103			0.14	N/A
8349515	Total Suspended Solids	2016/08/04			100	80 - 120	<1.0	mg/L		
8349538	Nitrate plus Nitrite (N)	2016/07/30			103	80 - 120	<0.0020	mg/L		
8349540	Nitrite (N)	2016/07/30			94	80 - 120	<0.0020	mg/L		
8349550	Total Suspended Solids	2016/08/04			95	80 - 120	<1.0	mg/L		
8349895	Total Aluminum (Al)	2016/08/05	111	80 - 120	116	80 - 120	<0.00050	mg/L	NC	20

Maxxam Job #: B663164  
Report Date: 2016/08/06

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8349895	Total Antimony (Sb)	2016/08/05	102	80 - 120	104	80 - 120	<0.000020	mg/L	NC	20
8349895	Total Arsenic (As)	2016/08/05	101	80 - 120	102	80 - 120	<0.000020	mg/L	NC	20
8349895	Total Barium (Ba)	2016/08/05	105	80 - 120	106	80 - 120	<0.000020	mg/L	NC	20
8349895	Total Beryllium (Be)	2016/08/05	100	80 - 120	105	80 - 120	<0.000010	mg/L	NC	20
8349895	Total Bismuth (Bi)	2016/08/05	100	80 - 120	108	80 - 120	<0.0000050	mg/L	NC	20
8349895	Total Boron (B)	2016/08/05	102	80 - 120	110	80 - 120	<0.010	mg/L	NC	20
8349895	Total Cadmium (Cd)	2016/08/05	102	80 - 120	106	80 - 120	<0.0000050	mg/L	NC	20
8349895	Total Chromium (Cr)	2016/08/05	100	80 - 120	103	80 - 120	<0.00010	mg/L	NC	20
8349895	Total Cobalt (Co)	2016/08/05	94	80 - 120	103	80 - 120	<0.0000050	mg/L	NC	20
8349895	Total Copper (Cu)	2016/08/05	98	80 - 120	105	80 - 120	<0.000050	mg/L	NC	20
8349895	Total Iron (Fe)	2016/08/05	106	80 - 120	108	80 - 120	<0.0010	mg/L	NC	20
8349895	Total Lead (Pb)	2016/08/05	104	80 - 120	107	80 - 120	<0.0000050	mg/L	NC	20
8349895	Total Lithium (Li)	2016/08/05	106	80 - 120	109	80 - 120	<0.00050	mg/L	NC	20
8349895	Total Manganese (Mn)	2016/08/05	101	80 - 120	106	80 - 120	<0.000050	mg/L	NC	20
8349895	Total Molybdenum (Mo)	2016/08/05	103	80 - 120	106	80 - 120	<0.000050	mg/L	NC	20
8349895	Total Nickel (Ni)	2016/08/05	100	80 - 120	104	80 - 120	<0.000020	mg/L	NC	20
8349895	Total Phosphorus (P)	2016/08/06					<0.0020	mg/L		
8349895	Total Selenium (Se)	2016/08/05	102	80 - 120	108	80 - 120	<0.000040	mg/L	NC	20
8349895	Total Silicon (Si)	2016/08/05					<0.050	mg/L	NC	20
8349895	Total Silver (Ag)	2016/08/05	100	80 - 120	108	80 - 120	<0.0000050	mg/L	NC	20
8349895	Total Strontium (Sr)	2016/08/05	103	80 - 120	105	80 - 120	<0.000050	mg/L	NC	20
8349895	Total Thallium (Tl)	2016/08/05	101	80 - 120	107	80 - 120	<0.0000020	mg/L	NC	20
8349895	Total Tin (Sn)	2016/08/05	94	80 - 120	108	80 - 120	<0.00020	mg/L	NC	20
8349895	Total Titanium (Ti)	2016/08/05	95	80 - 120	96	80 - 120	<0.00050	mg/L	NC	20
8349895	Total Uranium (U)	2016/08/05	103	80 - 120	107	80 - 120	<0.0000020	mg/L	NC	20
8349895	Total Vanadium (V)	2016/08/05	100	80 - 120	104	80 - 120	<0.00020	mg/L	NC	20
8349895	Total Zinc (Zn)	2016/08/05	100	80 - 120	104	80 - 120	<0.00010	mg/L	NC	20
8349895	Total Zirconium (Zr)	2016/08/05					<0.00010	mg/L	NC	20
8350070	Dissolved Aluminum (Al)	2016/08/04	107	80 - 120	116	80 - 120	<0.00050	mg/L	1.6	20
8350070	Dissolved Antimony (Sb)	2016/08/04	100	80 - 120	106	80 - 120	<0.000020	mg/L	NC	20
8350070	Dissolved Arsenic (As)	2016/08/04	99	80 - 120	102	80 - 120	<0.000020	mg/L	NC	20



Maxxam Job #: B663164  
Report Date: 2016/08/06

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8350070	Dissolved Barium (Ba)	2016/08/04	NC	80 - 120	110	80 - 120	<0.000020	mg/L	0.046	20
8350070	Dissolved Beryllium (Be)	2016/08/04	101	80 - 120	106	80 - 120	<0.000010	mg/L	NC	20
8350070	Dissolved Bismuth (Bi)	2016/08/04	103	80 - 120	107	80 - 120	<0.0000050	mg/L	NC	20
8350070	Dissolved Boron (B)	2016/08/04	96	80 - 120	107	80 - 120	<0.010	mg/L	NC	20
8350070	Dissolved Cadmium (Cd)	2016/08/04	100	80 - 120	109	80 - 120	<0.0000050	mg/L	2.2	20
8350070	Dissolved Chromium (Cr)	2016/08/04	97	80 - 120	108	80 - 120	<0.00010	mg/L	NC	20
8350070	Dissolved Cobalt (Co)	2016/08/04	94	80 - 120	104	80 - 120	<0.0000050	mg/L	NC	20
8350070	Dissolved Copper (Cu)	2016/08/04	91	80 - 120	102	80 - 120	<0.000050	mg/L	1.2	20
8350070	Dissolved Iron (Fe)	2016/08/04	111	80 - 120	112	80 - 120	<0.0010	mg/L	NC	20
8350070	Dissolved Lead (Pb)	2016/08/04	102	80 - 120	109	80 - 120	<0.0000050	mg/L	NC	20
8350070	Dissolved Lithium (Li)	2016/08/04	100	80 - 120	109	80 - 120	<0.00050	mg/L	NC	20
8350070	Dissolved Manganese (Mn)	2016/08/04	96	80 - 120	109	80 - 120	<0.000050	mg/L	NC	20
8350070	Dissolved Molybdenum (Mo)	2016/08/04	NC	80 - 120	108	80 - 120	<0.000050	mg/L	2.9	20
8350070	Dissolved Nickel (Ni)	2016/08/04	95	80 - 120	107	80 - 120	<0.000020	mg/L	1.6	20
8350070	Dissolved Phosphorus (P)	2016/08/04					<0.0020	mg/L	NC	20
8350070	Dissolved Selenium (Se)	2016/08/04	103	80 - 120	105	80 - 120	<0.000040	mg/L	2.8	20
8350070	Dissolved Silicon (Si)	2016/08/04					<0.050	mg/L	2.6	20
8350070	Dissolved Silver (Ag)	2016/08/04	101	80 - 120	109	80 - 120	<0.0000050	mg/L	NC	20
8350070	Dissolved Strontium (Sr)	2016/08/04	NC	80 - 120	101	80 - 120	<0.000050	mg/L	0.036	20
8350070	Dissolved Thallium (Tl)	2016/08/04	99	80 - 120	107	80 - 120	<0.0000020	mg/L	NC	20
8350070	Dissolved Tin (Sn)	2016/08/04	101	80 - 120	106	80 - 120	<0.00020	mg/L	NC	20
8350070	Dissolved Titanium (Ti)	2016/08/04	96	80 - 120	98	80 - 120	<0.00050	mg/L	NC	20
8350070	Dissolved Uranium (U)	2016/08/04	106	80 - 120	111	80 - 120	<0.0000020	mg/L	1.6	20
8350070	Dissolved Vanadium (V)	2016/08/04	98	80 - 120	106	80 - 120	<0.00020	mg/L	NC	20
8350070	Dissolved Zinc (Zn)	2016/08/04	NC	80 - 120	95	80 - 120	<0.00010	mg/L	0.21	20
8350070	Dissolved Zirconium (Zr)	2016/08/04					<0.00010	mg/L	NC	20
8350125	Total Aluminum (Al)	2016/08/05	104	80 - 120	110	80 - 120	<0.0030	mg/L	2.5	20
8350125	Total Antimony (Sb)	2016/08/05	103	80 - 120	99	80 - 120	<0.000020	mg/L	4.8	20
8350125	Total Arsenic (As)	2016/08/05	107	80 - 120	101	80 - 120	<0.000020	mg/L	5.5	20
8350125	Total Barium (Ba)	2016/08/05	NC	80 - 120	102	80 - 120	<0.000050	mg/L	0.53	20
8350125	Total Beryllium (Be)	2016/08/05	105	80 - 120	107	80 - 120	<0.000010	mg/L	NC	20



Maxxam Job #: B663164  
Report Date: 2016/08/06

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8350125	Total Bismuth (Bi)	2016/08/05	105	80 - 120	103	80 - 120	<0.000010	mg/L	NC	20
8350125	Total Boron (B)	2016/08/05	97	80 - 120	102	80 - 120	<0.010	mg/L	NC	20
8350125	Total Cadmium (Cd)	2016/08/05	99	80 - 120	103	80 - 120	<0.0000050	mg/L	9.2	20
8350125	Total Chromium (Cr)	2016/08/05	103	80 - 120	102	80 - 120	<0.00010	mg/L	NC	20
8350125	Total Cobalt (Co)	2016/08/05	99	80 - 120	103	80 - 120	<0.000010	mg/L	NC	20
8350125	Total Copper (Cu)	2016/08/05	97	80 - 120	107	80 - 120	<0.00010	mg/L	NC	20
8350125	Total Iron (Fe)	2016/08/05	NC	80 - 120	105	80 - 120	<0.0050	mg/L	2.1	20
8350125	Total Lead (Pb)	2016/08/05	105	80 - 120	103	80 - 120	<0.000020	mg/L	0.29	20
8350125	Total Lithium (Li)	2016/08/05	NC	80 - 120	106	80 - 120	<0.00050	mg/L	1.2	20
8350125	Total Manganese (Mn)	2016/08/05	NC	80 - 120	103	80 - 120	<0.00010	mg/L	2.3	20
8350125	Total Molybdenum (Mo)	2016/08/05	106	80 - 120	98	80 - 120	<0.000050	mg/L	NC	20
8350125	Total Nickel (Ni)	2016/08/05	99	80 - 120	103	80 - 120	<0.00010	mg/L	NC	20
8350125	Total Phosphorus (P)	2016/08/05					<0.0050	mg/L	NC	20
8350125	Total Selenium (Se)	2016/08/05	109	80 - 120	110	80 - 120	<0.000040	mg/L	NC	20
8350125	Total Silicon (Si)	2016/08/05					<0.050	mg/L	1.3	20
8350125	Total Silver (Ag)	2016/08/05	102	80 - 120	104	80 - 120	<0.000010	mg/L	NC	20
8350125	Total Strontium (Sr)	2016/08/05	NC	80 - 120	99	80 - 120	<0.000050	mg/L	2.8	20
8350125	Total Thallium (Tl)	2016/08/05	98	80 - 120	99	80 - 120	<0.0000020	mg/L	NC	20
8350125	Total Tin (Sn)	2016/08/05	100	80 - 120	101	80 - 120	<0.00020	mg/L	NC	20
8350125	Total Titanium (Ti)	2016/08/05	93	80 - 120	96	80 - 120	<0.0020	mg/L	NC	20
8350125	Total Uranium (U)	2016/08/05	110	80 - 120	104	80 - 120	<0.0000050	mg/L	0.14	20
8350125	Total Vanadium (V)	2016/08/05	104	80 - 120	101	80 - 120	<0.00020	mg/L	NC	20
8350125	Total Zinc (Zn)	2016/08/05	NC	80 - 120	107	80 - 120	<0.0010	mg/L	3.8	20
8350125	Total Zirconium (Zr)	2016/08/05					<0.00010	mg/L	NC	20
8350371	Dissolved Organic Carbon (C)	2016/08/03	NC	80 - 120	105	80 - 120	<0.50	mg/L	NC	20
8350405	Dissolved Sulphate (SO4)	2016/08/03			90	80 - 120	<0.50	mg/L		
8350889	Dissolved Mercury (Hg)	2016/08/04	86	80 - 120	93	80 - 120	<0.0000020	mg/L	NC	20
8350896	Total Mercury (Hg)	2016/08/04	93	80 - 120	95	80 - 120	<0.0000020	mg/L	NC	20

Maxxam Job #: B663164  
Report Date: 2016/08/06

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8350959	Dissolved Mercury (Hg)	2016/08/04	90	80 - 120	100	80 - 120	<0.0000020	mg/L	NC	20

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

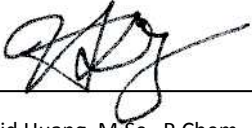
NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

Maxxam Job #: B663164  
Report Date: 2016/08/06

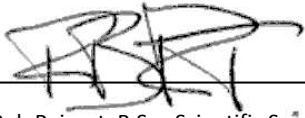
ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: LF

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



David Huang, M.Sc., P.Chem., QP, Scientific Services Manager



Rob Reinert, B.Sc., Scientific Specialist

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

RECEIVED IN WHITEHORSE

BY: Sym@1648



08425868

**Maxxam**  
A Bureau Veritas Group Company

2016-07-29  
Burnaby: 6906 Canada Way, Burnaby, BC V5G 1K5. Toll Free (800) 665-8566

CHAIN OF CUSTODY RECORD

BBY FCD-00077/05

Page 1 of 1

COC #:

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: <b>BMC MINERALS LTD. TEMP: 6</b>	Company Name: <b>ALEXCO ENVIRONMENTAL</b>	Quotation #: <b>B60751</b>	<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses)
Contact Name:	Contact Name: <b>KAI WOLOSHYN</b>	P.O. #/ AFE#:	<b>PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS</b>
Address: <b>530-1130 WEST PENDER ST</b>	Address: <b>UNIT 3 151 INDUSTRIAL RD</b>	Project #: <b>BMC-16-01</b>	<b>Rush TAT (Surcharges will be applied)</b>
<b>Vancouver, BC PC: V6E 4A4</b>	<b>Whitehorse, YK PC: V1A 2V3</b>	Site Location: <b>Kudz Ze Kayah</b>	<input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days
Phone:	Phone: <b>(867) 668-6463</b>	Site #:	<input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days
Email:	Email: <b>kwoloshyn@alexcoresource.com</b>	Sampled By: <b>Leia Fougere</b>	Date Required:

Regulatory Criteria	Special Instructions	Analysis Requested	Rush Confirmation #:
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> BC CSR Water <input type="checkbox"/> CCME (Specify) <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC Water Quality	<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify) <b>USE SCENARIO # 12485</b>	TOTAL LOW LEVEL METALS INCL. MERCURY DISSOLVED LOW LEVEL METALS INCL. MERCURY LOW LEVEL TSS ANIONS (Cl, F, SO4, NO2, NO3) AMMONIA CONDUCTIVITY PH ALKALINITY & ACIDITY DOC TOTAL PHOSPHORUS - LOW LEVEL DISSOLVED PHOSPHORUS - LOW LEVEL	<b>LABORATORY USE ONLY</b> CUSTODY SEAL Y / N Present Intact COOLER TEMPERATURES 2,4,4 3,2,2 COOLING MEDIA PRESENT <input checked="" type="checkbox"/> Y <input type="checkbox"/> N COMMENTS

Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	TOTAL LOW LEVEL METALS INCL. MERCURY	DISSOLVED LOW LEVEL METALS INCL. MERCURY	LOW LEVEL TSS	ANIONS (Cl, F, SO4, NO2, NO3)	AMMONIA	CONDUCTIVITY	PH	ALKALINITY & ACIDITY	DOC	TOTAL PHOSPHORUS - LOW LEVEL	DISSOLVED PHOSPHORUS - LOW LEVEL	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE
1	BH95G-146 ✓	29-Jul-16	11:30	Water	X	X	X	X	X	X	X	X	X	X	X	11	
2	BH95G-129 ✓	29-Jul-16	11:55	Water	X	X	X	X	X	X	X	X	X	X	X	11	
3	BH95G-30 ✓	28-Jul-16	15:50	Water	X	X	X	X	X	X	X	X	X	X	X	11	
4	MW16-15d ✓	28-Jul-16	17:45	Water	X	X	X	X	X	X	X	X	X	X	X	11	
5	BH95G-131 ✓	28-Jul-16	12:18	Water	X	X	X	X	X	X	X	X	X	X	X	11	
6	BH95G-2 ✓	28-Jul-16	16:10	Water	X	X	X	X	X	X	X	X	X	X	X	11	
7	MW15-02 ✓	29-Jul-16	10:30	Water	X	X	X	X	X	X	X	X	X	X	X	11	
8	BH95G-22 ✓	29-Jul-16	9:15	Water	X	X	X	X	X	X	X	X	X	X	X	11	
9	BH95G-31 ✓	29-Jul-16	8:15	Water	X	X	X	X	X	X	X	X	X	X	X	11	
10				Water	X	X	X	X	X	X	X	X	X	X	X	11	

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)
Leia Fougere	29/07/2016	16:00	<i>Nahed Amer Reheed</i>	2016/07/30	12:30



B663164\_COC

Your Project #: BMC-16-01  
 Site Location: KUDZ ZE KAYAH  
 Your C.O.C. #: 08426910, 08426911, 08426912

**Attention: KAI WOLOSHYN**

ALEXCO ENVIRONMENTAL GROUP INC.  
 Unit 3 Calcite Business Centre  
 151 Industrial Road  
 WHITEHORSE, YT  
 Canada Y1A 2V3

**Report Date: 2016/09/08**  
 Report #: R2256329  
 Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B674680**

**Received: 2016/08/30, 10:35**

Sample Matrix: Water  
 # Samples Received: 22

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
Acidity pH 4.5 & pH 8.3 (as CaCO3)	20	N/A	2016/09/01	BBY6SOP-00037	SM 22 2310 B m
Acidity pH 4.5 & pH 8.3 (as CaCO3)	2	N/A	2016/09/02	BBY6SOP-00037	SM 22 2310 B m
Alkalinity - Water	22	2016/09/01	2016/09/01	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry	22	N/A	2016/09/06	BBY6SOP-00011	SM 22 4500-Cl- E m
Carbon (DOC) - field filtered/preserved (1)	22	N/A	2016/09/07	BBY6SOP-00003	SM 22 5310 C m
Conductance - water	22	N/A	2016/09/01	BBY6SOP-00026	SM 22 2510 B m
Fluoride	22	N/A	2016/09/01	BBY6SOP-00048	SM 22 4500-F C m
Hardness Total (calculated as CaCO3)	4	N/A	2016/09/02	BBY WI-00033	Auto Calc
Hardness Total (calculated as CaCO3)	12	N/A	2016/09/04	BBY WI-00033	Auto Calc
Hardness Total (calculated as CaCO3)	6	N/A	2016/09/06	BBY WI-00033	Auto Calc
Hardness (calculated as CaCO3)	20	N/A	2016/09/02	BBY WI-00033	Auto Calc
Hardness (calculated as CaCO3)	2	N/A	2016/09/08	BBY WI-00033	Auto Calc
Mercury (Dissolved-LowLevel) by CVAf	1	N/A	2016/09/02	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Dissolved-LowLevel) by CVAf	21	N/A	2016/09/06	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total-LowLevel) by CVAf	22	2016/09/05	2016/09/06	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Ion Balance	20	N/A	2016/09/07	BBY WI-00033	Auto Calc
Ion Balance	2	N/A	2016/09/08	BBY WI-00033	Auto Calc
Sum of cations, anions	20	N/A	2016/09/02	Calc	
Sum of cations, anions	2	N/A	2016/09/07	Calc	
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	20	N/A	2016/09/02	BBY7SOP-00002	EPA 6020B R2 m
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	2	N/A	2016/09/08	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Low Level (dissolved)	22	N/A	2016/09/02	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Digested LL (total)	4	2016/09/01	2016/09/02	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Elements by ICPMS Digested LL (total)	1	2016/09/01	2016/09/04	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Elements by ICPMS Digested LL (total)	1	2016/09/01	2016/09/06	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Elements by ICPMS Digested LL (total)	12	2016/09/02	2016/09/02	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Na, K, Ca, Mg, S by CRC ICPMS (total)	4	N/A	2016/09/02	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Na, K, Ca, Mg, S by CRC ICPMS (total)	12	N/A	2016/09/04	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Na, K, Ca, Mg, S by CRC ICPMS (total)	6	N/A	2016/09/06	BBY7SOP-00003,	BCLM2005,EPA6020bR2m

Your Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Your C.O.C. #: 08426910, 08426911, 08426912

**Attention: KAI WOLOSHYN**

ALEXCO ENVIRONMENTAL GROUP INC.  
Unit 3 Calcite Business Centre  
151 Industrial Road  
WHITEHORSE, YT  
Canada Y1A 2V3

**Report Date: 2016/09/08**  
Report #: R2256329  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B674680**

**Received: 2016/08/30, 10:35**

Sample Matrix: Water  
# Samples Received: 22

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Elements by ICPMS Low Level (total)	4	N/A	2016/09/01	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Ammonia-N (Preserved)	22	N/A	2016/09/03	BBY6SOP-00009	SM 22 4500-NH3- G m
Nitrate+Nitrite (N) (low level)	22	N/A	2016/09/01	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) (low level)	22	N/A	2016/09/01	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N)	22	N/A	2016/09/02	BBY6SOP-00010	SM 22 4500-NO3- I m
Filter and HNO3 Preserve for Metals	21	N/A	2016/09/02	BBY7 WI-00004	BCMoe Reqs 08/14
pH Water (2)	22	N/A	2016/09/01	BBY6SOP-00026	SM 22 4500-H+ B m
Sulphate by Automated Colourimetry	18	N/A	2016/09/06	BBY6SOP-00017	SM 22 4500-SO42- E m
Sulphate by Automated Colourimetry	4	N/A	2016/09/07	BBY6SOP-00017	SM 22 4500-SO42- E m
Phosphorus-P (LL Tot, dissolved) - UF/UP	22	2016/09/02	2016/09/02	BBY6SOP-00013	SM 22 4500-P E m
Total Phosphorus - unpreserved	22	N/A	2016/09/02	BBY6SOP-00013	SM 22 4500-P E m
Total Suspended Solids-Low Level	22	2016/09/01	2016/09/02	BBY6SOP-00034	SM 22 2540 D

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) DOC present in the sample should be considered as non-purgeable DOC.

(2) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

**Encryption Key**

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Megan Smith, Project Manager

Email: msmith@maxxam.ca

Phone# (604) 734 7276

=====  
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PK2216			PK2217			PK2218		
Sampling Date		2016/08/26 09:50			2016/08/26 10:25			2016/08/26 15:15		
COC Number		08426910			08426910			08426910		
	<b>UNITS</b>	<b>BH95G-25D</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH95G-25S</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH95G-131</b>	<b>RDL</b>	<b>QC Batch</b>

**Calculated Parameters**

Anion Sum	meq/L	12	N/A	8383492	11	N/A	8383492	13	N/A	8383492
Cation Sum	meq/L	13	N/A	8383492	12	N/A	8383492	14	N/A	8383492
Filter and HNO3 Preservation	N/A	FIELD	N/A	ONSITE	FIELD	N/A	ONSITE	FIELD	N/A	ONSITE
Ion Balance	N/A	1.1	0.010	8383480	1.1	0.010	8383480	1.1	0.010	8383480
Nitrate (N)	mg/L	<0.0020	0.0020	8383493	<0.0020	0.0020	8383493	<0.0020	0.0020	8383493

**Misc. Inorganics**

Fluoride (F)	mg/L	0.090	0.010	8384568	0.120	0.010	8384572	0.082	0.010	8384572
Dissolved Organic Carbon (C)	mg/L	2.55	0.50	8390294	2.62	0.50	8390296	1.01	0.50	8390296
Acidity (pH 4.5)	mg/L	<0.50	0.50	8384702	<0.50	0.50	8384702	<0.50	0.50	8384702
Alkalinity (Total as CaCO3)	mg/L	343	0.50	8384971	337	0.50	8384971	437	0.50	8384971
Acidity (pH 8.3)	mg/L	17.4	0.50	8384702	14.8	0.50	8384702	16.3	0.50	8384702
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8384971	<0.50	0.50	8384971	<0.50	0.50	8384971
Bicarbonate (HCO3)	mg/L	418	0.50	8384971	412	0.50	8384971	533	0.50	8384971
Carbonate (CO3)	mg/L	<0.50	0.50	8384971	<0.50	0.50	8384971	<0.50	0.50	8384971
Hydroxide (OH)	mg/L	<0.50	0.50	8384971	<0.50	0.50	8384971	<0.50	0.50	8384971

**Anions**

Dissolved Sulphate (SO4)	mg/L	257 (1)	5.0	8389097	195	0.50	8390573	222 (1)	5.0	8389097
Dissolved Chloride (Cl)	mg/L	1.0	0.50	8389095	0.93	0.50	8389095	1.0	0.50	8389095

**Nutrients**

Dissolved Phosphorus (P)	mg/L	0.365 (2)	0.0020	8386947	0.113 (2)	0.0020	8386947	0.161 (2)	0.0020	8386947
Total Ammonia (N)	mg/L	0.12	0.0050	8387303	0.24	0.0050	8387303	0.054	0.0050	8387303
Nitrate plus Nitrite (N)	mg/L	<0.0020 (2)	0.0020	8385360	<0.0020 (2)	0.0020	8385385	<0.0020 (2)	0.0020	8385385
Nitrite (N)	mg/L	<0.0020 (2)	0.0020	8385384	<0.0020 (2)	0.0020	8385386	<0.0020 (2)	0.0020	8385386
Total Phosphorus (P)	mg/L	0.357 (2)	0.0020	8386950	0.136 (2)	0.0020	8386950	0.162 (2)	0.0020	8386950

**Physical Properties**

Conductivity	uS/cm	1070	1.0	8384977	981	1.0	8384977	1150	1.0	8384977
pH	pH	7.54		8384976	7.82		8384976	7.78		8384976

**Physical Properties**

Total Suspended Solids	mg/L	5110	1.0	8383845	465	1.0	8383845	36.6	1.0	8383845
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RDL = Reportable Detection Limit

N/A = Not Applicable

(1) Detection limits raised due to dilution to bring analyte within the calibrated range.

(2) Sample arrived to laboratory past recommended hold time.



Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PK2219			PK2220		PK2221		
Sampling Date		2016/08/26			2016/08/27 10:00		2016/08/27 11:45		
COC Number		08426910			08426910		08426910		
	UNITS	DUP3	RDL	QC Batch	MW15-06	QC Batch	MW15-10S	RDL	QC Batch
<b>Calculated Parameters</b>									
Anion Sum	meq/L	12	N/A	8383492	4.0	8383492	7.9	N/A	8383492
Cation Sum	meq/L	13	N/A	8383492	4.3	8383492	7.6	N/A	8383492
Filter and HNO3 Preservation	N/A	FIELD	N/A	ONSITE	FIELD	ONSITE	FIELD	N/A	ONSITE
Ion Balance	N/A	1.1	0.010	8383480	1.1	8383480	0.97	0.010	8383480
Nitrate (N)	mg/L	0.0021	0.0020	8383493	0.338	8383493	0.0768	0.0020	8383493
<b>Misc. Inorganics</b>									
Fluoride (F)	mg/L	0.091	0.010	8384572	0.110	8384568	0.180	0.010	8384568
Dissolved Organic Carbon (C)	mg/L	2.53	0.50	8390294	0.68	8390294	<0.50	0.50	8390294
Acidity (pH 4.5)	mg/L	<0.50	0.50	8384702	<0.50	8384702	<0.50	0.50	8384702
Alkalinity (Total as CaCO3)	mg/L	348	0.50	8384971	174	8384947	360	0.50	8384971
Acidity (pH 8.3)	mg/L	18.7	0.50	8384702	2.25	8384702	108	0.50	8384702
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8384971	<0.50	8384947	<0.50	0.50	8384971
Bicarbonate (HCO3)	mg/L	424	0.50	8384971	212	8384947	439	0.50	8384971
Carbonate (CO3)	mg/L	<0.50	0.50	8384971	<0.50	8384947	<0.50	0.50	8384971
Hydroxide (OH)	mg/L	<0.50	0.50	8384971	<0.50	8384947	<0.50	0.50	8384971
<b>Anions</b>									
Dissolved Sulphate (SO4)	mg/L	246 (1)	5.0	8389097	22.3	8389097	29.7	0.50	8389097
Dissolved Chloride (Cl)	mg/L	1.1	0.50	8389095	0.67	8389095	0.89	0.50	8389095
<b>Nutrients</b>									
Dissolved Phosphorus (P)	mg/L	0.0970 (2)	0.0020	8386947	0.0423 (3)	8386947	0.0839 (3)	0.0020	8386947
Total Ammonia (N)	mg/L	0.096	0.0050	8387303	0.031	8387303	0.24	0.0050	8387303
Nitrate plus Nitrite (N)	mg/L	0.0021 (2)	0.0020	8385385	0.338 (3)	8385360	0.0910 (3)	0.0020	8385360
Nitrite (N)	mg/L	<0.0020 (2)	0.0020	8385386	<0.0020 (3)	8385384	0.0142 (3)	0.0020	8385384
Total Phosphorus (P)	mg/L	0.101 (2)	0.0020	8386951	0.0386 (3)	8386950	0.0811 (3)	0.0020	8386950
<b>Physical Properties</b>									
Conductivity	uS/cm	1060	1.0	8384977	378	8384957	688	1.0	8384977
pH	pH	7.81		8384976	7.93	8384956	6.53		8384976
RDL = Reportable Detection Limit N/A = Not Applicable (1) Detection limits raised due to dilution to bring analyte within the calibrated range. (2) Sample arrived to laboratory past recommended hold time. (3) Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis.									



Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		PK2219			PK2220		PK2221		
<b>Sampling Date</b>		2016/08/26			2016/08/27 10:00		2016/08/27 11:45		
<b>COC Number</b>		08426910			08426910		08426910		
	<b>UNITS</b>	<b>DUP3</b>	<b>RDL</b>	<b>QC Batch</b>	<b>MW15-06</b>	<b>QC Batch</b>	<b>MW15-10S</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Physical Properties</b>									
Total Suspended Solids	mg/L	3830 (1)	20	8383845	1260 (1)	8383845	2700 (1)	20	8383846
RDL = Reportable Detection Limit									
(1) RDL raised due to high concentration of solids in the sample.									

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PK2222		PK2223	PK2224			PK2237		
Sampling Date		2016/08/27 12:27		2016/08/27 13:30	2016/08/27 16:30			2016/08/28 10:00		
COC Number		08426910		08426910	08426910			08426911		
	UNITS	MW15-10D	RDL	MW15-09S	BH95G-30	RDL	QC Batch	BH95G-31	RDL	QC Batch

**Calculated Parameters**

Anion Sum	meq/L	34	N/A	4.4	4.2	N/A	8383492	3.2	N/A	8383492
Cation Sum	meq/L	38	N/A	4.7	4.4	N/A	8383492	3.2	N/A	8383492
Filter and HNO3 Preservation	N/A	FIELD	N/A	FIELD	FIELD	N/A	ONSITE	FIELD	N/A	ONSITE
Ion Balance	N/A	1.1	0.010	1.1	1.1	0.010	8383480	1.0	0.010	8383480
Nitrate (N)	mg/L	<0.0020	0.0020	0.0571	0.328	0.0020	8383493	0.210	0.0020	8383493

**Misc. Inorganics**

Fluoride (F)	mg/L	1.30	0.010	0.230	0.130	0.010	8384572	0.090	0.010	8384572
Dissolved Organic Carbon (C)	mg/L	<0.50	0.50	<0.50	0.60	0.50	8390294	0.54	0.50	8390294
Acidity (pH 4.5)	mg/L	<0.50	0.50	<0.50	<0.50	0.50	8384702	<0.50	0.50	8384702
Alkalinity (Total as CaCO3)	mg/L	1680	0.50	199	183	0.50	8384971	131	0.50	8384971
Acidity (pH 8.3)	mg/L	508	0.50	3.68	7.90	0.50	8384702	<0.50	0.50	8384702
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	<0.50	<0.50	0.50	8384971	<0.50	0.50	8384971
Bicarbonate (HCO3)	mg/L	2050	0.50	243	223	0.50	8384971	160	0.50	8384971
Carbonate (CO3)	mg/L	<0.50	0.50	<0.50	<0.50	0.50	8384971	<0.50	0.50	8384971
Hydroxide (OH)	mg/L	<0.50	0.50	<0.50	<0.50	0.50	8384971	<0.50	0.50	8384971

**Anions**

Dissolved Sulphate (SO4)	mg/L	9.31	0.50	17.6	23.4	0.50	8389097	23.9	0.50	8390573
Dissolved Chloride (Cl)	mg/L	3.2	0.50	0.63	0.67	0.50	8389095	0.70	0.50	8389095

**Nutrients**

Dissolved Phosphorus (P)	mg/L	0.0512 (1)	0.0020	0.0322 (1)	0.0438 (1)	0.0020	8386947	0.226 (2)	0.0020	8386947
Total Ammonia (N)	mg/L	0.23	0.0050	0.029	0.037	0.0050	8387302	0.028	0.0050	8387303
Nitrate plus Nitrite (N)	mg/L	<0.0020 (1)	0.0020	0.0623 (1)	0.328 (1)	0.0020	8385385	0.210 (2)	0.0020	8385385
Nitrite (N)	mg/L	<0.0020 (1)	0.0020	0.0052 (1)	<0.0020 (1)	0.0020	8385386	<0.0020 (2)	0.0020	8385386
Total Phosphorus (P)	mg/L	0.0508 (1)	0.0020	0.0339 (1)	0.0402 (1)	0.0020	8386951	0.219 (2)	0.0020	8386951

**Physical Properties**

Conductivity	uS/cm	3090	1.0	419	392	1.0	8384977	300	1.0	8384977
pH	pH	6.75		7.94	7.66		8384976	8.07		8384976

RDL = Reportable Detection Limit

N/A = Not Applicable

(1) Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis.

(2) Sample analysed past recommended hold time.

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		PK2222		PK2223	PK2224			PK2237		
<b>Sampling Date</b>		2016/08/27 12:27		2016/08/27 13:30	2016/08/27 16:30			2016/08/28 10:00		
<b>COC Number</b>		08426910		08426910	08426910			08426911		
	<b>UNITS</b>	<b>MW15-10D</b>	<b>RDL</b>	<b>MW15-09S</b>	<b>BH95G-30</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH95G-31</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Physical Properties</b>										
Total Suspended Solids	mg/L	155 (1)	2.0	338	42.4	1.0	8383846	495 (1)	10	8383846

RDL = Reportable Detection Limit  
(1) RDL raised due to high concentration of solids in the sample.

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PK2238			PK2239			PK2240		
Sampling Date		2016/08/28 10:40			2016/08/28 11:17			2016/08/28 11:20		
COC Number		08426911			08426911			08426911		
	UNITS	BH95G-22	RDL	QC Batch	MW16-17	RDL	QC Batch	BH95G-02	RDL	QC Batch

**Calculated Parameters**

Anion Sum	meq/L	3.9	N/A	8383492	3.9	N/A	8383492	6.4	N/A	8390534
Cation Sum	meq/L	4.1	N/A	8383492	4.1	N/A	8383492	5.9	N/A	8390534
Filter and HNO3 Preservation	N/A	FIELD	N/A	ONSITE	FIELD	N/A	ONSITE	FIELD	N/A	ONSITE
Ion Balance	N/A	1.1	0.010	8383480	1.1	0.010	8383480	0.97	0.010	8390533
Nitrate (N)	mg/L	0.358	0.0020	8383493	<0.0020	0.0020	8383493	0.435	0.0020	8383493

**Misc. Inorganics**

Fluoride (F)	mg/L	0.052	0.010	8384572	0.570	0.010	8384572	0.056	0.010	8384572
Dissolved Organic Carbon (C)	mg/L	1.07	0.50	8390294	0.74	0.50	8390296	1.10	0.50	8390296
Acidity (pH 4.5)	mg/L	<0.50	0.50	8384702	<0.50	0.50	8384702	<0.50	0.50	8384702
Alkalinity (Total as CaCO3)	mg/L	141	0.50	8384971	154	0.50	8384971	269	0.50	8384971
Acidity (pH 8.3)	mg/L	5.16	0.50	8384702	<0.50	0.50	8384702	4.44	0.50	8384702
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8384971	<0.50	0.50	8384971	<0.50	0.50	8384971
Bicarbonate (HCO3)	mg/L	173	0.50	8384971	188	0.50	8384971	328	0.50	8384971
Carbonate (CO3)	mg/L	<0.50	0.50	8384971	<0.50	0.50	8384971	<0.50	0.50	8384971
Hydroxide (OH)	mg/L	<0.50	0.50	8384971	<0.50	0.50	8384971	<0.50	0.50	8384971

**Anions**

Dissolved Sulphate (SO4)	mg/L	47.6	0.50	8390573	34.3	0.50	8389097	48.3	0.50	8389097
Dissolved Chloride (Cl)	mg/L	0.66	0.50	8389095	0.81	0.50	8389095	0.80	0.50	8389095

**Nutrients**

Dissolved Phosphorus (P)	mg/L	0.358 (1)	0.0020	8386947	0.632 (2)	0.020	8386947	0.655 (2)	0.020	8386947
Total Ammonia (N)	mg/L	0.037	0.0050	8387303	0.060	0.0050	8387302	0.0093	0.0050	8387303
Nitrate plus Nitrite (N)	mg/L	0.361 (1)	0.0020	8385385	<0.0020 (1)	0.0020	8385385	0.435 (1)	0.0020	8385385
Nitrite (N)	mg/L	0.0036 (1)	0.0020	8385386	<0.0020 (1)	0.0020	8385386	<0.0020 (1)	0.0020	8385386
Total Phosphorus (P)	mg/L	0.430 (1)	0.0020	8386950	0.710 (2)	0.020	8386951	0.697 (2)	0.020	8386951

**Physical Properties**

Conductivity	uS/cm	367	1.0	8384977	365	1.0	8384977	560	1.0	8384977
pH	pH	7.62		8384976	8.08		8384976	8.05		8384976

RDL = Reportable Detection Limit

N/A = Not Applicable

(1) Sample analysed past recommended hold time.

(2) Detection limits raised due to dilution to bring analyte within the calibrated range. Sample analysed past recommended hold time.

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PK2238			PK2239			PK2240		
Sampling Date		2016/08/28 10:40			2016/08/28 11:17			2016/08/28 11:20		
COC Number		08426911			08426911			08426911		
	UNITS	BH95G-22	RDL	QC Batch	MW16-17	RDL	QC Batch	BH95G-02	RDL	QC Batch
<b>Physical Properties</b>										
Total Suspended Solids	mg/L	1580 (1)	20	8383846	1330 (1)	20	8383846	331 (1)	5.0	8383846
RDL = Reportable Detection Limit (1) RDL raised due to high concentration of solids in the sample.										

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		PK2241		PK2242	PK2243			PK2244		
Sampling Date		2016/08/28 12:00		2016/08/28 17:30	2016/08/30 10:35			2016/08/29 09:56		
COC Number		08426911		08426911	08426911			08426911		
	UNITS	MW16-16D	RDL	MW16-14D	TRAVEL BLANK	RDL	QC Batch	MW16-12S	RDL	QC Batch
<b>Calculated Parameters</b>										
Anion Sum	meq/L	4.6	N/A	4.9	0.014	N/A	8383492	19	N/A	8390534
Cation Sum	meq/L	4.9	N/A	5.3	0.0037	N/A	8383492	21	N/A	8390534
Filter and HNO <sub>3</sub> Preservation	N/A	FIELD	N/A	FIELD		N/A	ONSITE	FIELD	N/A	ONSITE
Ion Balance	N/A	1.1	0.010	1.1	0.27 (1)	0.010	8383480	1.1	0.010	8390533
Nitrate (N)	mg/L	<0.0020	0.0020	<0.0020	<0.0020	0.0020	8383493	<0.020	0.020	8383493
<b>Misc. Inorganics</b>										
Fluoride (F)	mg/L	<0.010	0.010	0.230	0.019	0.010	8384572	0.720	0.010	8384572
Dissolved Organic Carbon (C)	mg/L	<0.50	0.50	0.64	<0.50	0.50	8390294	4.57	0.50	8390294
Acidity (pH 4.5)	mg/L	<0.50	0.50	<0.50	<0.50	0.50	8384702	<0.50	0.50	8384702
Alkalinity (Total as CaCO <sub>3</sub> )	mg/L	192	0.50	156	<0.50	0.50	8384971	909	0.50	8384971
Acidity (pH 8.3)	mg/L	2.15	0.50	3.35	<0.50	0.50	8384702	302	0.50	8384702
Alkalinity (PP as CaCO <sub>3</sub> )	mg/L	<0.50	0.50	<0.50	<0.50	0.50	8384971	<0.50	0.50	8384971
Bicarbonate (HCO <sub>3</sub> )	mg/L	234	0.50	190	<0.50	0.50	8384971	1110	0.50	8384971
Carbonate (CO <sub>3</sub> )	mg/L	<0.50	0.50	<0.50	<0.50	0.50	8384971	<0.50	0.50	8384971
Hydroxide (OH)	mg/L	<0.50	0.50	<0.50	<0.50	0.50	8384971	<0.50	0.50	8384971
<b>Anions</b>										
Dissolved Sulphate (SO <sub>4</sub> )	mg/L	37.2	0.50	86.3	0.60	0.50	8389097	11.9	0.50	8389097
Dissolved Chloride (Cl)	mg/L	0.64	0.50	0.78	<0.50	0.50	8389095	2.2	0.50	8389095
<b>Nutrients</b>										
Dissolved Phosphorus (P)	mg/L	0.0240 (2)	0.0020	0.0227 (2)	<0.0020	0.0020	8386947	0.473 (3)	0.0020	8386947
Total Ammonia (N)	mg/L	0.023	0.0050	0.059	<0.0050	0.0050	8387302	0.26	0.0050	8387302
Nitrate plus Nitrite (N)	mg/L	<0.0020 (2)	0.0020	<0.0020 (2)	<0.0020	0.0020	8385385	<0.020 (4)	0.020	8385385
Nitrite (N)	mg/L	<0.0020 (2)	0.0020	<0.0020 (2)	<0.0020	0.0020	8385386	<0.020 (4)	0.020	8385386
Total Phosphorus (P)	mg/L	0.0241 (2)	0.0020	0.0230 (2)	<0.0020	0.0020	8386951	0.442 (3)	0.0020	8386951
<b>Physical Properties</b>										
Conductivity	uS/cm	443	1.0	472	<1.0	1.0	8384977	1590	1.0	8384977
pH	pH	8.04		7.93	5.44		8384976	6.93		8384976
<p>RDL = Reportable Detection Limit  N/A = Not Applicable  (1) Ion balance out of optimal range due to high measurement uncertainty at this level (Ion Sum &lt; 0.4 meq/L for both cations and anions).  (2) Sample analysed past recommended hold time.  (3) Sample preserved to extend hold time.  (4) RDL raised due to sample matrix interference.</p>										

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		PK2241		PK2242	PK2243			PK2244		
<b>Sampling Date</b>		2016/08/28 12:00		2016/08/28 17:30	2016/08/30 10:35			2016/08/29 09:56		
<b>COC Number</b>		08426911		08426911	08426911			08426911		
	<b>UNITS</b>	<b>MW16-16D</b>	<b>RDL</b>	<b>MW16-14D</b>	<b>TRAVEL BLANK</b>	<b>RDL</b>	<b>QC Batch</b>	<b>MW16-12S</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Physical Properties</b>										
Total Suspended Solids	mg/L	101 (1)	2.5	86.7	<1.0	1.0	8383846	3490 (1)	20	8383846

RDL = Reportable Detection Limit  
(1) RDL raised due to high concentration of solids in the sample.

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PK2245			PK2246		PK2254		
Sampling Date		2016/08/29 11:21			2016/08/29 09:56		2016/08/29 15:45		
COC Number		08426911			08426911		08426912		
	UNITS	MW16-12D	RDL	QC Batch	FIELD BLANK	QC Batch	BH95G-129	RDL	QC Batch
<b>Calculated Parameters</b>									
Anion Sum	meq/L	19	N/A	8383492	0.011	8383492	4.1	N/A	8383492
Cation Sum	meq/L	20	N/A	8383492	0.0047	8383492	4.4	N/A	8383492
Filter and HNO3 Preservation	N/A	FIELD	N/A	ONSITE	FIELD	ONSITE	FIELD	N/A	ONSITE
Ion Balance	N/A	1.1	0.010	8383480	0.42 (1)	8383480	1.1	0.010	8383480
Nitrate (N)	mg/L	<0.0020	0.0020	8383493	<0.0020	8383493	<0.0020	0.0020	8383493
<b>Misc. Inorganics</b>									
Fluoride (F)	mg/L	1.10	0.010	8384572	0.012	8384572	0.190	0.010	8384572
Dissolved Organic Carbon (C)	mg/L	<0.50	0.50	8390294	<0.50	8390294	0.67	0.50	8390294
Acidity (pH 4.5)	mg/L	<0.50	0.50	8384702	<0.50	8386197	<0.50	0.50	8386197
Alkalinity (Total as CaCO3)	mg/L	931	0.50	8384971	<0.50	8384980	165	0.50	8384971
Acidity (pH 8.3)	mg/L	171	0.50	8384702	0.68	8386197	0.78	0.50	8386197
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8384971	<0.50	8384980	<0.50	0.50	8384971
Bicarbonate (HCO3)	mg/L	1140	0.50	8384971	<0.50	8384980	202	0.50	8384971
Carbonate (CO3)	mg/L	<0.50	0.50	8384971	<0.50	8384980	<0.50	0.50	8384971
Hydroxide (OH)	mg/L	<0.50	0.50	8384971	<0.50	8384980	<0.50	0.50	8384971
<b>Anions</b>									
Dissolved Sulphate (SO4)	mg/L	<0.50	0.50	8389097	0.50	8390573	35.2	0.50	8389104
Dissolved Chloride (Cl)	mg/L	2.0	0.50	8389095	<0.50	8389102	0.59	0.50	8389102
<b>Nutrients</b>									
Dissolved Phosphorus (P)	mg/L	0.175 (2)	0.0020	8386947	<0.0020 (2)	8386948	0.0216 (2)	0.0020	8386948
Total Ammonia (N)	mg/L	0.40	0.0050	8387302	<0.0050	8387302	0.034	0.0050	8387302
Nitrate plus Nitrite (N)	mg/L	<0.0020	0.0020	8385385	<0.0020	8385385	0.0026	0.0020	8385385
Nitrite (N)	mg/L	<0.0020	0.0020	8385386	<0.0020	8385386	0.0023	0.0020	8385386
Total Phosphorus (P)	mg/L	0.166 (2)	0.0020	8386951	<0.0020 (2)	8386951	0.0185 (2)	0.0020	8386951
<b>Physical Properties</b>									
Conductivity	uS/cm	1610	1.0	8384977	1.1	8384985	387	1.0	8384977
pH	pH	6.91		8384976	5.33	8384984	8.02		8384976
RDL = Reportable Detection Limit N/A = Not Applicable (1) Ion balance out of optimal range due to high measurement uncertainty at this level (Ion Sum < 0.4 meq/L for both cations and anions). (2) Sample preserved to extend hold time.									



Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		PK2245			PK2246		PK2254		
<b>Sampling Date</b>		2016/08/29 11:21			2016/08/29 09:56		2016/08/29 15:45		
<b>COC Number</b>		08426911			08426911		08426912		
	<b>UNITS</b>	<b>MW16-12D</b>	<b>RDL</b>	<b>QC Batch</b>	<b>FIELD BLANK</b>	<b>QC Batch</b>	<b>BH95G-129</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Physical Properties</b>									
Total Suspended Solids	mg/L	183 (1)	2.0	8383846	1.2	8383846	6.4	1.0	8383846
RDL = Reportable Detection Limit									
(1) RDL raised due to high concentration of solids in the sample.									

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PK2255			PK2256		
Sampling Date		2016/08/29 16:20			2016/08/26		
COC Number		08426912			08426912		
	UNITS	BH95G-146	RDL	QC Batch	BH95G-33D	RDL	QC Batch
<b>Calculated Parameters</b>							
Anion Sum	meq/L	7.6	N/A	8383492	4.8	N/A	8383492
Cation Sum	meq/L	8.2	N/A	8383492	4.9	N/A	8383492
Filter and HNO3 Preservation	N/A	FIELD	N/A	ONSITE	FIELD	N/A	ONSITE
Ion Balance	N/A	1.1	0.010	8383480	1.0	0.010	8383480
Nitrate (N)	mg/L	<0.0020	0.0020	8383493	0.209	0.0020	8383493
<b>Misc. Inorganics</b>							
Fluoride (F)	mg/L	0.290	0.010	8384572	0.051	0.010	8384572
Dissolved Organic Carbon (C)	mg/L	0.81	0.50	8390296	0.71	0.50	8390294
Acidity (pH 4.5)	mg/L	<0.50	0.50	8384702	<0.50	0.50	8384702
Alkalinity (Total as CaCO3)	mg/L	130	0.50	8384971	172	0.50	8384971
Acidity (pH 8.3)	mg/L	3.96	0.50	8384702	5.57	0.50	8384702
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8384971	<0.50	0.50	8384971
Bicarbonate (HCO3)	mg/L	159	0.50	8384971	209	0.50	8384971
Carbonate (CO3)	mg/L	<0.50	0.50	8384971	<0.50	0.50	8384971
Hydroxide (OH)	mg/L	<0.50	0.50	8384971	<0.50	0.50	8384971
<b>Anions</b>							
Dissolved Sulphate (SO4)	mg/L	240 (1)	5.0	8389104	64.6	0.50	8389097
Dissolved Chloride (Cl)	mg/L	0.55	0.50	8389102	0.59	0.50	8389095
<b>Nutrients</b>							
Dissolved Phosphorus (P)	mg/L	0.433 (2)	0.0020	8386947	0.106 (3)	0.0020	8386947
Total Ammonia (N)	mg/L	0.78 (1)	0.050	8387302	0.062	0.0050	8387302
Nitrate plus Nitrite (N)	mg/L	<0.0020	0.0020	8385385	0.213 (3)	0.0020	8385385
Nitrite (N)	mg/L	0.0021	0.0020	8385386	0.0040 (3)	0.0020	8385386
Total Phosphorus (P)	mg/L	0.429 (2)	0.0020	8386951	0.0951 (3)	0.0020	8386951
<b>Physical Properties</b>							
Conductivity	uS/cm	754	1.0	8384977	455	1.0	8384977
pH	pH	7.85		8384976	7.83		8384976
RDL = Reportable Detection Limit N/A = Not Applicable (1) Detection limits raised due to dilution to bring analyte within the calibrated range. (2) Sample preserved to extend hold time. (3) Sample arrived to laboratory past recommended hold time.							

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		PK2255			PK2256		
<b>Sampling Date</b>		2016/08/29 16:20			2016/08/26		
<b>COC Number</b>		08426912			08426912		
	<b>UNITS</b>	<b>BH95G-146</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH95G-33D</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Physical Properties</b>							
Total Suspended Solids	mg/L	6.3	1.0	8383846	439 (1)	5.0	8383846
RDL = Reportable Detection Limit (1) RDL raised due to high concentration of solids in the sample.							

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PK2216		PK2217	PK2218		
Sampling Date		2016/08/26 09:50		2016/08/26 10:25	2016/08/26 15:15		
COC Number		08426910		08426910	08426910		
	UNITS	BH95G-25D	QC Batch	BH95G-25S	BH95G-131	RDL	QC Batch
<b>Misc. Inorganics</b>							
Dissolved Hardness (CaCO3)	mg/L	631	8383209	557	695	0.50	8383209
<b>Elements</b>							
Dissolved Mercury (Hg)	mg/L	0.000088	8386342	<0.000020	<0.000020	0.000020	8387987
<b>Dissolved Metals by ICPMS</b>							
Dissolved Aluminum (Al)	mg/L	0.00128	8385086	0.00093	0.00096	0.00050	8385086
Dissolved Antimony (Sb)	mg/L	0.000169	8385086	<0.000020	0.000573	0.000020	8385086
Dissolved Arsenic (As)	mg/L	0.00166	8385086	0.00715	0.00331	0.000020	8385086
Dissolved Barium (Ba)	mg/L	0.0230	8385086	0.0647	0.0194	0.000020	8385086
Dissolved Beryllium (Be)	mg/L	<0.000010	8385086	<0.000010	<0.000010	0.000010	8385086
Dissolved Bismuth (Bi)	mg/L	<0.0000050	8385086	<0.0000050	<0.0000050	0.0000050	8385086
Dissolved Boron (B)	mg/L	<0.010	8385086	<0.010	<0.010	0.010	8385086
Dissolved Cadmium (Cd)	mg/L	<0.0000050	8385086	<0.0000050	<0.0000050	0.0000050	8385086
Dissolved Chromium (Cr)	mg/L	<0.00010	8385086	<0.00010	<0.00010	0.00010	8385086
Dissolved Cobalt (Co)	mg/L	0.000351	8385086	0.000283	0.0000070	0.0000050	8385086
Dissolved Copper (Cu)	mg/L	0.000152	8385086	<0.000050	0.000308	0.000050	8385086
Dissolved Iron (Fe)	mg/L	1.10	8385086	7.60	1.83	0.0010	8385086
Dissolved Lead (Pb)	mg/L	0.0000230	8385086	0.0000070	0.0000890	0.0000050	8385086
Dissolved Lithium (Li)	mg/L	0.0124	8385086	0.0123	0.0166	0.00050	8385086
Dissolved Manganese (Mn)	mg/L	0.432	8385086	0.441	0.135	0.000050	8385086
Dissolved Molybdenum (Mo)	mg/L	0.000297	8385086	0.00177	0.000106	0.000050	8385086
Dissolved Nickel (Ni)	mg/L	0.000684	8385086	0.000487	0.000048	0.000020	8385086
Dissolved Phosphorus (P)	mg/L	0.0035	8385086	<0.0020	0.0538	0.0020	8385086
Dissolved Selenium (Se)	mg/L	<0.000040	8385086	<0.000040	<0.000040	0.000040	8385086
Dissolved Silicon (Si)	mg/L	5.24	8385086	5.75	12.9	0.050	8385086
Dissolved Silver (Ag)	mg/L	0.0000090	8385086	<0.0000050	0.0000280	0.0000050	8385086
Dissolved Strontium (Sr)	mg/L	0.563	8385086	0.514	0.919	0.000050	8385086
Dissolved Thallium (Tl)	mg/L	<0.0000020	8385086	<0.0000020	0.0000020	0.0000020	8385086
Dissolved Tin (Sn)	mg/L	<0.00020	8385086	<0.00020	<0.00020	0.00020	8385086
Dissolved Titanium (Ti)	mg/L	<0.00050	8385086	<0.00050	<0.00050	0.00050	8385086
Dissolved Uranium (U)	mg/L	0.00711	8385086	0.00352	0.0132	0.0000020	8385086
Dissolved Vanadium (V)	mg/L	<0.00020	8385086	<0.00020	<0.00020	0.00020	8385086
Dissolved Zinc (Zn)	mg/L	0.0103	8385086	0.00104	0.00207	0.00010	8385086
RDL = Reportable Detection Limit							

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PK2216		PK2217	PK2218		
Sampling Date		2016/08/26 09:50		2016/08/26 10:25	2016/08/26 15:15		
COC Number		08426910		08426910	08426910		
	UNITS	BH95G-25D	QC Batch	BH95G-25S	BH95G-131	RDL	QC Batch
Dissolved Zirconium (Zr)	mg/L	0.00279	8385086	0.00015	0.0109	0.00010	8385086
Dissolved Calcium (Ca)	mg/L	157	8383437	149	171	0.050	8383437
Dissolved Magnesium (Mg)	mg/L	58.2	8383437	44.9	65.2	0.050	8383437
Dissolved Potassium (K)	mg/L	4.30	8383437	5.67	3.85	0.050	8383437
Dissolved Sodium (Na)	mg/L	2.22	8383437	3.40	2.49	0.050	8383437
Dissolved Sulphur (S)	mg/L	93.8	8383437	72.6	86.5	3.0	8383437
RDL = Reportable Detection Limit							

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PK2219		PK2220		PK2221		
Sampling Date		2016/08/26		2016/08/27 10:00		2016/08/27 11:45		
COC Number		08426910		08426910		08426910		
	UNITS	DUP3	QC Batch	MW15-06	QC Batch	MW15-10S	RDL	QC Batch
<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO3)	mg/L	630	8383209	210	8383209	356	0.50	8383209
<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	<0.0000020	8387987	<0.0000020	8387987	<0.0000020	0.0000020	8387987
<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	0.00103	8385086	0.00195	8385086	0.00571	0.00050	8385086
Dissolved Antimony (Sb)	mg/L	0.000075	8385086	0.000024	8385086	0.000092	0.000020	8385086
Dissolved Arsenic (As)	mg/L	0.00165	8385086	0.000047	8385086	0.00846	0.000020	8385086
Dissolved Barium (Ba)	mg/L	0.0232	8385086	0.0736	8385086	0.128	0.000020	8385086
Dissolved Beryllium (Be)	mg/L	<0.000010	8385086	<0.000010	8385086	0.000017	0.000010	8385086
Dissolved Bismuth (Bi)	mg/L	<0.0000050	8385086	<0.0000050	8385086	<0.0000050	0.0000050	8385086
Dissolved Boron (B)	mg/L	<0.010	8385086	<0.010	8385086	<0.010	0.010	8385086
Dissolved Cadmium (Cd)	mg/L	<0.0000050	8385086	0.000140	8385086	0.000911	0.0000050	8385086
Dissolved Chromium (Cr)	mg/L	<0.00010	8385086	0.00012	8385086	<0.00010	0.00010	8385086
Dissolved Cobalt (Co)	mg/L	0.000270	8385086	0.0000230	8385086	0.00578	0.0000050	8385086
Dissolved Copper (Cu)	mg/L	0.000093	8385086	0.000391	8385086	0.000462	0.000050	8385086
Dissolved Iron (Fe)	mg/L	1.54	8385086	0.0010	8385086	2.64	0.0010	8385086
Dissolved Lead (Pb)	mg/L	0.0000130	8385086	0.0000130	8385086	0.000151	0.0000050	8385086
Dissolved Lithium (Li)	mg/L	0.0136	8385086	0.00157	8385086	0.00410	0.00050	8385086
Dissolved Manganese (Mn)	mg/L	0.446	8385086	0.000459	8385086	0.854	0.000050	8385086
Dissolved Molybdenum (Mo)	mg/L	0.000295	8385086	0.00289 (1)	8390612	0.00106	0.000050	8385086
Dissolved Nickel (Ni)	mg/L	0.000493	8385086	0.000573	8385086	0.00981	0.000020	8385086
Dissolved Phosphorus (P)	mg/L	0.0028	8385086	0.0022	8385086	<0.0020	0.0020	8385086
Dissolved Selenium (Se)	mg/L	<0.000040	8385086	0.00280	8385086	0.00222	0.000040	8385086
Dissolved Silicon (Si)	mg/L	5.49	8385086	3.18	8385086	4.49	0.050	8385086
Dissolved Silver (Ag)	mg/L	0.0000100	8385086	<0.0000050	8385086	<0.0000050	0.0000050	8385086
Dissolved Strontium (Sr)	mg/L	0.604	8385086	0.239	8385086	0.574	0.000050	8385086
Dissolved Thallium (Tl)	mg/L	<0.0000020	8385086	0.0000020	8385086	0.0000060	0.0000020	8385086
Dissolved Tin (Sn)	mg/L	<0.00020	8385086	<0.00020	8385086	<0.00020	0.00020	8385086
Dissolved Titanium (Ti)	mg/L	<0.00050	8385086	<0.00050	8385086	<0.00050	0.00050	8385086
Dissolved Uranium (U)	mg/L	0.00704	8385086	0.00276	8385086	0.00269	0.0000020	8385086
Dissolved Vanadium (V)	mg/L	<0.00020	8385086	<0.00020	8385086	<0.00020	0.00020	8385086
RDL = Reportable Detection Limit								
(1) Dissolved greater than total. Reanalysis yields similar results.								

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PK2219		PK2220		PK2221		
Sampling Date		2016/08/26		2016/08/27 10:00		2016/08/27 11:45		
COC Number		08426910		08426910		08426910		
	UNITS	DUP3	QC Batch	MW15-06	QC Batch	MW15-10S	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	0.0107	8385086	0.00257	8385086	0.0162	0.00010	8385086
Dissolved Zirconium (Zr)	mg/L	0.00368 (1)	8390612	0.00014	8385086	0.00022	0.00010	8385086
Dissolved Calcium (Ca)	mg/L	154	8383437	73.2	8383437	124	0.050	8383437
Dissolved Magnesium (Mg)	mg/L	59.2	8383437	6.53	8383437	11.1	0.050	8383437
Dissolved Potassium (K)	mg/L	4.39	8383437	1.72	8383437	2.16	0.050	8383437
Dissolved Sodium (Na)	mg/L	2.34	8383437	1.27	8383437	7.08	0.050	8383437
Dissolved Sulphur (S)	mg/L	95.9	8383437	8.1	8383437	9.8	3.0	8383437
RDL = Reportable Detection Limit								
(1) Dissolved greater than total. Reanalysis yields similar results.								

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PK2222	PK2223	PK2224	PK2237	PK2238		
Sampling Date		2016/08/27 12:27	2016/08/27 13:30	2016/08/27 16:30	2016/08/28 10:00	2016/08/28 10:40		
COC Number		08426910	08426910	08426910	08426911	08426911		
	UNITS	MW15-10D	MW15-09S	BH95G-30	BH95G-31	BH95G-22	RDL	QC Batch
<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO3)	mg/L	1800	225	215	155	202	0.50	8383209
<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000020	8387987
<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	0.195	0.00226	0.00104	0.00314	0.0132	0.00050	8385086
Dissolved Antimony (Sb)	mg/L	<0.000020	0.000078	0.000022	0.000028	0.000206	0.000020	8385086
Dissolved Arsenic (As)	mg/L	0.000637	0.000800	0.000031	0.000060	0.000163	0.000020	8385086
Dissolved Barium (Ba)	mg/L	0.304	0.188	0.0719	0.127	0.117	0.000020	8385086
Dissolved Beryllium (Be)	mg/L	0.000864	<0.000010	<0.000010	<0.000010	<0.000010	0.000010	8385086
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8385086
Dissolved Boron (B)	mg/L	0.011	<0.010	<0.010	<0.010	<0.010	0.010	8385086
Dissolved Cadmium (Cd)	mg/L	0.0000210	<0.0000050	0.000152	0.0000210	0.000109	0.0000050	8385086
Dissolved Chromium (Cr)	mg/L	0.00056	<0.00010	<0.00010	0.00011	<0.00010	0.00010	8385086
Dissolved Cobalt (Co)	mg/L	0.000180	0.000223	0.0000080	0.0000120	0.0000210	0.0000050	8385086
Dissolved Copper (Cu)	mg/L	<0.000050	<0.000050	0.000537	0.000548	0.00116	0.000050	8385086
Dissolved Iron (Fe)	mg/L	24.4	0.632	<0.0010	0.0031	0.0474	0.0010	8385086
Dissolved Lead (Pb)	mg/L	0.000248	0.0000100	0.0000140	0.0000300	0.000234	0.0000050	8385086
Dissolved Lithium (Li)	mg/L	0.184	0.00284	0.00154	0.00146	0.00191	0.00050	8385086
Dissolved Manganese (Mn)	mg/L	4.88	0.143	0.000589	0.000180	0.00103	0.000050	8385086
Dissolved Molybdenum (Mo)	mg/L	0.000151	0.00488	0.00244	0.00159	0.000176	0.000050	8385086
Dissolved Nickel (Ni)	mg/L	0.000598	0.000460	0.00124	0.000425	0.000265	0.000020	8385086
Dissolved Phosphorus (P)	mg/L	0.0062	0.0056	0.0063	<0.0020	0.0030	0.0020	8385086
Dissolved Selenium (Se)	mg/L	<0.000040	0.000852	0.00277	0.00165	0.000688	0.000040	8385086
Dissolved Silicon (Si)	mg/L	28.1	4.04	3.13	2.53	3.11	0.050	8385086
Dissolved Silver (Ag)	mg/L	0.0000060	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8385086
Dissolved Strontium (Sr)	mg/L	2.64	0.270	0.259	0.185	0.188	0.000050	8385086
Dissolved Thallium (Tl)	mg/L	0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000020	8385086
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8385086
Dissolved Titanium (Ti)	mg/L	0.00062	<0.00050	<0.00050	<0.00050	0.00053	0.00050	8385086
Dissolved Uranium (U)	mg/L	0.000225	0.00296	0.00267	0.000986	0.00222	0.0000020	8385086
Dissolved Vanadium (V)	mg/L	0.00184	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8385086
Dissolved Zinc (Zn)	mg/L	0.00293	0.00169	0.00761	0.00086	0.00787	0.00010	8385086
RDL = Reportable Detection Limit								



Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PK2222	PK2223	PK2224	PK2237	PK2238		
Sampling Date		2016/08/27 12:27	2016/08/27 13:30	2016/08/27 16:30	2016/08/28 10:00	2016/08/28 10:40		
COC Number		08426910	08426910	08426910	08426911	08426911		
	UNITS	MW15-10D	MW15-09S	BH95G-30	BH95G-31	BH95G-22	RDL	QC Batch
Dissolved Zirconium (Zr)	mg/L	0.00215	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	8385086
Dissolved Calcium (Ca)	mg/L	605	71.8	73.7	57.3	63.2	0.050	8383437
Dissolved Magnesium (Mg)	mg/L	70.9	11.2	7.52	3.04	10.7	0.050	8383437
Dissolved Potassium (K)	mg/L	7.80	1.84	1.75	2.71	1.42	0.050	8383437
Dissolved Sodium (Na)	mg/L	19.7	2.88	1.37	0.977	1.06	0.050	8383437
Dissolved Sulphur (S)	mg/L	<3.0	5.9	8.5	7.9	16.6	3.0	8383437
RDL = Reportable Detection Limit								

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PK2239		PK2240		PK2241		
Sampling Date		2016/08/28 11:17		2016/08/28 11:20		2016/08/28 12:00		
COC Number		08426911		08426911		08426911		
	UNITS	MW16-17	QC Batch	BH95G-02	QC Batch	MW16-16D	RDL	QC Batch
<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO3)	mg/L	195	8383209	291	8390478	239	0.50	8383209
<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	<0.0000020	8387987	<0.0000020	8387987	<0.0000020	0.0000020	8387987
<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	0.0114	8385086	0.00174	8385086	0.00388	0.00050	8385086
Dissolved Antimony (Sb)	mg/L	0.000249	8385086	<0.000020	8385086	0.000036	0.000020	8385086
Dissolved Arsenic (As)	mg/L	0.000899	8385086	0.000088	8385086	0.000538	0.000020	8385086
Dissolved Barium (Ba)	mg/L	0.0340	8385086	0.0254	8385086	0.0357	0.000020	8385086
Dissolved Beryllium (Be)	mg/L	<0.000010	8385086	<0.000010	8385086	<0.000010	0.000010	8385086
Dissolved Bismuth (Bi)	mg/L	<0.0000050	8385086	<0.0000050	8385086	<0.0000050	0.0000050	8385086
Dissolved Boron (B)	mg/L	<0.010	8385086	<0.010	8385086	<0.010	0.010	8385086
Dissolved Cadmium (Cd)	mg/L	<0.0000050	8385086	0.00151	8385086	<0.0000050	0.0000050	8385086
Dissolved Chromium (Cr)	mg/L	<0.00010	8385086	<0.00010	8385086	<0.00010	0.00010	8385086
Dissolved Cobalt (Co)	mg/L	0.000160	8385086	0.0000070	8385086	0.0000350	0.0000050	8385086
Dissolved Copper (Cu)	mg/L	0.000108	8385086	0.000482	8385086	<0.000050	0.000050	8385086
Dissolved Iron (Fe)	mg/L	0.0078	8385086	0.0038	8385086	0.431	0.0010	8385086
Dissolved Lead (Pb)	mg/L	0.0000050	8385086	0.0000280	8385086	<0.0000050	0.0000050	8385086
Dissolved Lithium (Li)	mg/L	0.00293	8385086	0.00121	8385086	0.00413	0.00050	8385086
Dissolved Manganese (Mn)	mg/L	0.0927	8385086	0.000301	8385086	0.0568	0.000050	8385086
Dissolved Molybdenum (Mo)	mg/L	0.00132	8385086	0.00210	8385086	0.000968	0.000050	8385086
Dissolved Nickel (Ni)	mg/L	0.000862	8385086	0.000510	8385086	0.000182	0.000020	8385086
Dissolved Phosphorus (P)	mg/L	<0.0020	8385086	0.0091	8385086	0.0035	0.0020	8385086
Dissolved Selenium (Se)	mg/L	0.000105	8385086	0.00492	8385086	<0.000040	0.000040	8385086
Dissolved Silicon (Si)	mg/L	3.75	8385086	2.25	8385086	3.83	0.050	8385086
Dissolved Silver (Ag)	mg/L	<0.0000050	8385086	<0.0000050	8385086	<0.0000050	0.0000050	8385086
Dissolved Strontium (Sr)	mg/L	0.184	8385086	0.251	8390612	0.288	0.000050	8385086
Dissolved Thallium (Tl)	mg/L	<0.0000020	8385086	<0.0000020	8385086	<0.0000020	0.0000020	8385086
Dissolved Tin (Sn)	mg/L	<0.00020	8385086	<0.00020	8385086	<0.00020	0.00020	8385086
Dissolved Titanium (Ti)	mg/L	<0.00050	8385086	<0.00050	8385086	<0.00050	0.00050	8385086
Dissolved Uranium (U)	mg/L	0.00307	8385086	0.00302	8385086	0.00370	0.0000020	8385086
Dissolved Vanadium (V)	mg/L	<0.00020	8385086	<0.00020	8385086	<0.00020	0.00020	8385086
Dissolved Zinc (Zn)	mg/L	0.00038	8385086	0.0278	8385086	0.00056	0.00010	8385086
RDL = Reportable Detection Limit								

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PK2239		PK2240		PK2241		
Sampling Date		2016/08/28 11:17		2016/08/28 11:20		2016/08/28 12:00		
COC Number		08426911		08426911		08426911		
	UNITS	MW16-17	QC Batch	BH95G-02	QC Batch	MW16-16D	RDL	QC Batch
Dissolved Zirconium (Zr)	mg/L	0.00014	8385086	<0.00010	8385086	0.00028	0.00010	8385086
Dissolved Calcium (Ca)	mg/L	63.4	8383437	69.6	8389462	82.1	0.050	8383437
Dissolved Magnesium (Mg)	mg/L	9.00	8383437	28.6	8389462	8.28	0.050	8383437
Dissolved Potassium (K)	mg/L	2.05	8383437	0.412	8389462	2.42	0.050	8383437
Dissolved Sodium (Na)	mg/L	2.85	8383437	0.647	8389462	1.82	0.050	8383437
Dissolved Sulphur (S)	mg/L	11.7	8383437	16.1	8389462	13.4	3.0	8383437
RDL = Reportable Detection Limit								

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PK2242		PK2243		PK2244		
Sampling Date		2016/08/28 17:30		2016/08/30 10:35		2016/08/29 09:56		
COC Number		08426911		08426911		08426911		
	UNITS	MW16-14D	QC Batch	TRAVEL BLANK	QC Batch	MW16-12S	RDL	QC Batch
<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO3)	mg/L	245	8383209	<0.50	8383209	754	0.50	8390478
<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	<0.0000020	8387987	<0.0000020	8387987	<0.0000020	0.0000020	8387987
<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	0.00248	8385086	0.00064	8385086	0.00092	0.00050	8385086
Dissolved Antimony (Sb)	mg/L	0.000031	8385086	<0.000020	8385086	0.000123	0.000020	8385086
Dissolved Arsenic (As)	mg/L	0.00386	8385086	<0.000020	8385086	0.00336	0.000020	8385086
Dissolved Barium (Ba)	mg/L	0.0206	8385086	<0.000020	8390612	1.84	0.000020	8385086
Dissolved Beryllium (Be)	mg/L	<0.000010	8385086	<0.000010	8385086	<0.000010	0.000010	8385086
Dissolved Bismuth (Bi)	mg/L	<0.0000050	8385086	<0.0000050	8385086	<0.0000050	0.0000050	8385086
Dissolved Boron (B)	mg/L	<0.010	8385086	<0.010	8385086	0.024	0.010	8385086
Dissolved Cadmium (Cd)	mg/L	0.0000050	8385086	<0.0000050	8385086	0.0000380	0.0000050	8385086
Dissolved Chromium (Cr)	mg/L	<0.00010	8385086	<0.00010	8385086	<0.00010	0.00010	8385086
Dissolved Cobalt (Co)	mg/L	0.000228	8385086	<0.0000050	8385086	0.0324	0.0000050	8385086
Dissolved Copper (Cu)	mg/L	0.000060	8385086	<0.0000050	8385086	<0.0000050	0.0000050	8385086
Dissolved Iron (Fe)	mg/L	0.110	8385086	<0.0010	8385086	101	0.0010	8385086
Dissolved Lead (Pb)	mg/L	0.0000110	8385086	<0.0000050	8385086	<0.0000050	0.0000050	8385086
Dissolved Lithium (Li)	mg/L	0.00328	8385086	<0.00050	8385086	0.410	0.00050	8385086
Dissolved Manganese (Mn)	mg/L	0.274	8385086	<0.0000050	8385086	1.87	0.0000050	8385086
Dissolved Molybdenum (Mo)	mg/L	0.000398	8385086	<0.0000050	8385086	0.00187	0.0000050	8385086
Dissolved Nickel (Ni)	mg/L	0.000651	8385086	<0.000020	8385086	0.0218	0.000020	8385086
Dissolved Phosphorus (P)	mg/L	<0.0020	8385086	<0.0020	8385086	0.0056	0.0020	8385086
Dissolved Selenium (Se)	mg/L	<0.000040	8385086	<0.000040	8385086	<0.000040	0.000040	8385086
Dissolved Silicon (Si)	mg/L	4.46	8385086	<0.050	8385086	14.1	0.050	8385086
Dissolved Silver (Ag)	mg/L	<0.0000050	8385086	<0.0000050	8385086	0.0000200	0.0000050	8385086
Dissolved Strontium (Sr)	mg/L	0.323	8385086	<0.0000050	8385086	2.28	0.0000050	8390612
Dissolved Thallium (Tl)	mg/L	<0.0000020	8385086	<0.0000020	8385086	0.0000030	0.0000020	8385086
Dissolved Tin (Sn)	mg/L	<0.00020	8385086	<0.00020	8385086	<0.00020	0.00020	8385086
Dissolved Titanium (Ti)	mg/L	<0.00050	8385086	<0.00050	8385086	<0.00050	0.00050	8385086
Dissolved Uranium (U)	mg/L	0.00390	8385086	<0.0000020	8385086	0.00125	0.0000020	8385086
Dissolved Vanadium (V)	mg/L	<0.00020	8385086	<0.00020	8385086	<0.00020	0.00020	8385086
Dissolved Zinc (Zn)	mg/L	0.00047	8385086	0.00012	8390612	0.0325	0.00010	8385086
RDL = Reportable Detection Limit								

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PK2242		PK2243		PK2244		
Sampling Date		2016/08/28 17:30		2016/08/30 10:35		2016/08/29 09:56		
COC Number		08426911		08426911		08426911		
	UNITS	MW16-14D	QC Batch	TRAVEL BLANK	QC Batch	MW16-12S	RDL	QC Batch
Dissolved Zirconium (Zr)	mg/L	<0.00010	8385086	<0.00010	8385086	0.00850	0.00010	8385086
Dissolved Calcium (Ca)	mg/L	87.5	8383437	<0.050	8383437	161	0.050	8389462
Dissolved Magnesium (Mg)	mg/L	6.51	8383437	<0.050	8383437	85.5	0.050	8389462
Dissolved Potassium (K)	mg/L	2.17	8383437	<0.050	8383437	10.4	0.050	8389462
Dissolved Sodium (Na)	mg/L	6.74	8383437	<0.050	8383437	50.7	0.050	8389462
Dissolved Sulphur (S)	mg/L	31.3	8383437	<3.0	8383437	5.0	3.0	8389462
RDL = Reportable Detection Limit								

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PK2245		PK2246	PK2254		
Sampling Date		2016/08/29 11:21		2016/08/29 09:56	2016/08/29 15:45		
COC Number		08426911		08426911	08426912		
	UNITS	MW16-12D	QC Batch	FIELD BLANK	BH95G-129	RDL	QC Batch
<b>Misc. Inorganics</b>							
Dissolved Hardness (CaCO3)	mg/L	908	8383209	<0.50	209	0.50	8383209
<b>Elements</b>							
Dissolved Mercury (Hg)	mg/L	<0.0000020	8387987	<0.0000020	<0.0000020	0.0000020	8387987
<b>Dissolved Metals by ICPMS</b>							
Dissolved Aluminum (Al)	mg/L	0.0116	8385086	0.00060	0.00140	0.00050	8385086
Dissolved Antimony (Sb)	mg/L	<0.000020	8385086	<0.000020	0.000140	0.000020	8385086
Dissolved Arsenic (As)	mg/L	0.000060	8385086	<0.000020	0.00385	0.000020	8385086
Dissolved Barium (Ba)	mg/L	3.31	8385086	<0.000020	0.0696	0.000020	8385086
Dissolved Beryllium (Be)	mg/L	0.000113	8385086	<0.000010	<0.000010	0.000010	8385086
Dissolved Bismuth (Bi)	mg/L	<0.0000050	8385086	<0.0000050	<0.0000050	0.0000050	8385086
Dissolved Boron (B)	mg/L	0.020	8385086	<0.010	<0.010	0.010	8385086
Dissolved Cadmium (Cd)	mg/L	0.0000070	8385086	<0.0000050	<0.0000050	0.0000050	8385086
Dissolved Chromium (Cr)	mg/L	<0.00010	8385086	<0.00010	<0.00010	0.00010	8385086
Dissolved Cobalt (Co)	mg/L	0.0000930	8385086	<0.0000050	0.000110	0.0000050	8385086
Dissolved Copper (Cu)	mg/L	<0.000050	8385086	<0.000050	0.000050	0.000050	8385086
Dissolved Iron (Fe)	mg/L	3.97	8385086	<0.0010	0.632	0.0010	8385086
Dissolved Lead (Pb)	mg/L	0.0000400	8385086	<0.0000050	0.0000070	0.0000050	8385086
Dissolved Lithium (Li)	mg/L	0.470	8390612	<0.00050	0.0101	0.00050	8385086
Dissolved Manganese (Mn)	mg/L	0.291	8385086	<0.000050	0.0927	0.000050	8385086
Dissolved Molybdenum (Mo)	mg/L	<0.000050	8385086	<0.000050	0.000730	0.000050	8385086
Dissolved Nickel (Ni)	mg/L	0.000238	8385086	<0.000020	0.000209	0.000020	8385086
Dissolved Phosphorus (P)	mg/L	0.0038	8385086	<0.0020	0.0145	0.0020	8385086
Dissolved Selenium (Se)	mg/L	<0.000040	8385086	<0.000040	<0.000040	0.000040	8385086
Dissolved Silicon (Si)	mg/L	16.5	8385086	<0.050	5.49	0.050	8385086
Dissolved Silver (Ag)	mg/L	0.000131	8385086	<0.0000050	<0.0000050	0.0000050	8385086
Dissolved Strontium (Sr)	mg/L	2.70	8385086	<0.000050	0.203	0.000050	8385086
Dissolved Thallium (Tl)	mg/L	<0.0000020	8385086	<0.0000020	<0.0000020	0.0000020	8385086
Dissolved Tin (Sn)	mg/L	<0.00020	8385086	<0.00020	<0.00020	0.00020	8385086
Dissolved Titanium (Ti)	mg/L	0.00111	8385086	<0.00050	<0.00050	0.00050	8385086
Dissolved Uranium (U)	mg/L	0.000497	8385086	<0.0000020	0.00815	0.0000020	8385086
Dissolved Vanadium (V)	mg/L	<0.00020	8385086	<0.00020	<0.00020	0.00020	8385086
Dissolved Zinc (Zn)	mg/L	0.00217	8385086	0.00012	0.00169	0.00010	8385086
RDL = Reportable Detection Limit							

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PK2245		PK2246	PK2254		
Sampling Date		2016/08/29 11:21		2016/08/29 09:56	2016/08/29 15:45		
COC Number		08426911		08426911	08426912		
	UNITS	MW16-12D	QC Batch	FIELD BLANK	BH95G-129	RDL	QC Batch
Dissolved Zirconium (Zr)	mg/L	0.0481	8385086	<0.00010	0.00057	0.00010	8385086
Dissolved Calcium (Ca)	mg/L	191	8383437	<0.050	60.0	0.050	8383437
Dissolved Magnesium (Mg)	mg/L	104	8383437	<0.050	14.3	0.050	8383437
Dissolved Potassium (K)	mg/L	12.7	8383437	<0.050	2.03	0.050	8383437
Dissolved Sodium (Na)	mg/L	34.4	8383437	<0.050	2.48	0.050	8383437
Dissolved Sulphur (S)	mg/L	<3.0	8383437	<3.0	12.6	3.0	8383437
RDL = Reportable Detection Limit							

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PK2255		PK2256		
Sampling Date		2016/08/29 16:20		2016/08/26		
COC Number		08426912		08426912		
	UNITS	BH95G-146	QC Batch	BH95G-33D	RDL	QC Batch
<b>Misc. Inorganics</b>						
Dissolved Hardness (CaCO3)	mg/L	391	8383209	244	0.50	8383209
<b>Elements</b>						
Dissolved Mercury (Hg)	mg/L	<0.000020	8387987	<0.000020	0.000020	8387988
<b>Dissolved Metals by ICPMS</b>						
Dissolved Aluminum (Al)	mg/L	0.00136	8385058	0.00102	0.00050	8385058
Dissolved Antimony (Sb)	mg/L	0.000026	8385058	<0.000020	0.000020	8385058
Dissolved Arsenic (As)	mg/L	0.000797	8385058	0.000137	0.000020	8385058
Dissolved Barium (Ba)	mg/L	0.0132	8385058	0.0931	0.000020	8385058
Dissolved Beryllium (Be)	mg/L	<0.000010	8385058	<0.000010	0.000010	8385058
Dissolved Bismuth (Bi)	mg/L	<0.0000050	8385058	<0.0000050	0.0000050	8385058
Dissolved Boron (B)	mg/L	<0.010	8385058	<0.010	0.010	8385058
Dissolved Cadmium (Cd)	mg/L	<0.0000050	8385058	<0.0000050	0.0000050	8385058
Dissolved Chromium (Cr)	mg/L	<0.00010	8385058	<0.00010	0.00010	8385058
Dissolved Cobalt (Co)	mg/L	<0.0000050	8385058	<0.0000050	0.0000050	8385058
Dissolved Copper (Cu)	mg/L	<0.0000050	8385058	0.000121	0.000050	8385058
Dissolved Iron (Fe)	mg/L	1.15	8385058	<0.0010	0.0010	8385058
Dissolved Lead (Pb)	mg/L	<0.0000050	8385058	<0.0000050	0.0000050	8385058
Dissolved Lithium (Li)	mg/L	0.0200	8385058	0.00076	0.00050	8385058
Dissolved Manganese (Mn)	mg/L	0.146	8385058	0.000111	0.000050	8385058
Dissolved Molybdenum (Mo)	mg/L	0.000289	8385058	0.000926	0.000050	8385058
Dissolved Nickel (Ni)	mg/L	<0.000020	8385058	0.000658	0.000020	8385058
Dissolved Phosphorus (P)	mg/L	0.401	8385058	<0.0020	0.0020	8385058
Dissolved Selenium (Se)	mg/L	<0.000040	8385058	0.00791	0.000040	8385058
Dissolved Silicon (Si)	mg/L	13.0	8385058	3.03	0.050	8385058
Dissolved Silver (Ag)	mg/L	<0.0000050	8385058	<0.0000050	0.0000050	8385058
Dissolved Strontium (Sr)	mg/L	0.608	8385058	0.246	0.000050	8385058
Dissolved Thallium (Tl)	mg/L	<0.0000020	8385058	<0.0000020	0.0000020	8385058
Dissolved Tin (Sn)	mg/L	<0.00020	8385058	<0.00020	0.00020	8385058
Dissolved Titanium (Ti)	mg/L	<0.00050	8385058	<0.00050	0.00050	8385058
Dissolved Uranium (U)	mg/L	0.00172	8385058	0.00358	0.0000020	8385058
Dissolved Vanadium (V)	mg/L	<0.00020	8385058	<0.00020	0.00020	8385058
Dissolved Zinc (Zn)	mg/L	0.00110	8385058	0.00042	0.00010	8385058
RDL = Reportable Detection Limit						



Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PK2255		PK2256		
Sampling Date		2016/08/29 16:20		2016/08/26		
COC Number		08426912		08426912		
	UNITS	BH95G-146	QC Batch	BH95G-33D	RDL	QC Batch
Dissolved Zirconium (Zr)	mg/L	<0.00010	8385058	<0.00010	0.00010	8385058
Dissolved Calcium (Ca)	mg/L	117	8383437	82.8	0.050	8383437
Dissolved Magnesium (Mg)	mg/L	23.6	8383437	8.98	0.050	8383437
Dissolved Potassium (K)	mg/L	2.29	8383437	0.889	0.050	8383437
Dissolved Sodium (Na)	mg/L	4.77	8383437	0.767	0.050	8383437
Dissolved Sulphur (S)	mg/L	89.8	8383437	22.4	3.0	8383437
RDL = Reportable Detection Limit						

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		PK2243	PK2246	PK2254		PK2255		
Sampling Date		2016/08/30 10:35	2016/08/29 09:56	2016/08/29 15:45		2016/08/29 16:20		
COC Number		08426911	08426911	08426912		08426912		
	UNITS	TRAVEL BLANK	FIELD BLANK	BH95G-129	QC Batch	BH95G-146	RDL	QC Batch
<b>Calculated Parameters</b>								
Total Hardness (CaCO3)	mg/L	<0.50	<0.50	211	8383182	407	0.50	8383182
<b>Elements</b>								
Total Mercury (Hg)	mg/L	<0.000020	<0.000020	<0.000020	8387992	<0.000020	0.000020	8387990
<b>Total Metals by ICPMS</b>								
Total Aluminum (Al)	mg/L	<0.00050	0.00060	0.0499	8385137	0.0666	0.00050	8385137
Total Antimony (Sb)	mg/L	<0.000020	<0.000020	0.000197	8385137	0.000054	0.000020	8385137
Total Arsenic (As)	mg/L	<0.000020	<0.000020	0.00404	8385137	0.00108	0.000020	8385137
Total Barium (Ba)	mg/L	<0.000020	<0.000020	0.0715	8385137	0.0147	0.000020	8385137
Total Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	8385137	<0.000010	0.000010	8385137
Total Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	8385137	<0.0000050	0.0000050	8385137
Total Boron (B)	mg/L	<0.010	<0.010	<0.010	8385137	<0.010	0.010	8385137
Total Cadmium (Cd)	mg/L	<0.0000050	<0.0000050	0.0000070	8385137	0.0000130	0.0000050	8385137
Total Chromium (Cr)	mg/L	<0.00010	<0.00010	<0.00010	8385137	0.00010	0.00010	8385137
Total Cobalt (Co)	mg/L	<0.0000050	<0.0000050	0.000133	8385137	0.0000150	0.0000050	8385137
Total Copper (Cu)	mg/L	<0.000050	<0.000050	0.00130	8385137	0.000168	0.000050	8385137
Total Iron (Fe)	mg/L	<0.0010	<0.0010	0.768	8385137	1.26	0.0010	8385137
Total Lead (Pb)	mg/L	<0.0000050	<0.0000050	0.000334	8385137	0.000840	0.0000050	8385137
Total Lithium (Li)	mg/L	<0.00050	<0.00050	0.00996	8385137	0.0209	0.00050	8385137
Total Manganese (Mn)	mg/L	<0.000050	<0.000050	0.0947	8385137	0.168	0.000050	8385137
Total Molybdenum (Mo)	mg/L	<0.000050	<0.000050	0.000742	8385137	0.000324	0.000050	8385137
Total Nickel (Ni)	mg/L	<0.000020	<0.000020	0.000245	8385137	0.000066	0.000020	8385137
Total Phosphorus (P)	mg/L	<0.0020	0.0028	0.0175	8385137	0.501	0.0020	8385137
Total Selenium (Se)	mg/L	<0.000040	<0.000040	<0.000040	8385137	<0.000040	0.000040	8385137
Total Silicon (Si)	mg/L	<0.050	<0.050	5.53	8385137	13.4	0.050	8385137
Total Silver (Ag)	mg/L	<0.0000050	<0.0000050	<0.0000050	8385137	0.0000070	0.0000050	8385137
Total Strontium (Sr)	mg/L	<0.000050	<0.000050	0.211	8385137	0.650	0.000050	8385137
Total Thallium (Tl)	mg/L	<0.0000020	<0.0000020	<0.0000020	8385137	0.0000020	0.0000020	8385137
Total Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	8385137	<0.00020	0.00020	8385137
Total Titanium (Ti)	mg/L	<0.00050	<0.00050	0.00052	8385137	0.00201	0.00050	8385137
Total Uranium (U)	mg/L	<0.0000020	<0.0000020	0.00841	8385137	0.00179	0.0000020	8385137
Total Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	8385137	<0.00020	0.00020	8385137
Total Zinc (Zn)	mg/L	<0.00010	0.00012	0.00356	8385137	0.00354	0.00010	8385137
RDL = Reportable Detection Limit								

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		PK2243	PK2246	PK2254		PK2255		
Sampling Date		2016/08/30 10:35	2016/08/29 09:56	2016/08/29 15:45		2016/08/29 16:20		
COC Number		08426911	08426911	08426912		08426912		
	UNITS	TRAVEL BLANK	FIELD BLANK	BH95G-129	QC Batch	BH95G-146	RDL	QC Batch
Total Zirconium (Zr)	mg/L	<0.00010	<0.00010	0.00157	8385137	0.00124	0.00010	8385137
Total Calcium (Ca)	mg/L	<0.050	<0.050	60.8	8383438	123	0.050	8383438
Total Magnesium (Mg)	mg/L	<0.050	<0.050	14.5	8383438	24.2	0.050	8383438
Total Potassium (K)	mg/L	<0.050	<0.050	2.01	8383438	2.35	0.050	8383438
Total Sodium (Na)	mg/L	<0.050	<0.050	2.43	8383438	5.41	0.050	8383438
Total Sulphur (S)	mg/L	<3.0	<3.0	12.6	8383438	91.9	3.0	8383438
RDL = Reportable Detection Limit								

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PK2216	PK2217	PK2218	PK2219	PK2220		
Sampling Date		2016/08/26 09:50	2016/08/26 10:25	2016/08/26 15:15	2016/08/26	2016/08/27 10:00		
COC Number		08426910	08426910	08426910	08426910	08426910		
	UNITS	BH95G-25D	BH95G-25S	BH95G-131	DUP3	MW15-06	RDL	QC Batch
<b>Calculated Parameters</b>								
Total Hardness (CaCO3)	mg/L	734	553	662	722	262	0.50	8383182
<b>Elements</b>								
Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000020	0.0000020	8387992
<b>Total Metals by ICPMS</b>								
Total Aluminum (Al)	mg/L	10.4	4.39	0.278	10.9	15.7	0.0030	8386114
Total Antimony (Sb)	mg/L	0.000383	0.000132	0.00687	0.000339	0.000162	0.000020	8386114
Total Arsenic (As)	mg/L	0.0157	0.0111	0.0163	0.0159	0.00449	0.000020	8386114
Total Barium (Ba)	mg/L	0.792	0.140	0.0337	0.696	0.419	0.000050	8386114
Total Beryllium (Be)	mg/L	0.00225	0.000343	0.000034	0.00225	0.000628	0.000010	8386114
Total Bismuth (Bi)	mg/L	0.00124	0.000162	0.000030	0.00119	0.000365	0.000010	8386114
Total Boron (B)	mg/L	0.011	<0.010	<0.010	0.011	<0.010	0.010	8386114
Total Cadmium (Cd)	mg/L	0.000728	0.000212	0.000383	0.000711	0.00271	0.0000050	8386114
Total Chromium (Cr)	mg/L	0.00593	0.00899	0.00053	0.00561	0.0418	0.00010	8386114
Total Cobalt (Co)	mg/L	0.00862	0.00365	0.000120	0.00866	0.0199	0.000010	8386114
Total Copper (Cu)	mg/L	0.0248	0.0103	0.00217	0.0219	0.108	0.00010	8386114
Total Iron (Fe)	mg/L	31.2	16.8	3.97	31.5	29.2	0.0050	8386114
Total Lead (Pb)	mg/L	0.0811	0.0116	0.0791	0.0735	0.0462	0.000020	8386114
Total Lithium (Li)	mg/L	0.0241	0.0176	0.0196	0.0230	0.0181	0.00050	8386114
Total Manganese (Mn)	mg/L	1.44	0.532	0.142	1.41	0.510	0.00010	8386114
Total Molybdenum (Mo)	mg/L	0.000606	0.00164	0.000108	0.000549	0.00151	0.000050	8386114
Total Nickel (Ni)	mg/L	0.0126	0.00797	0.00038	0.0126	0.0575	0.00010	8386114
Total Phosphorus (P)	mg/L	1.32	0.456	0.169	1.37	2.02	0.0050	8386114
Total Selenium (Se)	mg/L	0.000157	<0.000040	<0.000040	0.000154	0.00300	0.000040	8386114
Total Silicon (Si)	mg/L	25.2	13.3	13.9	25.8	25.0	0.050	8386114
Total Silver (Ag)	mg/L	0.000507	0.000072	0.000237	0.000364	0.000636	0.000010	8386114
Total Strontium (Sr)	mg/L	0.728	0.507	0.853	0.712	0.289	0.000050	8386114
Total Thallium (Tl)	mg/L	0.000254	0.0000870	0.0000390	0.000239	0.000326	0.0000020	8386114
Total Tin (Sn)	mg/L	0.00035	0.00022	0.00028	0.00027	0.00035	0.00020	8386114
Total Titanium (Ti)	mg/L	0.117	0.225	0.0113	0.0995	0.828	0.0020	8386114
Total Uranium (U)	mg/L	0.0182	0.00440	0.0148	0.0179	0.00411	0.0000050	8386114
Total Vanadium (V)	mg/L	0.0143	0.0123	0.00060	0.0134	0.0614	0.00020	8386114
Total Zinc (Zn)	mg/L	0.651	0.0341	0.0679	0.637	0.279	0.0010	8386114
RDL = Reportable Detection Limit								

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PK2216	PK2217	PK2218	PK2219	PK2220		
Sampling Date		2016/08/26 09:50	2016/08/26 10:25	2016/08/26 15:15	2016/08/26	2016/08/27 10:00		
COC Number		08426910	08426910	08426910	08426910	08426910		
	UNITS	BH95G-25D	BH95G-25S	BH95G-131	DUP3	MW15-06	RDL	QC Batch
Total Zirconium (Zr)	mg/L	0.00326	0.00123	0.0180	0.00242	0.00098	0.00010	8386114
Total Calcium (Ca)	mg/L	184	149	167	180	80.0	0.25	8383438
Total Magnesium (Mg)	mg/L	66.7	44.0	59.5	66.1	15.0	0.25	8383438
Total Potassium (K)	mg/L	7.86	6.92	3.78	7.68	5.30	0.25	8383438
Total Sodium (Na)	mg/L	2.46	3.27	2.30	2.35	1.29	0.25	8383438
Total Sulphur (S)	mg/L	94.8	70.0	81.8	93.9	7.2	3.0	8383438
RDL = Reportable Detection Limit								

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PK2221	PK2222		PK2223	PK2224		
Sampling Date		2016/08/27 11:45	2016/08/27 12:27		2016/08/27 13:30	2016/08/27 16:30		
COC Number		08426910	08426910		08426910	08426910		
	UNITS	MW15-10S	MW15-10D	QC Batch	MW15-09S	BH95G-30	RDL	QC Batch
<b>Calculated Parameters</b>								
Total Hardness (CaCO3)	mg/L	405	1870	8383182	231	192	0.50	8383182
<b>Elements</b>								
Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	8387992	<0.0000020	<0.0000020	0.0000020	8387992
<b>Total Metals by ICPMS</b>								
Total Aluminum (Al)	mg/L	19.2	1.81	8386114	3.32	0.581	0.0030	8385343
Total Antimony (Sb)	mg/L	0.000320	0.000032	8386114	0.000322	0.000058	0.000020	8385343
Total Arsenic (As)	mg/L	0.0296	0.00105	8386114	0.00269	0.000296	0.000020	8385343
Total Barium (Ba)	mg/L	0.650	0.393	8386114	0.269	0.0823	0.000050	8385343
Total Beryllium (Be)	mg/L	0.00108	0.00106	8386114	0.000184	0.000042	0.000010	8385343
Total Bismuth (Bi)	mg/L	0.000549	0.000209	8386114	0.000134	0.000011	0.000010	8385343
Total Boron (B)	mg/L	<0.010	0.013	8386114	<0.010	<0.010	0.010	8385343
Total Cadmium (Cd)	mg/L	0.00354	0.000590	8386114	0.000523	0.000229	0.0000050	8385343
Total Chromium (Cr)	mg/L	0.0768	0.00435	8386114	0.0124	0.00072	0.00010	8385343
Total Cobalt (Co)	mg/L	0.0385	0.00166	8386114	0.00437	0.000519	0.000010	8385343
Total Copper (Cu)	mg/L	0.159	0.00774	8386114	0.0234	0.00440	0.00010	8385343
Total Iron (Fe)	mg/L	51.2	28.5	8386114	6.85	0.818	0.0050	8385343
Total Lead (Pb)	mg/L	0.116	0.0125	8386114	0.0139	0.00166	0.000020	8385343
Total Lithium (Li)	mg/L	0.0218	0.227	8386114	0.00575	0.00154	0.00050	8385343
Total Manganese (Mn)	mg/L	1.85	5.02	8386114	0.200	0.0129	0.00010	8385343
Total Molybdenum (Mo)	mg/L	0.00165	0.000714	8386114	0.00427	0.00279	0.000050	8385343
Total Nickel (Ni)	mg/L	0.0814	0.00274	8386114	0.0100	0.00290	0.00010	8385343
Total Phosphorus (P)	mg/L	1.43	0.0740	8386114	0.344	0.0398	0.0050	8385343
Total Selenium (Se)	mg/L	0.00234	0.000166	8386114	0.000941	0.00243	0.000040	8385343
Total Silicon (Si)	mg/L	29.1	35.9	8386114	9.07	4.56	0.050	8385343
Total Silver (Ag)	mg/L	0.00289	0.000627	8386114	0.000311	0.000108	0.000010	8385343
Total Strontium (Sr)	mg/L	0.652	2.87	8386114	0.273	0.236	0.000050	8385343
Total Thallium (Tl)	mg/L	0.000304	0.0000190	8386114	0.0000540	0.0000080	0.0000020	8385343
Total Tin (Sn)	mg/L	0.00037	<0.00020	8386114	<0.00020	<0.00020	0.00020	8385343
Total Titanium (Ti)	mg/L	0.523	0.0791	8386114	0.139	0.0143	0.0020	8385343
Total Uranium (U)	mg/L	0.00709	0.000342	8386114	0.00432	0.00255	0.0000050	8385343
Total Vanadium (V)	mg/L	0.0817	0.00641	8386114	0.0126	0.00173	0.00020	8385343
Total Zinc (Zn)	mg/L	0.333	0.0122	8386114	0.0548	0.0246	0.0010	8385343
RDL = Reportable Detection Limit								

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PK2221	PK2222		PK2223	PK2224		
Sampling Date		2016/08/27 11:45	2016/08/27 12:27		2016/08/27 13:30	2016/08/27 16:30		
COC Number		08426910	08426910		08426910	08426910		
	UNITS	MW15-10S	MW15-10D	QC Batch	MW15-09S	BH95G-30	RDL	QC Batch
Total Zirconium (Zr)	mg/L	0.00161	0.00219	8386114	0.00090	0.00066	0.00010	8385343
Total Calcium (Ca)	mg/L	128	632	8383438	72.9	66.2	0.25	8383438
Total Magnesium (Mg)	mg/L	20.5	70.0	8383438	12.0	6.56	0.25	8383438
Total Potassium (K)	mg/L	5.40	8.01	8383438	2.50	1.74	0.25	8383438
Total Sodium (Na)	mg/L	6.18	20.1	8383438	2.76	1.28	0.25	8383438
Total Sulphur (S)	mg/L	9.4	3.8	8383438	6.1	7.7	3.0	8383438
RDL = Reportable Detection Limit								

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PK2237	PK2238	PK2239	PK2240		
Sampling Date		2016/08/28 10:00	2016/08/28 10:40	2016/08/28 11:17	2016/08/28 11:20		
COC Number		08426911	08426911	08426911	08426911		
	UNITS	BH95G-31	BH95G-22	MW16-17	BH95G-02	RDL	QC Batch
<b>Calculated Parameters</b>							
Total Hardness (CaCO3)	mg/L	213	212	331	310	0.50	8383182
<b>Elements</b>							
Total Mercury (Hg)	mg/L	<0.0000020	0.0000105	<0.0000020	0.0000033	0.0000020	8387992
<b>Total Metals by ICPMS</b>							
Total Aluminum (Al)	mg/L	12.2	10.9	15.1	1.35	0.0030	8385343
Total Antimony (Sb)	mg/L	0.000281	0.00166	0.000349	0.000123	0.000020	8385343
Total Arsenic (As)	mg/L	0.0216	0.0333	0.00361	0.00348	0.000020	8385343
Total Barium (Ba)	mg/L	0.540	0.410	1.65	0.0608	0.000050	8385343
Total Beryllium (Be)	mg/L	0.000365	0.000613	0.000876	0.000080	0.000010	8385343
Total Bismuth (Bi)	mg/L	0.000615	0.00144	0.000183	0.000044	0.000010	8385343
Total Boron (B)	mg/L	<0.010	<0.010	0.021	<0.010	0.010	8385343
Total Cadmium (Cd)	mg/L	0.00145	0.00450	0.000442	0.00472	0.0000050	8385343
Total Chromium (Cr)	mg/L	0.0380	0.0233	0.0205	0.00335	0.00010	8385343
Total Cobalt (Co)	mg/L	0.0593	0.0259	0.0159	0.00482	0.000010	8385343
Total Copper (Cu)	mg/L	0.248	0.251	0.0401	0.0370	0.00010	8385343
Total Iron (Fe)	mg/L	42.9	42.5	44.1	4.85	0.0050	8385343
Total Lead (Pb)	mg/L	0.134	0.186	0.0161	0.0137	0.000020	8385343
Total Lithium (Li)	mg/L	0.00988	0.0121	0.0137	0.00224	0.00050	8385343
Total Manganese (Mn)	mg/L	0.955	1.73	1.34	0.0952	0.00010	8385343
Total Molybdenum (Mo)	mg/L	0.00193	0.000503	0.00206	0.00261	0.000050	8385343
Total Nickel (Ni)	mg/L	0.0973	0.0437	0.0349	0.0186	0.00010	8385343
Total Phosphorus (P)	mg/L	0.663	0.672	1.06	0.664	0.0050	8385343
Total Selenium (Se)	mg/L	0.00186	0.000760	0.00139	0.00503	0.000040	8385343
Total Silicon (Si)	mg/L	21.1	19.0	21.5	3.92	0.050	8385343
Total Silver (Ag)	mg/L	0.00306	0.00383	0.00553	0.000161	0.000010	8385343
Total Strontium (Sr)	mg/L	0.234	0.193	0.291	0.254	0.000050	8385343
Total Thallium (Tl)	mg/L	0.000172	0.000178	0.000160	0.0000250	0.0000020	8385343
Total Tin (Sn)	mg/L	0.00105	0.00071	0.00033	<0.00020	0.00020	8385343
Total Titanium (Ti)	mg/L	0.690	0.405	0.251	0.0355	0.0020	8385343
Total Uranium (U)	mg/L	0.00194	0.00492	0.00948	0.00348	0.0000050	8385343
Total Vanadium (V)	mg/L	0.0736	0.0344	0.0277	0.00905	0.00020	8385343
Total Zinc (Zn)	mg/L	0.174	0.833	0.225	0.338	0.0010	8385343
RDL = Reportable Detection Limit							



Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PK2237	PK2238	PK2239	PK2240		
Sampling Date		2016/08/28 10:00	2016/08/28 10:40	2016/08/28 11:17	2016/08/28 11:20		
COC Number		08426911	08426911	08426911	08426911		
	UNITS	BH95G-31	BH95G-22	MW16-17	BH95G-02	RDL	QC Batch
Total Zirconium (Zr)	mg/L	0.00962	0.00193	0.0137	0.00192	0.00010	8385343
Total Calcium (Ca)	mg/L	68.1	60.8	102	76.9	0.25	8383438
Total Magnesium (Mg)	mg/L	10.4	14.5	18.7	28.7	0.25	8383438
Total Potassium (K)	mg/L	5.41	4.06	5.24	0.71	0.25	8383438
Total Sodium (Na)	mg/L	1.04	1.09	3.45	0.63	0.25	8383438
Total Sulphur (S)	mg/L	7.3	14.4	16.7	15.2	3.0	8383438
RDL = Reportable Detection Limit							

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PK2241	PK2242	PK2244	PK2245		
Sampling Date		2016/08/28 12:00	2016/08/28 17:30	2016/08/29 09:56	2016/08/29 11:21		
COC Number		08426911	08426911	08426911	08426911		
	<b>UNITS</b>	<b>MW16-16D</b>	<b>MW16-14D</b>	<b>MW16-12S</b>	<b>MW16-12D</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>							
Total Hardness (CaCO3)	mg/L	253	246	829	852	0.50	8383182
<b>Elements</b>							
Total Mercury (Hg)	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	0.000020	8387992
<b>Total Metals by ICPMS</b>							
Total Aluminum (Al)	mg/L	1.42	1.22	34.6	1.71	0.0030	8386114
Total Antimony (Sb)	mg/L	0.000328	0.000037	0.000658	0.000032	0.000020	8386114
Total Arsenic (As)	mg/L	0.00127	0.00376	0.0302	0.000201	0.000020	8386114
Total Barium (Ba)	mg/L	0.0569	0.0311	3.24	3.12	0.000050	8386114
Total Beryllium (Be)	mg/L	0.000055	0.000123	0.00206	0.000145	0.000010	8386114
Total Bismuth (Bi)	mg/L	0.000021	0.000026	0.00149	0.000010	0.000010	8386114
Total Boron (B)	mg/L	<0.010	<0.010	0.021	0.016	0.010	8386114
Total Cadmium (Cd)	mg/L	0.0000550	0.0000340	0.00182	0.0000710	0.0000050	8386114
Total Chromium (Cr)	mg/L	0.00542	0.00148	0.105	0.00515	0.00010	8386114
Total Cobalt (Co)	mg/L	0.00136	0.000734	0.0694	0.00114	0.000010	8386114
Total Copper (Cu)	mg/L	0.00895	0.00118	0.221	0.00593	0.00010	8386114
Total Iron (Fe)	mg/L	3.90	1.47	159	10.4	0.0050	8386114
Total Lead (Pb)	mg/L	0.00362	0.000956	0.0600	0.000757	0.000020	8386114
Total Lithium (Li)	mg/L	0.00590	0.00329	0.453	0.422	0.00050	8386114
Total Manganese (Mn)	mg/L	0.113	0.306	2.38	0.405	0.00010	8386114
Total Molybdenum (Mo)	mg/L	0.00134	0.000383	0.00431	0.000330	0.000050	8386114
Total Nickel (Ni)	mg/L	0.00331	0.00205	0.151	0.00427	0.00010	8386114
Total Phosphorus (P)	mg/L	0.0919	0.0362	1.21	0.346	0.0050	8386114
Total Selenium (Se)	mg/L	0.000064	<0.000040	0.000836	0.000064	0.000040	8386114
Total Silicon (Si)	mg/L	6.07	6.71	64.8	19.5	0.050	8386114
Total Silver (Ag)	mg/L	0.000071	0.000019	0.000864	0.000821	0.000010	8386114
Total Strontium (Sr)	mg/L	0.309	0.307	2.38	2.47	0.000050	8386114
Total Thallium (Tl)	mg/L	0.0000130	0.0000140	0.000971	0.0000280	0.0000020	8386114
Total Tin (Sn)	mg/L	0.00058	<0.00020	0.00129	<0.00020	0.00020	8386114
Total Titanium (Ti)	mg/L	0.0390	0.0277	2.38	0.0769	0.0020	8386114
Total Uranium (U)	mg/L	0.00404	0.00383	0.00633	0.00148	0.0000050	8386114
Total Vanadium (V)	mg/L	0.00306	0.00170	0.129	0.00736	0.00020	8386114
Total Zinc (Zn)	mg/L	0.0515	0.0036	0.521	0.0102	0.0010	8386114
RDL = Reportable Detection Limit							

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PK2241	PK2242	PK2244	PK2245		
Sampling Date		2016/08/28 12:00	2016/08/28 17:30	2016/08/29 09:56	2016/08/29 11:21		
COC Number		08426911	08426911	08426911	08426911		
	UNITS	MW16-16D	MW16-14D	MW16-12S	MW16-12D	RDL	QC Batch
Total Zirconium (Zr)	mg/L	0.00305	0.00055	0.0107	0.0404	0.00010	8386114
Total Calcium (Ca)	mg/L	86.9	87.9	165	185	0.25	8383438
Total Magnesium (Mg)	mg/L	8.81	6.39	101	94.4	0.25	8383438
Total Potassium (K)	mg/L	2.58	2.22	22.9	11.6	0.25	8383438
Total Sodium (Na)	mg/L	1.80	6.03	43.1	31.6	0.25	8383438
Total Sulphur (S)	mg/L	13.5	29.0	4.1	<3.0	3.0	8383438
RDL = Reportable Detection Limit							

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

<b>Maxxam ID</b>		PK2256		
<b>Sampling Date</b>		2016/08/26		
<b>COC Number</b>		08426912		
	<b>UNITS</b>	<b>BH95G-33D</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>				
Total Hardness (CaCO3)	mg/L	252	0.50	8383182
<b>Elements</b>				
Total Mercury (Hg)	mg/L	0.0000036	0.0000020	8387990
<b>Total Metals by ICPMS</b>				
Total Aluminum (Al)	mg/L	4.58	0.0030	8386114
Total Antimony (Sb)	mg/L	0.000132	0.000020	8386114
Total Arsenic (As)	mg/L	0.0118	0.000020	8386114
Total Barium (Ba)	mg/L	0.171	0.000050	8386114
Total Beryllium (Be)	mg/L	0.000199	0.000010	8386114
Total Bismuth (Bi)	mg/L	0.000066	0.000010	8386114
Total Boron (B)	mg/L	<0.010	0.010	8386114
Total Cadmium (Cd)	mg/L	0.000149	0.0000050	8386114
Total Chromium (Cr)	mg/L	0.00777	0.00010	8386114
Total Cobalt (Co)	mg/L	0.0136	0.000010	8386114
Total Copper (Cu)	mg/L	0.0344	0.00010	8386114
Total Iron (Fe)	mg/L	13.2	0.0050	8386114
Total Lead (Pb)	mg/L	0.00607	0.000020	8386114
Total Lithium (Li)	mg/L	0.00436	0.00050	8386114
Total Manganese (Mn)	mg/L	1.15	0.00010	8386114
Total Molybdenum (Mo)	mg/L	0.00142	0.000050	8386114
Total Nickel (Ni)	mg/L	0.0466	0.00010	8386114
Total Phosphorus (P)	mg/L	0.563	0.0050	8386114
Total Selenium (Se)	mg/L	0.00697	0.000040	8386114
Total Silicon (Si)	mg/L	9.54	0.050	8386114
Total Silver (Ag)	mg/L	0.000195	0.000010	8386114
Total Strontium (Sr)	mg/L	0.248	0.000050	8386114
Total Thallium (Tl)	mg/L	0.0000570	0.0000020	8386114
Total Tin (Sn)	mg/L	0.00029	0.00020	8386114
Total Titanium (Ti)	mg/L	0.169	0.0020	8386114
Total Uranium (U)	mg/L	0.00425	0.0000050	8386114
Total Vanadium (V)	mg/L	0.0178	0.00020	8386114
Total Zinc (Zn)	mg/L	0.0692	0.0010	8386114
RDL = Reportable Detection Limit				

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

<b>Maxxam ID</b>		PK2256		
<b>Sampling Date</b>		2016/08/26		
<b>COC Number</b>		08426912		
	<b>UNITS</b>	<b>BH95G-33D</b>	<b>RDL</b>	<b>QC Batch</b>
Total Zirconium (Zr)	mg/L	0.00249	0.00010	8386114
Total Calcium (Ca)	mg/L	83.1	0.25	8383438
Total Magnesium (Mg)	mg/L	10.9	0.25	8383438
Total Potassium (K)	mg/L	1.59	0.25	8383438
Total Sodium (Na)	mg/L	0.76	0.25	8383438
Total Sulphur (S)	mg/L	21.3	3.0	8383438
RDL = Reportable Detection Limit				

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** PK2216  
**Sample ID:** BH95G-25D  
**Matrix:** Water

**Collected:** 2016/08/26  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8384702	N/A	2016/09/01	Maria Maclean
Alkalinity - Water	AT/ALK	8384971	2016/09/01	2016/09/01	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8389095	N/A	2016/09/06	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8390294	N/A	2016/09/07	Diana Cruz
Conductance - water	AT/ALK	8384977	N/A	2016/09/01	Wilson Au Yueng
Fluoride	ISE/ISE	8384568	N/A	2016/09/01	Isaac Wang
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8383182	N/A	2016/09/04	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8383209	N/A	2016/09/02	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8386342	N/A	2016/09/02	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8387992	2016/09/05	2016/09/06	Rob McClelland
Ion Balance	CALC	8383480	N/A	2016/09/07	Automated Statchk
Sum of cations, anions	CALC	8383492	N/A	2016/09/02	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8383437	N/A	2016/09/02	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8385086	N/A	2016/09/02	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8386114	2016/09/02	2016/09/02	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8383438	N/A	2016/09/04	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8387303	N/A	2016/09/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8385360	N/A	2016/09/01	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8385384	N/A	2016/09/01	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8383493	N/A	2016/09/02	Automated Statchk
Filter and HNO <sub>3</sub> Preserve for Metals	ICP	ONSITE	N/A	2016/08/31	Nahed Amer
pH Water	AT/ALK	8384976	N/A	2016/09/01	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8389097	N/A	2016/09/06	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8386947	2016/09/02	2016/09/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8386950	N/A	2016/09/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8383845	2016/09/01	2016/09/02	Jamie Sun

**Maxxam ID:** PK2217  
**Sample ID:** BH95G-25S  
**Matrix:** Water

**Collected:** 2016/08/26  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8384702	N/A	2016/09/01	Maria Maclean
Alkalinity - Water	AT/ALK	8384971	2016/09/01	2016/09/01	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8389095	N/A	2016/09/06	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8390296	N/A	2016/09/07	Diana Cruz
Conductance - water	AT/ALK	8384977	N/A	2016/09/01	Wilson Au Yueng
Fluoride	ISE/ISE	8384572	N/A	2016/09/01	Isaac Wang
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8383182	N/A	2016/09/04	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8383209	N/A	2016/09/02	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8387987	N/A	2016/09/06	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8387992	2016/09/05	2016/09/06	Rob McClelland
Ion Balance	CALC	8383480	N/A	2016/09/07	Automated Statchk
Sum of cations, anions	CALC	8383492	N/A	2016/09/02	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8383437	N/A	2016/09/02	Automated Statchk

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**TEST SUMMARY**

**Maxxam ID:** PK2217  
**Sample ID:** BH95G-25S  
**Matrix:** Water

**Collected:** 2016/08/26  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8385086	N/A	2016/09/02	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8386114	2016/09/02	2016/09/02	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8383438	N/A	2016/09/04	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8387303	N/A	2016/09/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8385385	N/A	2016/09/01	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8385386	N/A	2016/09/01	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8383493	N/A	2016/09/02	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2016/08/31	Nahed Amer
pH Water	AT/ALK	8384976	N/A	2016/09/01	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8390573	N/A	2016/09/07	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8386947	2016/09/02	2016/09/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8386950	N/A	2016/09/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8383845	2016/09/01	2016/09/02	Jamie Sun

**Maxxam ID:** PK2217 Dup  
**Sample ID:** BH95G-25S  
**Matrix:** Water

**Collected:** 2016/08/26  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8387987	N/A	2016/09/06	Rob McClelland

**Maxxam ID:** PK2218  
**Sample ID:** BH95G-131  
**Matrix:** Water

**Collected:** 2016/08/26  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8384702	N/A	2016/09/01	Maria Maclean
Alkalinity - Water	AT/ALK	8384971	2016/09/01	2016/09/01	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8389095	N/A	2016/09/06	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8390296	N/A	2016/09/07	Diana Cruz
Conductance - water	AT/ALK	8384977	N/A	2016/09/01	Wilson Au Yueng
Fluoride	ISE/ISE	8384572	N/A	2016/09/01	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8383182	N/A	2016/09/04	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8383209	N/A	2016/09/02	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8387987	N/A	2016/09/06	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8387992	2016/09/05	2016/09/06	Rob McClelland
Ion Balance	CALC	8383480	N/A	2016/09/07	Automated Statchk
Sum of cations, anions	CALC	8383492	N/A	2016/09/02	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8383437	N/A	2016/09/02	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8385086	N/A	2016/09/02	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8386114	2016/09/02	2016/09/02	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8383438	N/A	2016/09/04	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8387303	N/A	2016/09/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8385385	N/A	2016/09/01	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8385386	N/A	2016/09/01	Isaac Wang

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** PK2218  
**Sample ID:** BH95G-131  
**Matrix:** Water

**Collected:** 2016/08/26  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrogen - Nitrate (as N)	CALC	8383493	N/A	2016/09/02	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2016/08/31	Nahed Amer
pH Water	AT/ALK	8384976	N/A	2016/09/01	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8389097	N/A	2016/09/06	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8386947	2016/09/02	2016/09/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8386950	N/A	2016/09/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8383845	2016/09/01	2016/09/02	Jamie Sun

**Maxxam ID:** PK2219  
**Sample ID:** DUP3  
**Matrix:** Water

**Collected:** 2016/08/26  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8384702	N/A	2016/09/01	Maria Maclean
Alkalinity - Water	AT/ALK	8384971	2016/09/01	2016/09/01	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8389095	N/A	2016/09/06	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8390294	N/A	2016/09/07	Diana Cruz
Conductance - water	AT/ALK	8384977	N/A	2016/09/01	Wilson Au Yueng
Fluoride	ISE/ISE	8384572	N/A	2016/09/01	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8383182	N/A	2016/09/04	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8383209	N/A	2016/09/02	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8387987	N/A	2016/09/06	Rob Mcclelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8387992	2016/09/05	2016/09/06	Rob Mcclelland
Ion Balance	CALC	8383480	N/A	2016/09/07	Automated Statchk
Sum of cations, anions	CALC	8383492	N/A	2016/09/02	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8383437	N/A	2016/09/02	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8385086	N/A	2016/09/02	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8386114	2016/09/02	2016/09/02	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8383438	N/A	2016/09/04	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8387303	N/A	2016/09/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8385385	N/A	2016/09/01	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8385386	N/A	2016/09/01	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8383493	N/A	2016/09/02	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2016/08/31	Nahed Amer
pH Water	AT/ALK	8384976	N/A	2016/09/01	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8389097	N/A	2016/09/06	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8386947	2016/09/02	2016/09/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8386951	N/A	2016/09/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8383845	2016/09/01	2016/09/02	Jamie Sun



Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** PK2220  
**Sample ID:** MW15-06  
**Matrix:** Water

**Collected:** 2016/08/27  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8384702	N/A	2016/09/01	Maria Maclean
Alkalinity - Water	AT/ALK	8384947	2016/09/01	2016/09/01	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8389095	N/A	2016/09/06	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8390294	N/A	2016/09/07	Diana Cruz
Conductance - water	AT/ALK	8384957	N/A	2016/09/01	Wilson Au Yueng
Fluoride	ISE/ISE	8384568	N/A	2016/09/01	Isaac Wang
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8383182	N/A	2016/09/04	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8383209	N/A	2016/09/02	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8387987	N/A	2016/09/06	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8387992	2016/09/05	2016/09/06	Rob McClelland
Ion Balance	CALC	8383480	N/A	2016/09/07	Automated Statchk
Sum of cations, anions	CALC	8383492	N/A	2016/09/02	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8383437	N/A	2016/09/02	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8385086	N/A	2016/09/02	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8386114	2016/09/02	2016/09/02	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8383438	N/A	2016/09/04	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8387303	N/A	2016/09/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8385360	N/A	2016/09/01	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8385384	N/A	2016/09/01	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8383493	N/A	2016/09/02	Automated Statchk
Filter and HNO <sub>3</sub> Preserve for Metals	ICP	ONSITE	N/A	2016/08/31	Nahed Amer
pH Water	AT/ALK	8384956	N/A	2016/09/01	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8389097	N/A	2016/09/06	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8386947	2016/09/02	2016/09/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8386950	N/A	2016/09/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8383845	2016/09/01	2016/09/02	Jamie Sun

**Maxxam ID:** PK2221  
**Sample ID:** MW15-10S  
**Matrix:** Water

**Collected:** 2016/08/27  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8384702	N/A	2016/09/01	Maria Maclean
Alkalinity - Water	AT/ALK	8384971	2016/09/01	2016/09/01	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8389095	N/A	2016/09/06	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8390294	N/A	2016/09/07	Diana Cruz
Conductance - water	AT/ALK	8384977	N/A	2016/09/01	Wilson Au Yueng
Fluoride	ISE/ISE	8384568	N/A	2016/09/01	Isaac Wang
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8383182	N/A	2016/09/04	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8383209	N/A	2016/09/02	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8387987	N/A	2016/09/06	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8387992	2016/09/05	2016/09/06	Rob McClelland
Ion Balance	CALC	8383480	N/A	2016/09/07	Automated Statchk
Sum of cations, anions	CALC	8383492	N/A	2016/09/02	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8383437	N/A	2016/09/02	Automated Statchk

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** PK2221  
**Sample ID:** MW15-10S  
**Matrix:** Water

**Collected:** 2016/08/27  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8385086	N/A	2016/09/02	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8386114	2016/09/02	2016/09/02	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8383438	N/A	2016/09/04	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8387303	N/A	2016/09/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8385360	N/A	2016/09/01	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8385384	N/A	2016/09/01	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8383493	N/A	2016/09/02	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2016/08/31	Nahed Amer
pH Water	AT/ALK	8384976	N/A	2016/09/01	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8389097	N/A	2016/09/06	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8386947	2016/09/02	2016/09/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8386950	N/A	2016/09/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8383846	2016/09/01	2016/09/02	Coco Guo

**Maxxam ID:** PK2221 Dup  
**Sample ID:** MW15-10S  
**Matrix:** Water

**Collected:** 2016/08/27  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8384702	N/A	2016/09/01	Maria Maclean
Alkalinity - Water	AT/ALK	8384971	2016/09/01	2016/09/01	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8389095	N/A	2016/09/06	Balwinder Bassi
Conductance - water	AT/ALK	8384977	N/A	2016/09/01	Wilson Au Yueng
Fluoride	ISE/ISE	8384568	N/A	2016/09/01	Isaac Wang
Ammonia-N (Preserved)	KONE/COL	8387303	N/A	2016/09/03	Clare Kwok
pH Water	AT/ALK	8384976	N/A	2016/09/01	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8389097	N/A	2016/09/06	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8386947	2016/09/02	2016/09/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8386950	N/A	2016/09/02	Diana Cruz

**Maxxam ID:** PK2222  
**Sample ID:** MW15-10D  
**Matrix:** Water

**Collected:** 2016/08/27  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8384702	N/A	2016/09/01	Maria Maclean
Alkalinity - Water	AT/ALK	8384971	2016/09/01	2016/09/01	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8389095	N/A	2016/09/06	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8390294	N/A	2016/09/07	Diana Cruz
Conductance - water	AT/ALK	8384977	N/A	2016/09/01	Wilson Au Yueng
Fluoride	ISE/ISE	8384572	N/A	2016/09/01	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8383182	N/A	2016/09/04	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8383209	N/A	2016/09/02	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8387987	N/A	2016/09/06	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8387992	2016/09/05	2016/09/06	Rob McClelland

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**TEST SUMMARY**

**Maxxam ID:** PK2222  
**Sample ID:** MW15-10D  
**Matrix:** Water

**Collected:** 2016/08/27  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Ion Balance	CALC	8383480	N/A	2016/09/07	Automated Statchk
Sum of cations, anions	CALC	8383492	N/A	2016/09/02	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8383437	N/A	2016/09/02	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8385086	N/A	2016/09/02	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8386114	2016/09/02	2016/09/02	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8383438	N/A	2016/09/04	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8387302	N/A	2016/09/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8385385	N/A	2016/09/01	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8385386	N/A	2016/09/01	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8383493	N/A	2016/09/02	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2016/08/31	Nahed Amer
pH Water	AT/ALK	8384976	N/A	2016/09/01	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8389097	N/A	2016/09/06	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8386947	2016/09/02	2016/09/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8386951	N/A	2016/09/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8383846	2016/09/01	2016/09/02	Coco Guo

**Maxxam ID:** PK2222 Dup  
**Sample ID:** MW15-10D  
**Matrix:** Water

**Collected:** 2016/08/27  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbon (DOC) - field filtered/preserved	TRAA/COL	8390294	N/A	2016/09/07	Diana Cruz

**Maxxam ID:** PK2223  
**Sample ID:** MW15-09S  
**Matrix:** Water

**Collected:** 2016/08/27  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8384702	N/A	2016/09/01	Maria Maclean
Alkalinity - Water	AT/ALK	8384971	2016/09/01	2016/09/01	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8389095	N/A	2016/09/06	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8390294	N/A	2016/09/07	Diana Cruz
Conductance - water	AT/ALK	8384977	N/A	2016/09/01	Wilson Au Yueng
Fluoride	ISE/ISE	8384572	N/A	2016/09/01	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8383182	N/A	2016/09/06	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8383209	N/A	2016/09/02	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8387987	N/A	2016/09/06	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8387992	2016/09/05	2016/09/06	Rob McClelland
Ion Balance	CALC	8383480	N/A	2016/09/07	Automated Statchk
Sum of cations, anions	CALC	8383492	N/A	2016/09/02	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8383437	N/A	2016/09/02	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8385086	N/A	2016/09/02	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8385343	2016/09/01	2016/09/02	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8383438	N/A	2016/09/06	Automated Statchk

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**TEST SUMMARY**

**Maxxam ID:** PK2223  
**Sample ID:** MW15-09S  
**Matrix:** Water

**Collected:** 2016/08/27  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Ammonia-N (Preserved)	KONE/COL	8387302	N/A	2016/09/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8385385	N/A	2016/09/01	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8385386	N/A	2016/09/01	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8383493	N/A	2016/09/02	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2016/08/31	Nahed Amer
pH Water	AT/ALK	8384976	N/A	2016/09/01	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8389097	N/A	2016/09/06	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8386947	2016/09/02	2016/09/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8386951	N/A	2016/09/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8383846	2016/09/01	2016/09/02	Coco Guo

**Maxxam ID:** PK2224  
**Sample ID:** BH95G-30  
**Matrix:** Water

**Collected:** 2016/08/27  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8384702	N/A	2016/09/01	Maria Maclean
Alkalinity - Water	AT/ALK	8384971	2016/09/01	2016/09/01	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8389095	N/A	2016/09/06	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8390294	N/A	2016/09/07	Diana Cruz
Conductance - water	AT/ALK	8384977	N/A	2016/09/01	Wilson Au Yueng
Fluoride	ISE/ISE	8384572	N/A	2016/09/01	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8383182	N/A	2016/09/06	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8383209	N/A	2016/09/02	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8387987	N/A	2016/09/06	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8387992	2016/09/05	2016/09/06	Rob McClelland
Ion Balance	CALC	8383480	N/A	2016/09/07	Automated Statchk
Sum of cations, anions	CALC	8383492	N/A	2016/09/02	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8383437	N/A	2016/09/02	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8385086	N/A	2016/09/02	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8385343	2016/09/01	2016/09/02	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8383438	N/A	2016/09/06	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8387302	N/A	2016/09/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8385385	N/A	2016/09/01	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8385386	N/A	2016/09/01	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8383493	N/A	2016/09/02	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2016/08/31	Nahed Amer
pH Water	AT/ALK	8384976	N/A	2016/09/01	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8389097	N/A	2016/09/06	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8386947	2016/09/02	2016/09/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8386951	N/A	2016/09/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8383846	2016/09/01	2016/09/02	Coco Guo

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** PK2237  
**Sample ID:** BH95G-31  
**Matrix:** Water

**Collected:** 2016/08/28  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8384702	N/A	2016/09/01	Maria Maclean
Alkalinity - Water	AT/ALK	8384971	2016/09/01	2016/09/01	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8389095	N/A	2016/09/06	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8390294	N/A	2016/09/07	Diana Cruz
Conductance - water	AT/ALK	8384977	N/A	2016/09/01	Wilson Au Yueng
Fluoride	ISE/ISE	8384572	N/A	2016/09/01	Isaac Wang
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8383182	N/A	2016/09/06	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8383209	N/A	2016/09/02	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8387987	N/A	2016/09/06	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8387992	2016/09/05	2016/09/06	Rob McClelland
Ion Balance	CALC	8383480	N/A	2016/09/07	Automated Statchk
Sum of cations, anions	CALC	8383492	N/A	2016/09/02	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8383437	N/A	2016/09/02	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8385086	N/A	2016/09/02	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8385343	2016/09/01	2016/09/06	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8383438	N/A	2016/09/06	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8387303	N/A	2016/09/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8385385	N/A	2016/09/01	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8385386	N/A	2016/09/01	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8383493	N/A	2016/09/02	Automated Statchk
Filter and HNO <sub>3</sub> Preserve for Metals	ICP	ONSITE	N/A	2016/08/31	Nahed Amer
pH Water	AT/ALK	8384976	N/A	2016/09/01	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8390573	N/A	2016/09/07	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8386947	2016/09/02	2016/09/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8386951	N/A	2016/09/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8383846	2016/09/01	2016/09/02	Coco Guo

**Maxxam ID:** PK2238  
**Sample ID:** BH95G-22  
**Matrix:** Water

**Collected:** 2016/08/28  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8384702	N/A	2016/09/01	Maria Maclean
Alkalinity - Water	AT/ALK	8384971	2016/09/01	2016/09/01	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8389095	N/A	2016/09/06	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8390294	N/A	2016/09/07	Diana Cruz
Conductance - water	AT/ALK	8384977	N/A	2016/09/01	Wilson Au Yueng
Fluoride	ISE/ISE	8384572	N/A	2016/09/01	Isaac Wang
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8383182	N/A	2016/09/06	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8383209	N/A	2016/09/02	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8387987	N/A	2016/09/06	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8387992	2016/09/05	2016/09/06	Rob McClelland
Ion Balance	CALC	8383480	N/A	2016/09/07	Automated Statchk
Sum of cations, anions	CALC	8383492	N/A	2016/09/02	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8383437	N/A	2016/09/02	Automated Statchk

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** PK2238  
**Sample ID:** BH95G-22  
**Matrix:** Water

**Collected:** 2016/08/28  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8385086	N/A	2016/09/02	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8385343	2016/09/01	2016/09/02	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8383438	N/A	2016/09/06	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8387303	N/A	2016/09/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8385385	N/A	2016/09/01	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8385386	N/A	2016/09/01	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8383493	N/A	2016/09/02	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2016/08/31	Nahed Amer
pH Water	AT/ALK	8384976	N/A	2016/09/01	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8390573	N/A	2016/09/07	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8386947	2016/09/02	2016/09/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8386950	N/A	2016/09/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8383846	2016/09/01	2016/09/02	Coco Guo

**Maxxam ID:** PK2239  
**Sample ID:** MW16-17  
**Matrix:** Water

**Collected:** 2016/08/28  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8384702	N/A	2016/09/01	Maria Maclean
Alkalinity - Water	AT/ALK	8384971	2016/09/01	2016/09/01	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8389095	N/A	2016/09/06	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8390296	N/A	2016/09/07	Diana Cruz
Conductance - water	AT/ALK	8384977	N/A	2016/09/01	Wilson Au Yueng
Fluoride	ISE/ISE	8384572	N/A	2016/09/01	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8383182	N/A	2016/09/06	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8383209	N/A	2016/09/02	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8387987	N/A	2016/09/06	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8387992	2016/09/05	2016/09/06	Rob McClelland
Ion Balance	CALC	8383480	N/A	2016/09/07	Automated Statchk
Sum of cations, anions	CALC	8383492	N/A	2016/09/02	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8383437	N/A	2016/09/02	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8385086	N/A	2016/09/02	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8385343	2016/09/01	2016/09/02	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8383438	N/A	2016/09/06	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8387302	N/A	2016/09/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8385385	N/A	2016/09/01	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8385386	N/A	2016/09/01	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8383493	N/A	2016/09/02	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2016/08/31	Nahed Amer
pH Water	AT/ALK	8384976	N/A	2016/09/01	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8389097	N/A	2016/09/06	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8386947	2016/09/02	2016/09/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8386951	N/A	2016/09/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8383846	2016/09/01	2016/09/02	Coco Guo



Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** PK2240  
**Sample ID:** BH95G-02  
**Matrix:** Water

**Collected:** 2016/08/28  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8384702	N/A	2016/09/01	Maria Maclean
Alkalinity - Water	AT/ALK	8384971	2016/09/01	2016/09/01	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8389095	N/A	2016/09/06	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8390296	N/A	2016/09/07	Diana Cruz
Conductance - water	AT/ALK	8384977	N/A	2016/09/01	Wilson Au Yueng
Fluoride	ISE/ISE	8384572	N/A	2016/09/01	Isaac Wang
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8383182	N/A	2016/09/06	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8390478	N/A	2016/09/08	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8387987	N/A	2016/09/06	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8387992	2016/09/05	2016/09/06	Rob McClelland
Ion Balance	CALC	8390533	N/A	2016/09/08	Automated Statchk
Sum of cations, anions	CALC	8390534	N/A	2016/09/07	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8389462	N/A	2016/09/08	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8385086	N/A	2016/09/02	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8385343	2016/09/01	2016/09/04	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8383438	N/A	2016/09/06	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8387303	N/A	2016/09/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8385385	N/A	2016/09/01	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8385386	N/A	2016/09/01	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8383493	N/A	2016/09/02	Automated Statchk
Filter and HNO <sub>3</sub> Preserve for Metals	ICP	ONSITE	N/A	2016/08/31	Nahed Amer
pH Water	AT/ALK	8384976	N/A	2016/09/01	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8389097	N/A	2016/09/06	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8386947	2016/09/02	2016/09/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8386951	N/A	2016/09/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8383846	2016/09/01	2016/09/02	Coco Guo

**Maxxam ID:** PK2241  
**Sample ID:** MW16-16D  
**Matrix:** Water

**Collected:** 2016/08/28  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8384702	N/A	2016/09/01	Maria Maclean
Alkalinity - Water	AT/ALK	8384971	2016/09/01	2016/09/01	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8389095	N/A	2016/09/06	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8390294	N/A	2016/09/07	Diana Cruz
Conductance - water	AT/ALK	8384977	N/A	2016/09/01	Wilson Au Yueng
Fluoride	ISE/ISE	8384572	N/A	2016/09/01	Isaac Wang
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8383182	N/A	2016/09/04	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8383209	N/A	2016/09/02	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8387987	N/A	2016/09/06	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8387992	2016/09/05	2016/09/06	Rob McClelland
Ion Balance	CALC	8383480	N/A	2016/09/07	Automated Statchk
Sum of cations, anions	CALC	8383492	N/A	2016/09/02	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8383437	N/A	2016/09/02	Automated Statchk

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** PK2241  
**Sample ID:** MW16-16D  
**Matrix:** Water

**Collected:** 2016/08/28  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8385086	N/A	2016/09/02	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8386114	2016/09/02	2016/09/02	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8383438	N/A	2016/09/04	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8387302	N/A	2016/09/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8385385	N/A	2016/09/01	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8385386	N/A	2016/09/01	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8383493	N/A	2016/09/02	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2016/08/31	Nahed Amer
pH Water	AT/ALK	8384976	N/A	2016/09/01	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8389097	N/A	2016/09/06	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8386947	2016/09/02	2016/09/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8386951	N/A	2016/09/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8383846	2016/09/01	2016/09/02	Coco Guo

**Maxxam ID:** PK2242  
**Sample ID:** MW16-14D  
**Matrix:** Water

**Collected:** 2016/08/28  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8384702	N/A	2016/09/01	Maria Maclean
Alkalinity - Water	AT/ALK	8384971	2016/09/01	2016/09/01	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8389095	N/A	2016/09/06	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8390294	N/A	2016/09/07	Diana Cruz
Conductance - water	AT/ALK	8384977	N/A	2016/09/01	Wilson Au Yueng
Fluoride	ISE/ISE	8384572	N/A	2016/09/01	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8383182	N/A	2016/09/04	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8383209	N/A	2016/09/02	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8387987	N/A	2016/09/06	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8387992	2016/09/05	2016/09/06	Rob McClelland
Ion Balance	CALC	8383480	N/A	2016/09/07	Automated Statchk
Sum of cations, anions	CALC	8383492	N/A	2016/09/02	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8383437	N/A	2016/09/02	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8385086	N/A	2016/09/02	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8386114	2016/09/02	2016/09/02	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8383438	N/A	2016/09/04	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8387302	N/A	2016/09/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8385385	N/A	2016/09/01	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8385386	N/A	2016/09/01	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8383493	N/A	2016/09/02	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2016/08/31	Nahed Amer
pH Water	AT/ALK	8384976	N/A	2016/09/01	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8389097	N/A	2016/09/06	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8386947	2016/09/02	2016/09/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8386951	N/A	2016/09/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8383846	2016/09/01	2016/09/02	Coco Guo



Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**TEST SUMMARY**

**Maxxam ID:** PK2243  
**Sample ID:** TRAVEL BLANK  
**Matrix:** Water

**Collected:** 2016/08/30  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8384702	N/A	2016/09/01	Maria Maclean
Alkalinity - Water	AT/ALK	8384971	2016/09/01	2016/09/01	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8389095	N/A	2016/09/06	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8390294	N/A	2016/09/07	Diana Cruz
Conductance - water	AT/ALK	8384977	N/A	2016/09/01	Wilson Au Yueng
Fluoride	ISE/ISE	8384572	N/A	2016/09/01	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8383182	N/A	2016/09/02	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8383209	N/A	2016/09/02	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8387987	N/A	2016/09/06	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8387992	2016/09/05	2016/09/06	Rob McClelland
Ion Balance	CALC	8383480	N/A	2016/09/07	Automated Statchk
Sum of cations, anions	CALC	8383492	N/A	2016/09/02	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8383437	N/A	2016/09/02	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8385086	N/A	2016/09/02	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8383438	N/A	2016/09/02	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8385137	N/A	2016/09/01	Andrew An
Ammonia-N (Preserved)	KONE/COL	8387302	N/A	2016/09/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8385385	N/A	2016/09/01	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8385386	N/A	2016/09/01	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8383493	N/A	2016/09/02	Automated Statchk
pH Water	AT/ALK	8384976	N/A	2016/09/01	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8389097	N/A	2016/09/06	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8386947	2016/09/02	2016/09/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8386951	N/A	2016/09/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8383846	2016/09/01	2016/09/02	Coco Guo

**Maxxam ID:** PK2243 Dup  
**Sample ID:** TRAVEL BLANK  
**Matrix:** Water

**Collected:** 2016/08/30  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (Total-LowLevel) by CVAf	CV/AF	8387992	2016/09/05	2016/09/06	Rob McClelland
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8385086	N/A	2016/09/02	Andrew An
Elements by ICPMS Low Level (total)	ICP/CRCM	8385137	N/A	2016/09/01	Andrew An

**Maxxam ID:** PK2244  
**Sample ID:** MW16-12S  
**Matrix:** Water

**Collected:** 2016/08/29  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8384702	N/A	2016/09/01	Maria Maclean
Alkalinity - Water	AT/ALK	8384971	2016/09/01	2016/09/01	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8389095	N/A	2016/09/06	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8390294	N/A	2016/09/07	Diana Cruz
Conductance - water	AT/ALK	8384977	N/A	2016/09/01	Wilson Au Yueng

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**TEST SUMMARY**

**Maxxam ID:** PK2244  
**Sample ID:** MW16-12S  
**Matrix:** Water

**Collected:** 2016/08/29  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Fluoride	ISE/ISE	8384572	N/A	2016/09/01	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8383182	N/A	2016/09/04	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8390478	N/A	2016/09/08	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8387987	N/A	2016/09/06	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8387992	2016/09/05	2016/09/06	Rob McClelland
Ion Balance	CALC	8390533	N/A	2016/09/08	David Huang
Sum of cations, anions	CALC	8390534	N/A	2016/09/07	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8389462	N/A	2016/09/08	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8385086	N/A	2016/09/02	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8386114	2016/09/02	2016/09/02	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8383438	N/A	2016/09/04	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8387302	N/A	2016/09/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8385385	N/A	2016/09/01	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8385386	N/A	2016/09/01	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8383493	N/A	2016/09/02	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2016/08/31	Nahed Amer
pH Water	AT/ALK	8384976	N/A	2016/09/01	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8389097	N/A	2016/09/06	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8386947	2016/09/02	2016/09/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8386951	N/A	2016/09/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8383846	2016/09/01	2016/09/02	Coco Guo

**Maxxam ID:** PK2244 Dup  
**Sample ID:** MW16-12S  
**Matrix:** Water

**Collected:** 2016/08/29  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Ammonia-N (Preserved)	KONE/COL	8387302	N/A	2016/09/03	Clare Kwok

**Maxxam ID:** PK2245  
**Sample ID:** MW16-12D  
**Matrix:** Water

**Collected:** 2016/08/29  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8384702	N/A	2016/09/01	Maria Maclean
Alkalinity - Water	AT/ALK	8384971	2016/09/01	2016/09/01	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8389095	N/A	2016/09/06	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8390294	N/A	2016/09/07	Diana Cruz
Conductance - water	AT/ALK	8384977	N/A	2016/09/01	Wilson Au Yueng
Fluoride	ISE/ISE	8384572	N/A	2016/09/01	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8383182	N/A	2016/09/04	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8383209	N/A	2016/09/02	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8387987	N/A	2016/09/06	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8387992	2016/09/05	2016/09/06	Rob McClelland
Ion Balance	CALC	8383480	N/A	2016/09/07	Automated Statchk

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** PK2245  
**Sample ID:** MW16-12D  
**Matrix:** Water

**Collected:** 2016/08/29  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Sum of cations, anions	CALC	8383492	N/A	2016/09/02	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8383437	N/A	2016/09/02	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8385086	N/A	2016/09/02	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8386114	2016/09/02	2016/09/02	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8383438	N/A	2016/09/04	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8387302	N/A	2016/09/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8385385	N/A	2016/09/01	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8385386	N/A	2016/09/01	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8383493	N/A	2016/09/02	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2016/08/31	Nahed Amer
pH Water	AT/ALK	8384976	N/A	2016/09/01	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8389097	N/A	2016/09/06	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8386947	2016/09/02	2016/09/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8386951	N/A	2016/09/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8383846	2016/09/01	2016/09/02	Coco Guo

**Maxxam ID:** PK2246  
**Sample ID:** FIELD BLANK  
**Matrix:** Water

**Collected:** 2016/08/29  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8386197	N/A	2016/09/02	Maria Maclean
Alkalinity - Water	AT/ALK	8384980	2016/09/01	2016/09/01	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8389102	N/A	2016/09/06	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8390294	N/A	2016/09/07	Diana Cruz
Conductance - water	AT/ALK	8384985	N/A	2016/09/01	Wilson Au Yueng
Fluoride	ISE/ISE	8384572	N/A	2016/09/01	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8383182	N/A	2016/09/02	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8383209	N/A	2016/09/02	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8387987	N/A	2016/09/06	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8387992	2016/09/05	2016/09/06	Rob McClelland
Ion Balance	CALC	8383480	N/A	2016/09/07	Automated Statchk
Sum of cations, anions	CALC	8383492	N/A	2016/09/02	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8383437	N/A	2016/09/02	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8385086	N/A	2016/09/02	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8383438	N/A	2016/09/02	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8385137	N/A	2016/09/01	Andrew An
Ammonia-N (Preserved)	KONE/COL	8387302	N/A	2016/09/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8385385	N/A	2016/09/01	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8385386	N/A	2016/09/01	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8383493	N/A	2016/09/02	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2016/08/31	Nahed Amer
pH Water	AT/ALK	8384984	N/A	2016/09/01	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8390573	N/A	2016/09/07	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8386948	2016/09/02	2016/09/02	Diana Cruz

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**TEST SUMMARY**

**Maxxam ID:** PK2246  
**Sample ID:** FIELD BLANK  
**Matrix:** Water

**Collected:** 2016/08/29  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Phosphorus - unpreserved	KONE/COL	8386951	N/A	2016/09/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8383846	2016/09/01	2016/09/02	Coco Guo

**Maxxam ID:** PK2246 Dup  
**Sample ID:** FIELD BLANK  
**Matrix:** Water

**Collected:** 2016/08/29  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8386197	N/A	2016/09/02	Maria Maclean
Alkalinity - Water	AT/ALK	8384980	2016/09/01	2016/09/01	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8389102	N/A	2016/09/06	Balwinder Bassi
Conductance - water	AT/ALK	8384985	N/A	2016/09/01	Wilson Au Yueng
Fluoride	ISE/ISE	8384572	N/A	2016/09/01	Isaac Wang
Nitrate+Nitrite (N) (low level)	TRAA/COL	8385385	N/A	2016/09/01	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8385386	N/A	2016/09/01	Isaac Wang
pH Water	AT/ALK	8384984	N/A	2016/09/01	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8390573	N/A	2016/09/07	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8386948	2016/09/02	2016/09/02	Diana Cruz

**Maxxam ID:** PK2254  
**Sample ID:** BH95G-129  
**Matrix:** Water

**Collected:** 2016/08/29  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8386197	N/A	2016/09/02	Maria Maclean
Alkalinity - Water	AT/ALK	8384971	2016/09/01	2016/09/01	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8389102	N/A	2016/09/06	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8390294	N/A	2016/09/07	Diana Cruz
Conductance - water	AT/ALK	8384977	N/A	2016/09/01	Wilson Au Yueng
Fluoride	ISE/ISE	8384572	N/A	2016/09/01	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8383182	N/A	2016/09/02	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8383209	N/A	2016/09/02	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8387987	N/A	2016/09/06	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8387992	2016/09/05	2016/09/06	Rob McClelland
Ion Balance	CALC	8383480	N/A	2016/09/07	Automated Statchk
Sum of cations, anions	CALC	8383492	N/A	2016/09/02	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8383437	N/A	2016/09/02	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8385086	N/A	2016/09/02	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8383438	N/A	2016/09/02	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8385137	N/A	2016/09/01	Andrew An
Ammonia-N (Preserved)	KONE/COL	8387302	N/A	2016/09/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8385385	N/A	2016/09/01	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8385386	N/A	2016/09/01	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8383493	N/A	2016/09/02	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2016/08/31	Nahed Amer

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**TEST SUMMARY**

**Maxxam ID:** PK2254  
**Sample ID:** BH95G-129  
**Matrix:** Water

**Collected:** 2016/08/29  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
pH Water	AT/ALK	8384976	N/A	2016/09/01	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8389104	N/A	2016/09/06	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8386948	2016/09/02	2016/09/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8386951	N/A	2016/09/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8383846	2016/09/01	2016/09/02	Coco Guo

**Maxxam ID:** PK2255  
**Sample ID:** BH95G-146  
**Matrix:** Water

**Collected:** 2016/08/29  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8384702	N/A	2016/09/01	Maria Maclean
Alkalinity - Water	AT/ALK	8384971	2016/09/01	2016/09/01	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8389102	N/A	2016/09/06	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8390296	N/A	2016/09/07	Diana Cruz
Conductance - water	AT/ALK	8384977	N/A	2016/09/01	Wilson Au Yueng
Fluoride	ISE/ISE	8384572	N/A	2016/09/01	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8383182	N/A	2016/09/02	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8383209	N/A	2016/09/02	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8387987	N/A	2016/09/06	Rob McClelland
Mercury (Total-LowLevel) by CVAF	CV/AF	8387990	2016/09/05	2016/09/06	Rob McClelland
Ion Balance	CALC	8383480	N/A	2016/09/07	Automated Statchk
Sum of cations, anions	CALC	8383492	N/A	2016/09/02	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8383437	N/A	2016/09/02	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8385058	N/A	2016/09/02	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8383438	N/A	2016/09/02	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8385137	N/A	2016/09/01	Andrew An
Ammonia-N (Preserved)	KONE/COL	8387302	N/A	2016/09/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8385385	N/A	2016/09/01	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8385386	N/A	2016/09/01	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8383493	N/A	2016/09/02	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2016/08/31	Nahed Amer
pH Water	AT/ALK	8384976	N/A	2016/09/01	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8389104	N/A	2016/09/06	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8386947	2016/09/02	2016/09/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8386951	N/A	2016/09/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8383846	2016/09/01	2016/09/02	Coco Guo

**Maxxam ID:** PK2256  
**Sample ID:** BH95G-33D  
**Matrix:** Water

**Collected:** 2016/08/26  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8384702	N/A	2016/09/01	Maria Maclean
Alkalinity - Water	AT/ALK	8384971	2016/09/01	2016/09/01	Wilson Au Yueng

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** PK2256  
**Sample ID:** BH95G-33D  
**Matrix:** Water

**Collected:** 2016/08/26  
**Shipped:**  
**Received:** 2016/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chloride by Automated Colourimetry	KONE/COL	8389095	N/A	2016/09/06	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8390294	N/A	2016/09/07	Diana Cruz
Conductance - water	AT/ALK	8384977	N/A	2016/09/01	Wilson Au Yueng
Fluoride	ISE/ISE	8384572	N/A	2016/09/01	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8383182	N/A	2016/09/04	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8383209	N/A	2016/09/02	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8387988	N/A	2016/09/06	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8387990	2016/09/05	2016/09/06	Rob McClelland
Ion Balance	CALC	8383480	N/A	2016/09/07	Automated Statchk
Sum of cations, anions	CALC	8383492	N/A	2016/09/02	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8383437	N/A	2016/09/02	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8385058	N/A	2016/09/02	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8386114	2016/09/02	2016/09/02	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8383438	N/A	2016/09/04	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8387302	N/A	2016/09/03	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8385385	N/A	2016/09/01	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8385386	N/A	2016/09/01	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8383493	N/A	2016/09/02	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2016/08/31	Nahed Amer
pH Water	AT/ALK	8384976	N/A	2016/09/01	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8389097	N/A	2016/09/06	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8386947	2016/09/02	2016/09/02	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8386951	N/A	2016/09/02	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8383846	2016/09/01	2016/09/02	Coco Guo



Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	4.7°C
Package 2	4.7°C
Package 3	2.7°C
Package 4	3.0°C
Package 5	2.0°C
Package 6	4.0°C
Package 7	2.3°C
Package 8	3.0°C
Package 9	2.0°C
Package 10	4.3°C

Sample PK2216-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PK2217-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PK2218-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PK2219-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PK2220-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PK2221-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PK2222-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PK2223-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PK2224-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PK2237-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PK2238-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PK2239-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PK2240-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PK2241-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### GENERAL COMMENTS

for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PK2242-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PK2244-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PK2245-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PK2256-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PK2219, Elements by ICPMS Low Level (dissolved): Test repeated.

Sample PK2220, Elements by ICPMS Low Level (dissolved): Test repeated.

Sample PK2240, Elements by ICPMS Low Level (dissolved): Test repeated.

Sample PK2243, Elements by ICPMS Low Level (dissolved): Test repeated.

Sample PK2244, Elements by ICPMS Low Level (dissolved): Test repeated.

Sample PK2245, Elements by ICPMS Low Level (dissolved): Test repeated.

**Results relate only to the items tested.**



Maxxam Job #: B674680  
Report Date: 2016/09/08

**QUALITY ASSURANCE REPORT**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8383845	Total Suspended Solids	2016/09/02			101	80 - 120	<1.0	mg/L		
8383846	Total Suspended Solids	2016/09/02			104	80 - 120	<1.0	mg/L		
8384568	Fluoride (F)	2016/09/01	100	80 - 120	100	80 - 120	0.014, RDL=0.010	mg/L	0	20
8384572	Fluoride (F)	2016/09/01	101	80 - 120	100	80 - 120	0.013, RDL=0.010	mg/L	NC	20
8384702	Acidity (pH 4.5)	2016/09/01					<0.50	mg/L	NC	20
8384702	Acidity (pH 8.3)	2016/09/01			97	80 - 120	<0.50	mg/L	10	20
8384947	Alkalinity (PP as CaCO3)	2016/09/01					<0.50	mg/L	NC	20
8384947	Alkalinity (Total as CaCO3)	2016/09/01	NC	80 - 120	91	80 - 120	<0.50	mg/L	0.22	20
8384947	Bicarbonate (HCO3)	2016/09/01					<0.50	mg/L	0.36	20
8384947	Carbonate (CO3)	2016/09/01					<0.50	mg/L	NC	20
8384947	Hydroxide (OH)	2016/09/01					<0.50	mg/L	NC	20
8384956	pH	2016/09/01			102	97 - 103			0	N/A
8384957	Conductivity	2016/09/01			99	80 - 120	<1.0	uS/cm	0.14	20
8384971	Alkalinity (PP as CaCO3)	2016/09/01					<0.50	mg/L	NC	20
8384971	Alkalinity (Total as CaCO3)	2016/09/01	NC	80 - 120	96	80 - 120	0.62, RDL=0.50	mg/L	5.3	20
8384971	Bicarbonate (HCO3)	2016/09/01					0.76, RDL=0.50	mg/L	5.3	20
8384971	Carbonate (CO3)	2016/09/01					<0.50	mg/L	NC	20
8384971	Hydroxide (OH)	2016/09/01					<0.50	mg/L	NC	20
8384976	pH	2016/09/01			102	97 - 103			0	N/A
8384977	Conductivity	2016/09/01			100	80 - 120	<1.0	uS/cm	0.29	20
8384980	Alkalinity (PP as CaCO3)	2016/09/01					<0.50	mg/L	NC	20
8384980	Alkalinity (Total as CaCO3)	2016/09/01	102	80 - 120	94	80 - 120	<0.50	mg/L	NC	20
8384980	Bicarbonate (HCO3)	2016/09/01					<0.50	mg/L	NC	20
8384980	Carbonate (CO3)	2016/09/01					<0.50	mg/L	NC	20
8384980	Hydroxide (OH)	2016/09/01					<0.50	mg/L	NC	20
8384984	pH	2016/09/01			102	97 - 103			0.75	N/A
8384985	Conductivity	2016/09/01			101	80 - 120	1.1, RDL=1.0	uS/cm	NC	20
8385058	Dissolved Aluminum (Al)	2016/09/02	107	80 - 120	106	80 - 120	<0.00050	mg/L	NC	20
8385058	Dissolved Antimony (Sb)	2016/09/02	101	80 - 120	101	80 - 120	<0.000020	mg/L	NC	20
8385058	Dissolved Arsenic (As)	2016/09/02	106	80 - 120	106	80 - 120	<0.000020	mg/L	NC	20

Maxxam Job #: B674680  
Report Date: 2016/09/08

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8385058	Dissolved Barium (Ba)	2016/09/02	104	80 - 120	103	80 - 120	<0.000020	mg/L	NC	20
8385058	Dissolved Beryllium (Be)	2016/09/02	100	80 - 120	100	80 - 120	<0.000010	mg/L	NC	20
8385058	Dissolved Bismuth (Bi)	2016/09/02	99	80 - 120	102	80 - 120	<0.0000050	mg/L	NC	20
8385058	Dissolved Boron (B)	2016/09/02	98	80 - 120	98	80 - 120	<0.010	mg/L	NC	20
8385058	Dissolved Cadmium (Cd)	2016/09/02	106	80 - 120	102	80 - 120	<0.0000050	mg/L	NC	20
8385058	Dissolved Chromium (Cr)	2016/09/02	109	80 - 120	111	80 - 120	<0.00010	mg/L	NC	20
8385058	Dissolved Cobalt (Co)	2016/09/02	108	80 - 120	109	80 - 120	<0.0000050	mg/L	NC	20
8385058	Dissolved Copper (Cu)	2016/09/02	110	80 - 120	110	80 - 120	<0.000050	mg/L	NC	20
8385058	Dissolved Iron (Fe)	2016/09/02	108	80 - 120	111	80 - 120	<0.0010	mg/L	NC	20
8385058	Dissolved Lead (Pb)	2016/09/02	100	80 - 120	103	80 - 120	<0.0000050	mg/L	NC	20
8385058	Dissolved Lithium (Li)	2016/09/02	90	80 - 120	97	80 - 120	<0.00050	mg/L	NC	20
8385058	Dissolved Manganese (Mn)	2016/09/02	108	80 - 120	108	80 - 120	<0.000050	mg/L	NC	20
8385058	Dissolved Molybdenum (Mo)	2016/09/02	101	80 - 120	104	80 - 120	<0.000050	mg/L	NC	20
8385058	Dissolved Nickel (Ni)	2016/09/02	110	80 - 120	110	80 - 120	<0.000020	mg/L	NC	20
8385058	Dissolved Phosphorus (P)	2016/09/02					<0.0020	mg/L	NC	20
8385058	Dissolved Selenium (Se)	2016/09/02	109	80 - 120	103	80 - 120	<0.000040	mg/L	NC	20
8385058	Dissolved Silicon (Si)	2016/09/02					<0.050	mg/L	NC	20
8385058	Dissolved Silver (Ag)	2016/09/02	98	80 - 120	101	80 - 120	<0.0000050	mg/L	NC	20
8385058	Dissolved Strontium (Sr)	2016/09/02	105	80 - 120	104	80 - 120	<0.000050	mg/L	NC	20
8385058	Dissolved Thallium (Tl)	2016/09/02	96	80 - 120	100	80 - 120	<0.0000020	mg/L	NC	20
8385058	Dissolved Tin (Sn)	2016/09/02	102	80 - 120	100	80 - 120	<0.00020	mg/L	NC	20
8385058	Dissolved Titanium (Ti)	2016/09/02	107	80 - 120	111	80 - 120	<0.00050	mg/L	NC	20
8385058	Dissolved Uranium (U)	2016/09/02	101	80 - 120	104	80 - 120	<0.0000020	mg/L	NC	20
8385058	Dissolved Vanadium (V)	2016/09/02	107	80 - 120	108	80 - 120	<0.00020	mg/L	NC	20
8385058	Dissolved Zinc (Zn)	2016/09/02	119	80 - 120	121 (1)	80 - 120	<0.00010	mg/L	NC	20
8385058	Dissolved Zirconium (Zr)	2016/09/02					<0.00010	mg/L	NC	20
8385086	Dissolved Aluminum (Al)	2016/09/02	99	80 - 120	113	80 - 120	<0.00050	mg/L	NC	20
8385086	Dissolved Antimony (Sb)	2016/09/02	100	80 - 120	103	80 - 120	<0.000020	mg/L	NC	20
8385086	Dissolved Arsenic (As)	2016/09/02	100	80 - 120	104	80 - 120	<0.000020	mg/L	NC	20
8385086	Dissolved Barium (Ba)	2016/09/02	100	80 - 120	108	80 - 120	<0.000020	mg/L		
8385086	Dissolved Beryllium (Be)	2016/09/02	93	80 - 120	93	80 - 120	<0.000010	mg/L	NC	20

Maxxam Job #: B674680  
Report Date: 2016/09/08

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8385086	Dissolved Bismuth (Bi)	2016/09/02	95	80 - 120	103	80 - 120	<0.0000050	mg/L	NC	20
8385086	Dissolved Boron (B)	2016/09/02	91	80 - 120	94	80 - 120	<0.010	mg/L	NC	20
8385086	Dissolved Cadmium (Cd)	2016/09/02	102	80 - 120	108	80 - 120	<0.0000050	mg/L	NC	20
8385086	Dissolved Chromium (Cr)	2016/09/02	104	80 - 120	111	80 - 120	<0.00010	mg/L	NC	20
8385086	Dissolved Cobalt (Co)	2016/09/02	103	80 - 120	108	80 - 120	<0.0000050	mg/L	NC	20
8385086	Dissolved Copper (Cu)	2016/09/02	105	80 - 120	109	80 - 120	<0.000050	mg/L	NC	20
8385086	Dissolved Iron (Fe)	2016/09/02	101	80 - 120	108	80 - 120	<0.0010	mg/L	NC	20
8385086	Dissolved Lead (Pb)	2016/09/02	97	80 - 120	103	80 - 120	<0.0000050	mg/L	NC	20
8385086	Dissolved Lithium (Li)	2016/09/02	93	80 - 120	88	80 - 120	<0.00050	mg/L	NC	20
8385086	Dissolved Manganese (Mn)	2016/09/02	101	80 - 120	107	80 - 120	<0.000050	mg/L	NC	20
8385086	Dissolved Molybdenum (Mo)	2016/09/02	99	80 - 120	103	80 - 120	<0.000050	mg/L	NC	20
8385086	Dissolved Nickel (Ni)	2016/09/02	104	80 - 120	111	80 - 120	<0.000020	mg/L	NC	20
8385086	Dissolved Phosphorus (P)	2016/09/02					<0.0020	mg/L	NC	20
8385086	Dissolved Selenium (Se)	2016/09/02	102	80 - 120	106	80 - 120	<0.000040	mg/L	NC	20
8385086	Dissolved Silicon (Si)	2016/09/02					<0.050	mg/L	NC	20
8385086	Dissolved Silver (Ag)	2016/09/02	93	80 - 120	102	80 - 120	<0.0000050	mg/L	NC	20
8385086	Dissolved Strontium (Sr)	2016/09/02	100	80 - 120	100	80 - 120	<0.000050	mg/L	NC	20
8385086	Dissolved Thallium (Tl)	2016/09/02	94	80 - 120	100	80 - 120	<0.0000020	mg/L	NC	20
8385086	Dissolved Tin (Sn)	2016/09/02	101	80 - 120	100	80 - 120	<0.00020	mg/L	NC	20
8385086	Dissolved Titanium (Ti)	2016/09/02	104	80 - 120	112	80 - 120	<0.00050	mg/L	NC	20
8385086	Dissolved Uranium (U)	2016/09/02	97	80 - 120	106	80 - 120	<0.0000020	mg/L	NC	20
8385086	Dissolved Vanadium (V)	2016/09/02	101	80 - 120	107	80 - 120	<0.00020	mg/L	NC	20
8385086	Dissolved Zinc (Zn)	2016/09/02	105	80 - 120	118	80 - 120	<0.00010	mg/L		
8385086	Dissolved Zirconium (Zr)	2016/09/02					<0.00010	mg/L	NC	20
8385137	Total Aluminum (Al)	2016/09/01	106	80 - 120	110	80 - 120	<0.00050	mg/L	NC	20
8385137	Total Antimony (Sb)	2016/09/01	98	80 - 120	101	80 - 120	<0.000020	mg/L	NC	20
8385137	Total Arsenic (As)	2016/09/01	102	80 - 120	105	80 - 120	<0.000020	mg/L	NC	20
8385137	Total Barium (Ba)	2016/09/01	102	80 - 120	105	80 - 120	<0.000020	mg/L	NC	20
8385137	Total Beryllium (Be)	2016/09/01	99	80 - 120	103	80 - 120	<0.000010	mg/L	NC	20
8385137	Total Bismuth (Bi)	2016/09/01	99	80 - 120	102	80 - 120	<0.0000050	mg/L	NC	20
8385137	Total Boron (B)	2016/09/01	97	80 - 120	100	80 - 120	<0.010	mg/L	NC	20

Maxxam Job #: B674680  
Report Date: 2016/09/08

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8385137	Total Cadmium (Cd)	2016/09/01	99	80 - 120	104	80 - 120	<0.0000050	mg/L	NC	20
8385137	Total Chromium (Cr)	2016/09/01	104	80 - 120	111	80 - 120	<0.00010	mg/L	NC	20
8385137	Total Cobalt (Co)	2016/09/01	103	80 - 120	109	80 - 120	<0.0000050	mg/L	NC	20
8385137	Total Copper (Cu)	2016/09/01	105	80 - 120	111	80 - 120	<0.000050	mg/L	NC	20
8385137	Total Iron (Fe)	2016/09/01	103	80 - 120	110	80 - 120	<0.0010	mg/L	NC	20
8385137	Total Lead (Pb)	2016/09/01	99	80 - 120	103	80 - 120	<0.0000050	mg/L	NC	20
8385137	Total Lithium (Li)	2016/09/01	90	80 - 120	101	80 - 120	<0.00050	mg/L	NC	20
8385137	Total Manganese (Mn)	2016/09/01	104	80 - 120	108	80 - 120	<0.000050	mg/L	NC	20
8385137	Total Molybdenum (Mo)	2016/09/01	99	80 - 120	103	80 - 120	<0.000050	mg/L	NC	20
8385137	Total Nickel (Ni)	2016/09/01	106	80 - 120	110	80 - 120	<0.000020	mg/L	NC	20
8385137	Total Phosphorus (P)	2016/09/01					<0.0020	mg/L	NC	20
8385137	Total Selenium (Se)	2016/09/01	105	80 - 120	106	80 - 120	<0.000040	mg/L	NC	20
8385137	Total Silicon (Si)	2016/09/01					<0.050	mg/L	NC	20
8385137	Total Silver (Ag)	2016/09/01	99	80 - 120	102	80 - 120	<0.0000050	mg/L	NC	20
8385137	Total Strontium (Sr)	2016/09/01	101	80 - 120	100	80 - 120	<0.000050	mg/L	NC	20
8385137	Total Thallium (Tl)	2016/09/01	98	80 - 120	100	80 - 120	<0.0000020	mg/L	NC	20
8385137	Total Tin (Sn)	2016/09/01	102	80 - 120	99	80 - 120	<0.00020	mg/L	NC	20
8385137	Total Titanium (Ti)	2016/09/01	97	80 - 120	114	80 - 120	<0.00050	mg/L	NC	20
8385137	Total Uranium (U)	2016/09/01	100	80 - 120	101	80 - 120	<0.0000020	mg/L	NC	20
8385137	Total Vanadium (V)	2016/09/01	103	80 - 120	107	80 - 120	<0.00020	mg/L	NC	20
8385137	Total Zinc (Zn)	2016/09/01	110	80 - 120	118	80 - 120	<0.00010	mg/L	NC	20
8385137	Total Zirconium (Zr)	2016/09/01					<0.00010	mg/L	NC	20
8385343	Total Aluminum (Al)	2016/09/02	NC	80 - 120	109	80 - 120	<0.0030	mg/L	NC	20
8385343	Total Antimony (Sb)	2016/09/02	115	80 - 120	98	80 - 120	<0.000020	mg/L	NC	20
8385343	Total Arsenic (As)	2016/09/02	105	80 - 120	101	80 - 120	<0.000020	mg/L	NC	20
8385343	Total Barium (Ba)	2016/09/02	NC	80 - 120	101	80 - 120	<0.000050	mg/L	0.23	20
8385343	Total Beryllium (Be)	2016/09/02	89	80 - 120	93	80 - 120	<0.000010	mg/L	NC	20
8385343	Total Bismuth (Bi)	2016/09/02	89	80 - 120	93	80 - 120	<0.000010	mg/L	NC	20
8385343	Total Boron (B)	2016/09/02	NC	80 - 120	94	80 - 120	<0.010	mg/L	NC	20
8385343	Total Cadmium (Cd)	2016/09/02	97	80 - 120	101	80 - 120	<0.0000050	mg/L	NC	20
8385343	Total Chromium (Cr)	2016/09/02	106	80 - 120	104	80 - 120	<0.00010	mg/L	NC	20

Maxxam Job #: B674680  
Report Date: 2016/09/08

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8385343	Total Cobalt (Co)	2016/09/02	98	80 - 120	102	80 - 120	<0.000010	mg/L	NC	20
8385343	Total Copper (Cu)	2016/09/02	90	80 - 120	107	80 - 120	<0.00010	mg/L	NC	20
8385343	Total Iron (Fe)	2016/09/02	108	80 - 120	102	80 - 120	<0.0050	mg/L	NC	20
8385343	Total Lead (Pb)	2016/09/02	93	80 - 120	96	80 - 120	<0.000020	mg/L	NC	20
8385343	Total Lithium (Li)	2016/09/02	NC	80 - 120	93	80 - 120	<0.00050	mg/L	8.3	20
8385343	Total Manganese (Mn)	2016/09/02	NC	80 - 120	104	80 - 120	<0.00010	mg/L	5.3	20
8385343	Total Molybdenum (Mo)	2016/09/02	NC	80 - 120	98	80 - 120	<0.000050	mg/L	NC	20
8385343	Total Nickel (Ni)	2016/09/02	NC	80 - 120	102	80 - 120	<0.00010	mg/L	2.6	20
8385343	Total Phosphorus (P)	2016/09/02					<0.0050	mg/L		
8385343	Total Selenium (Se)	2016/09/02	101	80 - 120	101	80 - 120	<0.000040	mg/L	NC	20
8385343	Total Silicon (Si)	2016/09/02					<0.050	mg/L	NC	20
8385343	Total Silver (Ag)	2016/09/02	104	80 - 120	102	80 - 120	<0.000010	mg/L	NC	20
8385343	Total Strontium (Sr)	2016/09/02	NC	80 - 120	100	80 - 120	<0.000050	mg/L	3.0	20
8385343	Total Thallium (Tl)	2016/09/02	80	80 - 120	86	80 - 120	<0.0000020	mg/L	NC	20
8385343	Total Tin (Sn)	2016/09/02	114	80 - 120	96	80 - 120	<0.00020	mg/L	NC	20
8385343	Total Titanium (Ti)	2016/09/02	128 (2)	80 - 120	102	80 - 120	<0.0020	mg/L	NC	20
8385343	Total Uranium (U)	2016/09/02	93	80 - 120	92	80 - 120	<0.0000050	mg/L	5.3	20
8385343	Total Vanadium (V)	2016/09/02	105	80 - 120	102	80 - 120	<0.00020	mg/L	NC	20
8385343	Total Zinc (Zn)	2016/09/02	87	80 - 120	115	80 - 120	<0.0010	mg/L	NC	20
8385343	Total Zirconium (Zr)	2016/09/02					<0.00010	mg/L	NC	20
8385360	Nitrate plus Nitrite (N)	2016/09/01	107	80 - 120	104	80 - 120	<0.0020	mg/L	NC	25
8385384	Nitrite (N)	2016/09/01	100	80 - 120	98	80 - 120	<0.0020	mg/L	NC	25
8385385	Nitrate plus Nitrite (N)	2016/09/01	105	80 - 120	104	80 - 120	<0.0020	mg/L	NC	25
8385386	Nitrite (N)	2016/09/01	97	80 - 120	99	80 - 120	<0.0020	mg/L	NC	25
8386114	Total Aluminum (Al)	2016/09/02	109	80 - 120	106	80 - 120	<0.0030	mg/L	8.8	20
8386114	Total Antimony (Sb)	2016/09/02	100	80 - 120	100	80 - 120	<0.000020	mg/L	NC	20
8386114	Total Arsenic (As)	2016/09/02	106	80 - 120	101	80 - 120	<0.000020	mg/L	15	20
8386114	Total Barium (Ba)	2016/09/02	NC	80 - 120	100	80 - 120	<0.000050	mg/L	0.38	20
8386114	Total Beryllium (Be)	2016/09/02	99	80 - 120	95	80 - 120	<0.000010	mg/L	NC	20
8386114	Total Bismuth (Bi)	2016/09/02	93	80 - 120	93	80 - 120	<0.000010	mg/L	NC	20
8386114	Total Boron (B)	2016/09/02	99	80 - 120	94	80 - 120	<0.010	mg/L	NC	20

Maxxam Job #: B674680  
Report Date: 2016/09/08

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8386114	Total Cadmium (Cd)	2016/09/02	100	80 - 120	103	80 - 120	<0.0000050	mg/L	17	20
8386114	Total Chromium (Cr)	2016/09/02	105	80 - 120	105	80 - 120	<0.00010	mg/L	NC	20
8386114	Total Cobalt (Co)	2016/09/02	102	80 - 120	103	80 - 120	<0.000010	mg/L	NC	20
8386114	Total Copper (Cu)	2016/09/02	100	80 - 120	109	80 - 120	<0.00010	mg/L	NC	20
8386114	Total Iron (Fe)	2016/09/02	NC	80 - 120	101	80 - 120	<0.0050	mg/L	5.7	20
8386114	Total Lead (Pb)	2016/09/02	97	80 - 120	95	80 - 120	<0.000020	mg/L	4.1	20
8386114	Total Lithium (Li)	2016/09/02	100	80 - 120	96	80 - 120	0.00052, RDL=0.00050	mg/L	NC	20
8386114	Total Manganese (Mn)	2016/09/02	NC	80 - 120	104	80 - 120	<0.00010	mg/L	7.6	20
8386114	Total Molybdenum (Mo)	2016/09/02	102	80 - 120	97	80 - 120	<0.000050	mg/L	1.9	20
8386114	Total Nickel (Ni)	2016/09/02	99	80 - 120	103	80 - 120	<0.00010	mg/L	NC	20
8386114	Total Phosphorus (P)	2016/09/02					<0.0050	mg/L	NC	20
8386114	Total Selenium (Se)	2016/09/02	102	80 - 120	102	80 - 120	<0.000040	mg/L	5.5	20
8386114	Total Silicon (Si)	2016/09/02					<0.050	mg/L	3.0	20
8386114	Total Silver (Ag)	2016/09/02	105	80 - 120	101	80 - 120	<0.000010	mg/L	NC	20
8386114	Total Strontium (Sr)	2016/09/02	NC	80 - 120	96	80 - 120	<0.000050	mg/L	1.1	20
8386114	Total Thallium (Tl)	2016/09/02	93	80 - 120	88	80 - 120	<0.0000020	mg/L	NC	20
8386114	Total Tin (Sn)	2016/09/02	98	80 - 120	100	80 - 120	<0.00020	mg/L	NC	20
8386114	Total Titanium (Ti)	2016/09/02	118	80 - 120	104	80 - 120	<0.0020	mg/L	NC	20
8386114	Total Uranium (U)	2016/09/02	104	80 - 120	92	80 - 120	<0.0000050	mg/L	0.47	20
8386114	Total Vanadium (V)	2016/09/02	106	80 - 120	103	80 - 120	<0.00020	mg/L	NC	20
8386114	Total Zinc (Zn)	2016/09/02	106	80 - 120	106	80 - 120	<0.0010	mg/L	NC	20
8386114	Total Zirconium (Zr)	2016/09/02					<0.00010	mg/L	NC	20
8386197	Acidity (pH 4.5)	2016/09/02			0	N/A	<0.50	mg/L	NC	20
8386197	Acidity (pH 8.3)	2016/09/02			100	80 - 120	<0.50	mg/L	NC	20
8386342	Dissolved Mercury (Hg)	2016/09/02	95	80 - 120	97	80 - 120	<0.0000020	mg/L	NC	20
8386947	Dissolved Phosphorus (P)	2016/09/02	NC	80 - 120	92	80 - 120	<0.0020	mg/L	13	20
8386948	Dissolved Phosphorus (P)	2016/09/02	92	80 - 120	108	80 - 120	<0.0020	mg/L	NC	20
8386950	Total Phosphorus (P)	2016/09/02	NC	80 - 120	100	80 - 120	<0.0020	mg/L	4.7	20
8386951	Total Phosphorus (P)	2016/09/02	89	80 - 120	108	80 - 120	<0.0020	mg/L		
8387302	Total Ammonia (N)	2016/09/03	NC	80 - 120	96	80 - 120	<0.0050	mg/L	4.3	20

Maxxam Job #: B674680  
Report Date: 2016/09/08

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8387303	Total Ammonia (N)	2016/09/03	NC	80 - 120	98	80 - 120	<0.0050	mg/L	3.9	20
8387987	Dissolved Mercury (Hg)	2016/09/06	96	80 - 120	97	80 - 120	<0.0000020	mg/L	NC	20
8387988	Dissolved Mercury (Hg)	2016/09/06	99	80 - 120	99	80 - 120	<0.0000020	mg/L	NC	20
8387990	Total Mercury (Hg)	2016/09/06	93	80 - 120	93	80 - 120	<0.0000020	mg/L	NC	20
8387992	Total Mercury (Hg)	2016/09/06	95	80 - 120	98	80 - 120	<0.0000020	mg/L	NC	20
8389095	Dissolved Chloride (Cl)	2016/09/06	109	80 - 120	99	80 - 120	<0.50	mg/L	NC	20
8389097	Dissolved Sulphate (SO4)	2016/09/06	NC	80 - 120	96	80 - 120	<0.50	mg/L	2.1	20
8389102	Dissolved Chloride (Cl)	2016/09/06	114	80 - 120	94	80 - 120	<0.50	mg/L	NC	20
8389104	Dissolved Sulphate (SO4)	2016/09/06			92	80 - 120	0.51, RDL=0.50	mg/L		
8390294	Dissolved Organic Carbon (C)	2016/09/07	114	80 - 120	111	80 - 120	<0.50	mg/L	NC	20
8390296	Dissolved Organic Carbon (C)	2016/09/07	116	80 - 120	109	80 - 120	<0.50	mg/L	3.0	20
8390573	Dissolved Sulphate (SO4)	2016/09/07			99	80 - 120	<0.50	mg/L	0.49	20
8390612	Dissolved Barium (Ba)	2016/09/08			98	80 - 120	<0.000020	mg/L		
8390612	Dissolved Lithium (Li)	2016/09/08			89	80 - 120	<0.00050	mg/L		
8390612	Dissolved Molybdenum (Mo)	2016/09/08			98	80 - 120	<0.000050	mg/L		
8390612	Dissolved Strontium (Sr)	2016/09/08			100	80 - 120	<0.000050	mg/L		
8390612	Dissolved Zinc (Zn)	2016/09/08			99	80 - 120	<0.00010	mg/L		
8390612	Dissolved Zirconium (Zr)	2016/09/08					<0.00010	mg/L		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

(1) Blank Spike outside acceptance criteria (10% of analytes failure allowed).

(2) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

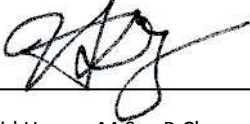


Maxxam Job #: B674680  
Report Date: 2016/09/08

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



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David Huang, M.Sc., P.Chem., QP, Scientific Services Manager

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.





Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5. Toll Free (800) 665-8566

CHAIN OF CUSTODY RECORD

COI 08426910

BBY FCD-00077/05 Page 1 of 3

Invoice Information		Report Information (if differs from invoice)				Project Information (where applicable)				Round Time (TAT) Required								
Company Name: <b>BMC MINERALS LTD.</b>		Company Name: <b>ALEXCO ENVIRONMENTAL</b>				Quotation #: <b>B60751</b>				<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses)								
Contact Name:		Contact Name: <b>KAJ WOLOSHYN</b>				P.O. #/ AFE#:				PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS								
Address: <b>530-1130 WEST PENDER ST</b>		Address: <b>UNIT 3 151 INDUSTRIAL RD</b>				Project #: <b>BMC-16-01</b>				Rush TAT (Surcharges will be applied)								
Vancouver, BC PC: V6E 4A4		Whitehorse, YK PC: V1A 2V3				Site Location: <b>Kudz Ze Kayah</b>				<input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days								
Phone:		Phone: <b>(867) 668-6463</b>				Site #:				<input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days								
Email:		Email: <b>kwoloshyn@alexcoresource.com</b>				Sampled By: <b>Andrea Badger</b>				Date Required:								
Regulatory Criteria		Special Instructions		Analysis Requested						Rush Confirmation #:								
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> BC CSR Water <input type="checkbox"/> CCME (Specify) <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Drinking Water <input type="checkbox"/> W. Water Quality		<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify) Also send report to: ifaugere@accessconsulting.ca nopolis@accessconsulting.ca		TOTAL LOW LEVEL METALS INCL. MERCURY DISSOLVED LOW LEVEL METALS INCL. MERCURY LOW LEVEL TS ANIONS (Cl, F, SO4, NO2, NO3) AMMONIA CONDUCTIVITY PH ALKALINITY & ACIDITY DOC TOTAL PHOSPHORUS - LOW LEVEL DISSOLVED PHOSPHORUS - LOW LEVEL						LABORATORY USE ONLY CUSTODY SEAL (Y/N) Present Intact COOLER TEMPERATURES COOLING MEDIA PRESENT (Y/N)								
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM																		
Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	TOTAL LOW LEVEL METALS INCL. MERCURY	DISSOLVED LOW LEVEL METALS INCL. MERCURY	LOW LEVEL TS	ANIONS (Cl, F, SO4, NO2, NO3)	AMMONIA	CONDUCTIVITY	PH	ALKALINITY & ACIDITY	DOC	TOTAL PHOSPHORUS - LOW LEVEL	DISSOLVED PHOSPHORUS - LOW LEVEL	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	COMMENTS
1	BH95G-25D	26-Aug-16	9:50	Water	x	x	x	x	x	x	x	x	x	x	x	10		
2	BH95G-25S	26-Aug-16	10:25	Water	x	x	x	x	x	x	x	x	x	x	x	10		
3	BH95G-131	26-Aug-16	15:15	Water	x	x	x	x	x	x	x	x	x	x	x	10		
4	BH95G-35D	26-Aug-16	16:25	Water	x	x	x	x	x	x	x	x	x	x	x	10		
5	DUP3	26-Aug-16		Water	x	x	x	x	x	x	x	x	x	x	x	10		
6	MW15-06	27-Aug-16	10:00	Water	x	x	x	x	x	x	x	x	x	x	x	10		
7	MW15-10S	27-Aug-16	11:45	Water	x	x	x	x	x	x	x	x	x	x	x	10		
8	MW15-10D	27-Aug-16	12:27	Water	x	x	x	x	x	x	x	x	x	x	x	10		
9	MW15-09S	27-Aug-16	13:30	Water	x	x	x	x	x	x	x	x	x	x	x	10		
10	BH95G-30	27-Aug-16	16:30	Water	x	x	x	x	x	x	x	x	x	x	x	10		
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)				DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #								
ANDREA BADGER		26-AUG-16		[Signature]				2016/08/31	09:30	B674680								



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CHAIN OF CUSTODY



08426911

BBY FCD-00077/05

Page 2 of 3

Invoice Information		Report Information (if differs from invoice)				Project Information (where applicable)				Turnaround Time (TAT) Required							
Company Name: BMC MINERALS LTD.		Company Name: ALEXCO ENVIRONMENTAL				Quotation #: B60751				<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses)							
Contact Name:		Contact Name: KAI WOLOSZYN				P.O. #/ AFER:				PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS							
Address: 530-1130 WEST PENDER ST Vancouver, BC PC: V6E 4A4		Address: UNIT 3 151 INDUSTRIAL RD Whitehorse, YX PC: V1A 2V3				Project #: BMC-16-01				Rush TAT (Surcharges will be applied)							
Phone:		Phone: (867) 668-6463				Site Location: Kudz Ze Kayah				<input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days							
Email:		Email: <a href="mailto:kwoloszyn@alexcoresource.com">kwoloszyn@alexcoresource.com</a>				Site #: _____				<input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days							
Regulatory Criteria		Special Instructions				Analysis Requested				Date Required:							
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> BC CSR Water <input type="checkbox"/> CCME (Specify) <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC Water Quality		<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify) Also send report to: Itougera@accessconsulting.ca nigelc@accessconsulting.ca				TOTAL LOW LEVEL METALS INCL. MERCURY DISSOLVED LOW LEVEL METALS INCL. MERCURY LOW LEVEL TSX ANIONS (CL, F, SO4, NO2, NO3) AMMONIA CONDUCTIVITY pH ALKALINITY & ACIDITY DOC TOTAL PHOSPHORUS - LOW LEVEL DISSOLVED PHOSPHORUS - LOW LEVEL				Rush Confirmation #:							
LABORATORY USE ONLY CUSTODY SEAL (Y/N) Present Intact COOLING MEDIA PRESENT COMMENTS RECEIVED IN WHITEHORSE BY: <i>[Signature]</i> 2016 08 30 @ 10:35 TEMP: 6 @ 4/3/5 2016/8/30 2/4/2 @ 2/3/3 5/4/0 @ 1/4/1 2/1/3 @ 5/3/5 4/3/5 @ 5/3/1																	
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM																	
Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	TOTAL LOW LEVEL METALS INCL. MERCURY	DISSOLVED LOW LEVEL METALS INCL. MERCURY	LOW LEVEL TSX	ANIONS (CL, F, SO4, NO2, NO3)	AMMONIA	CONDUCTIVITY	pH	ALKALINITY & ACIDITY	DOC	TOTAL PHOSPHORUS - LOW LEVEL	DISSOLVED PHOSPHORUS - LOW LEVEL	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE
1	BH95G-31	28-Aug-16	10:00	Water	X	X	X	X	X	X	X	X	X	X	X		10
2	BH95G-22	28-Aug-16	10:40	Water	X	X	X	X	X	X	X	X	X	X	X		10
3	MW16-17	28-Aug-16	11:17	Water	X	X	X	X	X	X	X	X	X	X	X		10
4	BH95G-02	28-Aug-16	11:20	Water	X	X	X	X	X	X	X	X	X	X	X		10
5	MW16-16D	28-Aug-16	12:00	Water	X	X	X	X	X	X	X	X	X	X	X		10
6	MW16-14D	28-Aug-16	17:30	Water	X	X	X	X	X	X	X	X	X	X	X		10
7	TRAVEL BLANK	28-Aug-16		Water	X	X	X	X	X	X	X	X	X	X	X		10
8	MW16-12S	29-Aug-16	9:56	Water	X	X	X	X	X	X	X	X	X	X	X		10
9	MW16-12D	29-Aug-16	11:21	Water	X	X	X	X	X	X	X	X	X	X	X		10
10	FIELD BLANK	29-Aug-16	9:56	Water	X	X	X	X	X	X	X	X	X	X	X		10
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)				DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #							
<i>Andrea Badger</i>		30-AUG-16		<i>Laurel Beatrix</i>				2016/08/31	09:30	B674680							



Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5. Toll Free (800) 665-8566

CHAIN OF CUSTODY RECORD

COC #



08426912

BBY FCD-00077/05

Page 3 of 3

Invoice Information		Report Information (if differs from invoice)				Project Information (where applicable)				Time (TAT) Required								
Company Name: BMC MINERALS LTD.	Contact Name: ALEXCO ENVIRONMENTAL	Quotation #: B60751	<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses)															
Contact Name: 530-1130 WEST PENDER ST	Contact Name: KAI WOLOSCHYN	P.O. #/ AFE#:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS															
Address: Vancouver, BC PC: V6E 4A4	Address: UNIT 3 151 INDUSTRIAL RD	Project #: BMC-16-01	Rush TAT (Surcharges will be applied)															
Phone: (867) 668-6463	Address: Whitehorse, YK PC: V1A 2V3	Site Location: Kudz Ze Kayah	<input type="checkbox"/> Same Day		<input type="checkbox"/> 2 Days													
Email: kwoloschyn@alexcoresource.com	Phone: (867) 668-6463	Site #:	<input type="checkbox"/> 1 Day		<input type="checkbox"/> 3 Days													
Regulatory Criteria		Special Instructions		Analysis Requested				Rush Confirmation #:										
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> BC CSR Water <input type="checkbox"/> CCME (Specify) <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC Water Quality		<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify) Also send report to: ifouger@accessconsulting.ca		TOTAL LOW LEVEL METALS INCL. MERCURY DISSOLVED LOW LEVEL METALS INCL. MERCURY LOW LEVELS ANIONS (CL, F, SO4, NO2, NO3) AMMONIA CONDUCTIVITY pH ALKALINITY & ACIDITY DOC TOTAL PHOSPHORUS - LOW LEVEL DISSOLVED PHOSPHORUS - LOW LEVEL				LABORATORY USE ONLY CUSTODY SEAL Y/N Present    Intact MA      MA MA      MA COOLING MEDIA PRESENT Y/N										
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM																		
Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	TOTAL LOW LEVEL METALS INCL. MERCURY	DISSOLVED LOW LEVEL METALS INCL. MERCURY	LOW LEVELS	ANIONS (CL, F, SO4, NO2, NO3)	AMMONIA	CONDUCTIVITY	pH	ALKALINITY & ACIDITY	DOC	TOTAL PHOSPHORUS - LOW LEVEL	DISSOLVED PHOSPHORUS - LOW LEVEL	# OF CONTAINERS SUBMITTED	COOLING MEDIA PRESENT Y/N	COMMENTS
1	BH95G-129	29-Aug-16	15:45	Water	X	X	X	X	X	X	X	X	X	X	X	10		
2	BH95G-146	29-Aug-16	16:20	Water	X	X	X	X	X	X	X	X	X	X	X	10		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #										
ANDREA BROGER		30-AUG-16		[Signature]		2016/08/31	09:30	B674680										

Your Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Your C.O.C. #: 08426814

**Attention: KAI WOLOSHYN**

ALEXCO ENVIRONMENTAL GROUP INC.  
Unit 3 Calcite Business Centre  
151 Industrial Road  
WHITEHORSE, YT  
Canada Y1A 2V3

**Report Date: 2016/09/07**  
Report #: R2254960  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B673793**

**Received: 2016/08/26, 16:30**

Sample Matrix: Water  
# Samples Received: 9

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Acidity pH 4.5 & pH 8.3 (as CaCO3)	9	N/A	2016/08/30	BBY6SOP-00037	SM 22 2310 B m
Alkalinity - Water	8	2016/08/30	2016/08/30	BBY6SOP-00026	SM 22 2320 B m
Alkalinity - Water	1	2016/08/30	2016/08/31	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry	9	N/A	2016/08/31	BBY6SOP-00011	SM 22 4500-Cl- E m
Carbon (DOC) - field filtered/preserved (1)	9	N/A	2016/08/30	BBY6SOP-00003	SM 22 5310 C m
Conductance - water	8	N/A	2016/08/30	BBY6SOP-00026	SM 22 2510 B m
Conductance - water	1	N/A	2016/08/31	BBY6SOP-00026	SM 22 2510 B m
Fluoride	9	N/A	2016/08/30	BBY6SOP-00048	SM 22 4500-F C m
Hardness Total (calculated as CaCO3)	9	N/A	2016/09/01	BBY WI-00033	Auto Calc
Hardness (calculated as CaCO3)	9	N/A	2016/09/01	BBY WI-00033	Auto Calc
Mercury (Dissolved-LowLevel) by CVAF	9	N/A	2016/08/31	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total-LowLevel) by CVAF	9	2016/08/31	2016/08/31	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Ion Balance	9	N/A	2016/09/01	BBY WI-00033	Auto Calc
Sum of cations, anions	9	N/A	2016/09/01	Calc	
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	9	N/A	2016/09/01	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Low Level (dissolved)	9	N/A	2016/08/31	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Digested LL (total)	3	2016/08/31	2016/08/31	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Elements by ICPMS Digested LL (total)	3	2016/08/31	2016/09/01	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Na, K, Ca, Mg, S by CRC ICPMS (total)	9	N/A	2016/09/01	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Elements by ICPMS Low Level (total)	3	N/A	2016/08/31	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Ammonia-N (Preserved)	7	N/A	2016/08/31	BBY6SOP-00009	SM 22 4500-NH3- G m
Ammonia-N (Preserved)	2	N/A	2016/09/06	BBY6SOP-00009	SM 22 4500-NH3- G m
Nitrate+Nitrite (N) (low level)	9	N/A	2016/08/30	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) (low level)	9	N/A	2016/08/30	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N)	9	N/A	2016/08/31	BBY6SOP-00010	SM 22 4500-NO3- I m
Filter and HNO3 Preserve for Metals	9	N/A	2016/09/01	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (2)	9	N/A	2016/08/30	BBY6SOP-00026	SM 22 4500-H+ B m
Sulphate by Automated Colourimetry	9	N/A	2016/08/31	BBY6SOP-00017	SM 22 4500-SO42- E m
Phosphorus-P (LL Tot, dissolved) - UF/UP	9	2016/08/30	2016/08/30	BBY6SOP-00013	SM 22 4500-P E m

Your Project #: BMC-16-01  
 Site Location: KUDZ ZE KAYAH  
 Your C.O.C. #: 08426814

**Attention:KAI WOLOSHYN**

ALEXCO ENVIRONMENTAL GROUP INC.  
 Unit 3 Calcite Business Centre  
 151 Industrial Road  
 WHITEHORSE, YT  
 Canada Y1A 2V3

**Report Date: 2016/09/07**  
 Report #: R2254960  
 Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B673793**

**Received: 2016/08/26, 16:30**

Sample Matrix: Water  
 # Samples Received: 9

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
Total Phosphorus - unpreserved	9	N/A	2016/08/30	BBY6SOP-00013	SM 22 4500-P E m
Total Suspended Solids-Low Level	8	2016/08/31	2016/08/31	BBY6SOP-00034	SM 22 2540 D
Total Suspended Solids-Low Level	1	2016/09/03	2016/09/06	BBY6SOP-00034	SM 22 2540 D

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) DOC present in the sample should be considered as non-purgeable DOC.

(2) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

**Encryption Key**

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Megan Smith, Project Manager

Email: msmith@maxxam.ca

Phone# (604) 734 7276

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Maxxam Job #: B673793  
Report Date: 2016/09/07

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PJ7710			PJ7711			PJ7712		
Sampling Date		2016/08/25 10:05			2016/08/25 10:35			2016/08/25 11:58		
COC Number		08426814			08426814			08426814		
	UNITS	MW15-03D	RDL	QC Batch	MW15-03S	RDL	QC Batch	MW15-04D	RDL	QC Batch
<b>Calculated Parameters</b>										
Anion Sum	meq/L	4.2	N/A	8381005	2.9	N/A	8381005	3.1	N/A	8381005
Cation Sum	meq/L	4.5	N/A	8381005	2.8	N/A	8381005	3.2	N/A	8381005
Filter and HNO3 Preservation	N/A	FIELD	N/A	ONSITE	FIELD	N/A	ONSITE	FIELD	N/A	ONSITE
Ion Balance	N/A	1.1	0.010	8379973	0.99	0.010	8379973	1.0	0.010	8379973
Nitrate (N)	mg/L	<0.0020	0.0020	8380400	0.122	0.0020	8380400	0.0042	0.0020	8380400
<b>Misc. Inorganics</b>										
Fluoride (F)	mg/L	0.160	0.010	8382387	0.065	0.010	8382387	0.210	0.010	8382387
Dissolved Organic Carbon (C)	mg/L	0.79	0.50	8383021	1.01	0.50	8383021	0.86	0.50	8383021
Acidity (pH 4.5)	mg/L	<0.50	0.50	8381806	<0.50	0.50	8381806	<0.50	0.50	8381806
Alkalinity (Total as CaCO3)	mg/L	187	0.50	8381849	130	0.50	8381849	133	0.50	8381849
Acidity (pH 8.3)	mg/L	1.38	0.50	8381806	<0.50	0.50	8381806	<0.50	0.50	8381806
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8381849	<0.50	0.50	8381849	<0.50	0.50	8381849
Bicarbonate (HCO3)	mg/L	228	0.50	8381849	159	0.50	8381849	162	0.50	8381849
Carbonate (CO3)	mg/L	<0.50	0.50	8381849	<0.50	0.50	8381849	<0.50	0.50	8381849
Hydroxide (OH)	mg/L	<0.50	0.50	8381849	<0.50	0.50	8381849	<0.50	0.50	8381849
<b>Anions</b>										
Dissolved Sulphate (SO4)	mg/L	22.4	0.50	8384760	11.3	0.50	8384760	19.3	0.50	8384760
Dissolved Chloride (Cl)	mg/L	1.0	0.50	8384766	0.98	0.50	8384766	1.2	0.50	8384766
<b>Nutrients</b>										
Dissolved Phosphorus (P)	mg/L	0.0054 (1)	0.0020	8382544	0.853 (2)	0.020	8382544	0.0848 (1)	0.0020	8382544
Total Ammonia (N)	mg/L	0.072	0.0050	8382582	0.15	0.0050	8382586	0.030	0.0050	8387833
Nitrate plus Nitrite (N)	mg/L	<0.0020 (1)	0.0020	8382434	0.122 (1)	0.0020	8382434	0.0079 (1)	0.0020	8382434
Nitrite (N)	mg/L	<0.0020 (1)	0.0020	8382439	<0.0020 (1)	0.0020	8382439	0.0037 (1)	0.0020	8382439
Total Phosphorus (P)	mg/L	0.0058 (1)	0.0020	8382549	0.984 (2)	0.020	8382547	0.0881 (1)	0.0020	8382547
<b>Physical Properties</b>										
Conductivity	uS/cm	389	1.0	8381855	276	1.0	8381855	295	1.0	8381855
pH	pH	7.99		8381854	8.00		8381854	8.00		8381854
<b>Physical Properties</b>										
Total Suspended Solids	mg/L	11.7	1.0	8383131	5380	1.0	8383131	707	1.0	8383131
RDL = Reportable Detection Limit N/A = Not Applicable (1) Sample analysed past recommended hold time. (2) Detection limits raised due to dilution to bring analyte within the calibrated range. Sample analysed past recommended hold time.										

Maxxam Job #: B673793  
Report Date: 2016/09/07

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PJ7713		PJ7714			PJ7715		
Sampling Date		2016/08/25 12:30		2016/08/25 13:20			2016/08/25 14:41		
COC Number		08426814		08426814			08426814		
	UNITS	MW15-04S	RDL	MW15-05D	RDL	QC Batch	MW15-08S	RDL	QC Batch
<b>Calculated Parameters</b>									
Anion Sum	meq/L	2.5	N/A	4.1	N/A	8381005	4.2	N/A	8381005
Cation Sum	meq/L	2.6	N/A	4.3	N/A	8381005	4.2	N/A	8381005
Filter and HNO3 Preservation	N/A	FIELD	N/A	FIELD	N/A	ONSITE	FIELD	N/A	ONSITE
Ion Balance	N/A	1.0	0.010	1.0	0.010	8379973	1.0	0.010	8379973
Nitrate (N)	mg/L	0.216	0.0020	0.236	0.0020	8380400	0.276	0.0020	8380400
<b>Misc. Inorganics</b>									
Fluoride (F)	mg/L	0.084	0.010	0.120	0.010	8382387	0.086	0.010	8382387
Dissolved Organic Carbon (C)	mg/L	0.77	0.50	1.06	0.50	8383021	0.97	0.50	8383021
Acidity (pH 4.5)	mg/L	<0.50	0.50	<0.50	0.50	8381806	<0.50	0.50	8381806
Alkalinity (Total as CaCO3)	mg/L	113	0.50	172	0.50	8381849	179	0.50	8381885
Acidity (pH 8.3)	mg/L	<0.50	0.50	1.75	0.50	8381806	1.96	0.50	8381806
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	<0.50	0.50	8381849	<0.50	0.50	8381885
Bicarbonate (HCO3)	mg/L	138	0.50	210	0.50	8381849	218	0.50	8381885
Carbonate (CO3)	mg/L	<0.50	0.50	<0.50	0.50	8381849	<0.50	0.50	8381885
Hydroxide (OH)	mg/L	<0.50	0.50	<0.50	0.50	8381849	<0.50	0.50	8381885
<b>Anions</b>									
Dissolved Sulphate (SO4)	mg/L	9.55	0.50	29.4	0.50	8384760	26.6	0.50	8384760
Dissolved Chloride (Cl)	mg/L	1.1	0.50	1.1	0.50	8384766	1.1	0.50	8384766
<b>Nutrients</b>									
Dissolved Phosphorus (P)	mg/L	0.0838 (1)	0.0020	0.0218 (1)	0.0020	8382544	0.518 (2)	0.020	8382544
Total Ammonia (N)	mg/L	0.021	0.0050	0.013	0.0050	8382583	0.097	0.0050	8382582
Nitrate plus Nitrite (N)	mg/L	0.216 (1)	0.0020	0.236 (1)	0.0020	8382434	0.276 (1)	0.0020	8382434
Nitrite (N)	mg/L	<0.0020 (1)	0.0020	<0.0020 (1)	0.0020	8382439	<0.0020 (1)	0.0020	8382439
Total Phosphorus (P)	mg/L	0.0926 (1)	0.0020	0.0247 (1)	0.0020	8382547	0.505 (2)	0.020	8382547
<b>Physical Properties</b>									
Conductivity	uS/cm	236	1.0	389	1.0	8381855	380	1.0	8381889
pH	pH	8.05		7.92		8381854	8.20		8381888
RDL = Reportable Detection Limit N/A = Not Applicable (1) Sample analysed past recommended hold time. (2) Detection limits raised due to dilution to bring analyte within the calibrated range. Sample analysed past recommended hold time.									

Maxxam Job #: B673793  
Report Date: 2016/09/07

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PJ7713		PJ7714			PJ7715		
Sampling Date		2016/08/25 12:30		2016/08/25 13:20			2016/08/25 14:41		
COC Number		08426814		08426814			08426814		
	UNITS	MW15-04S	RDL	MW15-05D	RDL	QC Batch	MW15-08S	RDL	QC Batch
<b>Physical Properties</b>									
Total Suspended Solids	mg/L	2100 (1)	10	83.3	1.0	8383131	8100 (1)	20	8383131
RDL = Reportable Detection Limit (1) RDL raised due to high concentration of solids in the sample.									



Maxxam Job #: B673793  
Report Date: 2016/09/07

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PJ7716		PJ7717		PJ7718		
Sampling Date		2016/08/25 16:39		2016/08/25 17:35		2016/08/25		
COC Number		08426814		08426814		08426814		
	UNITS	MW15-07S	QC Batch	MW15-07D	QC Batch	DUP2	RDL	QC Batch
<b>Calculated Parameters</b>								
Anion Sum	meq/L	4.1	8381005	4.3	8381005	3.1	N/A	8381005
Cation Sum	meq/L	4.5	8381005	4.5	8381005	3.2	N/A	8381005
Filter and HNO3 Preservation	N/A	FIELD	ONSITE	FIELD	ONSITE	FIELD	N/A	ONSITE
Ion Balance	N/A	1.1	8379973	1.1	8379973	1.0	0.010	8379973
Nitrate (N)	mg/L	0.0020	8380400	<0.0020	8380400	<0.0020	0.0020	8380400
<b>Misc. Inorganics</b>								
Fluoride (F)	mg/L	0.290	8382387	0.330	8382397	0.220	0.010	8382397
Dissolved Organic Carbon (C)	mg/L	0.78	8383021	1.11	8383021	<0.50	0.50	8383021
Acidity (pH 4.5)	mg/L	<0.50	8381806	<0.50	8381806	<0.50	0.50	8381806
Alkalinity (Total as CaCO3)	mg/L	170	8381849	182	8381849	134	0.50	8381849
Acidity (pH 8.3)	mg/L	1.09	8381806	1.93	8381806	1.07	0.50	8381806
Alkalinity (PP as CaCO3)	mg/L	<0.50	8381849	<0.50	8381849	<0.50	0.50	8381849
Bicarbonate (HCO3)	mg/L	208	8381849	222	8381849	163	0.50	8381849
Carbonate (CO3)	mg/L	<0.50	8381849	<0.50	8381849	<0.50	0.50	8381849
Hydroxide (OH)	mg/L	<0.50	8381849	<0.50	8381849	<0.50	0.50	8381849
<b>Anions</b>								
Dissolved Sulphate (SO4)	mg/L	32.7	8384760	29.8	8384760	19.5	0.50	8384760
Dissolved Chloride (Cl)	mg/L	1.0	8384766	1.1	8384766	0.59	0.50	8384766
<b>Nutrients</b>								
Dissolved Phosphorus (P)	mg/L	0.0035 (1)	8382544	0.0042 (1)	8382544	0.126 (1)	0.0020	8382544
Total Ammonia (N)	mg/L	0.039	8382582	0.053	8382583	0.032	0.0050	8387833
Nitrate plus Nitrite (N)	mg/L	0.0020 (1)	8382434	<0.0020 (1)	8382434	0.0054 (1)	0.0020	8382434
Nitrite (N)	mg/L	<0.0020 (1)	8382439	<0.0020 (1)	8382439	0.0056 (1)	0.0020	8382439
Total Phosphorus (P)	mg/L	0.0028 (1)	8382547	0.0042 (1)	8382547	0.142 (1)	0.0020	8382547
<b>Physical Properties</b>								
Conductivity	uS/cm	387	8381855	399	8381855	296	1.0	8381855
pH	pH	7.98	8381854	7.99	8381854	8.04		8381854
<b>Physical Properties</b>								
Total Suspended Solids	mg/L	4.0	8383131	3.8	8383131	822 (2)	1.0	8387041
RDL = Reportable Detection Limit N/A = Not Applicable (1) Sample analysed past recommended hold time. (2) Sample was originally analysed within hold time. Data quality required investigation. Re-analysis was completed past recommended hold time.								

Maxxam Job #: B673793  
Report Date: 2016/09/07

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PJ7710	PJ7711	PJ7712	PJ7713	PJ7714		
Sampling Date		2016/08/25 10:05	2016/08/25 10:35	2016/08/25 11:58	2016/08/25 12:30	2016/08/25 13:20		
COC Number		08426814	08426814	08426814	08426814	08426814		
	UNITS	MW15-03D	MW15-03S	MW15-04D	MW15-04S	MW15-05D	RDL	QC Batch

Misc. Inorganics								
Dissolved Hardness (CaCO3)	mg/L	216	137	151	126	209	0.50	8379972

Elements								
Dissolved Mercury (Hg)	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000020	8383380

Dissolved Metals by ICPMS								
Dissolved Aluminum (Al)	mg/L	0.00370	0.00298	0.00246	0.00377	0.00197	0.00050	8383192
Dissolved Antimony (Sb)	mg/L	0.000061	0.000022	0.000026	<0.000020	<0.000020	0.000020	8383192
Dissolved Arsenic (As)	mg/L	0.00217	0.000174	0.00171	0.000183	0.000057	0.000020	8383192
Dissolved Barium (Ba)	mg/L	0.0477	0.0425	0.0477	0.0712	0.0417	0.000020	8383192
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000010	8383192
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8383192
Dissolved Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	8383192
Dissolved Cadmium (Cd)	mg/L	<0.0000050	0.0000120	0.0000070	<0.0000050	0.0000540	0.0000050	8383192
Dissolved Chromium (Cr)	mg/L	<0.00010	0.00016	<0.00010	0.00028	<0.00010	0.00010	8383192
Dissolved Cobalt (Co)	mg/L	0.0000540	0.0000810	0.000267	0.0000060	0.0000340	0.0000050	8383192
Dissolved Copper (Cu)	mg/L	0.00162	0.000362	0.000083	0.000249	0.000132	0.000050	8383192
Dissolved Iron (Fe)	mg/L	0.773	0.0031	0.213	0.0012	0.0044	0.0010	8383192
Dissolved Lead (Pb)	mg/L	<0.0000050	0.0000070	0.0000120	<0.0000050	0.0000610	0.0000050	8383192
Dissolved Lithium (Li)	mg/L	0.00612	0.00082	0.00056	<0.00050	0.00166	0.00050	8383192
Dissolved Manganese (Mn)	mg/L	0.0580	0.0223	0.190	0.000546	0.00543	0.000050	8383192
Dissolved Molybdenum (Mo)	mg/L	0.00325	0.00294	0.00170	0.00121 (1)	0.000846	0.000050	8383192
Dissolved Nickel (Ni)	mg/L	0.000768	0.000838	0.000347	0.000100	0.000196	0.000020	8383192
Dissolved Phosphorus (P)	mg/L	0.0051	0.0037	0.0058	0.0037	0.0038	0.0020	8383192
Dissolved Selenium (Se)	mg/L	<0.000040	0.000257	<0.000040	0.000777	0.00167	0.000040	8383192
Dissolved Silicon (Si)	mg/L	4.42	2.65	2.58	2.89	2.33	0.050	8383192
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8383192
Dissolved Strontium (Sr)	mg/L	0.250	0.147	0.201	0.153	0.257	0.000050	8383192
Dissolved Thallium (Tl)	mg/L	<0.0000020	0.0000030	<0.0000020	<0.0000020	<0.0000020	0.0000020	8383192
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8383192
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	8383192
Dissolved Uranium (U)	mg/L	0.00256	0.000692	0.000816	0.000582	0.00191	0.0000020	8383192
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8383192

RDL = Reportable Detection Limit  
(1) Dissolved greater than total. Reanalysis yields similar results.

Maxxam Job #: B673793  
Report Date: 2016/09/07

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PJ7710	PJ7711	PJ7712	PJ7713	PJ7714		
Sampling Date		2016/08/25 10:05	2016/08/25 10:35	2016/08/25 11:58	2016/08/25 12:30	2016/08/25 13:20		
COC Number		08426814	08426814	08426814	08426814	08426814		
	UNITS	MW15-03D	MW15-03S	MW15-04D	MW15-04S	MW15-05D	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	0.00047	0.00046	0.00155	0.00045	0.00296	0.00010	8383192
Dissolved Zirconium (Zr)	mg/L	0.00073	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	8383192
Dissolved Calcium (Ca)	mg/L	58.3	46.9	50.7	44.5	70.9	0.050	8380541
Dissolved Magnesium (Mg)	mg/L	17.1	4.90	5.97	3.63	7.79	0.050	8380541
Dissolved Potassium (K)	mg/L	2.44	1.09	2.22	1.24	1.55	0.050	8380541
Dissolved Sodium (Na)	mg/L	1.92	1.39	1.87	1.02	1.42	0.050	8380541
Dissolved Sulphur (S)	mg/L	7.6	3.8	6.9	3.2	9.9	3.0	8380541
RDL = Reportable Detection Limit								

Maxxam Job #: B673793  
Report Date: 2016/09/07

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PJ7715	PJ7716	PJ7717	PJ7718		
Sampling Date		2016/08/25 14:41	2016/08/25 16:39	2016/08/25 17:35	2016/08/25		
COC Number		08426814	08426814	08426814	08426814		
	UNITS	MW15-08S	MW15-07S	MW15-07D	DUP2	RDL	QC Batch
<b>Misc. Inorganics</b>							
Dissolved Hardness (CaCO3)	mg/L	206	215	214	153	0.50	8379972
<b>Elements</b>							
Dissolved Mercury (Hg)	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	0.000020	8383380
<b>Dissolved Metals by ICPMS</b>							
Dissolved Aluminum (Al)	mg/L	0.00394	0.00168	0.00693	0.00147	0.00050	8383192
Dissolved Antimony (Sb)	mg/L	0.000048	<0.000020	<0.000020	<0.000020	0.000020	8383192
Dissolved Arsenic (As)	mg/L	0.000271	0.00160	0.000023	0.00167	0.000020	8383192
Dissolved Barium (Ba)	mg/L	0.0811	0.0312	0.0366	0.0474	0.000020	8383192
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	0.000010	8383192
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8383192
Dissolved Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	0.010	8383192
Dissolved Cadmium (Cd)	mg/L	0.000124	<0.0000050	<0.0000050	0.0000050	0.0000050	8383192
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	8383192
Dissolved Cobalt (Co)	mg/L	0.000158	0.0000490	0.0000050	0.000249	0.0000050	8383192
Dissolved Copper (Cu)	mg/L	0.000639	0.000091	0.000128	0.000060	0.000050	8383192
Dissolved Iron (Fe)	mg/L	0.0045	0.467	0.450	0.243	0.0010	8383192
Dissolved Lead (Pb)	mg/L	0.000117	0.0000130	0.0000830	0.0000090	0.0000050	8383192
Dissolved Lithium (Li)	mg/L	0.00151	0.00623	0.0109	0.00106	0.00050	8383192
Dissolved Manganese (Mn)	mg/L	0.00164	0.151	0.0534	0.190	0.000050	8383192
Dissolved Molybdenum (Mo)	mg/L	0.00207 (1)	0.000210	0.000050	0.00177	0.000050	8383192
Dissolved Nickel (Ni)	mg/L	0.00135	0.000084	0.000022	0.000314	0.000020	8383192
Dissolved Phosphorus (P)	mg/L	<0.0020	<0.0020	0.0036	0.0072	0.0020	8383192
Dissolved Selenium (Se)	mg/L	0.00175	<0.000040	<0.000040	<0.000040	0.000040	8383192
Dissolved Silicon (Si)	mg/L	3.06	6.12	7.19	2.62	0.050	8383192
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8383192
Dissolved Strontium (Sr)	mg/L	0.221	0.257	0.300	0.206	0.000050	8383192
Dissolved Thallium (Tl)	mg/L	0.0000050	<0.0000020	<0.0000020	<0.0000020	0.0000020	8383192
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8383192
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	8383192
Dissolved Uranium (U)	mg/L	0.00240	0.00171	0.00106	0.000832	0.0000020	8383192
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8383192
RDL = Reportable Detection Limit							
(1) Dissolved greater than total. Reanalysis yields similar results.							

Maxxam Job #: B673793  
Report Date: 2016/09/07

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PJ7715	PJ7716	PJ7717	PJ7718		
Sampling Date		2016/08/25 14:41	2016/08/25 16:39	2016/08/25 17:35	2016/08/25		
COC Number		08426814	08426814	08426814	08426814		
	UNITS	MW15-08S	MW15-07S	MW15-07D	DUP2	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	0.00307	0.00131	0.00119	0.00048	0.00010	8383192
Dissolved Zirconium (Zr)	mg/L	<0.00010	<0.00010	0.00010	<0.00010	0.00010	8383192
Dissolved Calcium (Ca)	mg/L	71.4	67.4	62.1	51.4	0.050	8380541
Dissolved Magnesium (Mg)	mg/L	6.69	11.2	14.4	5.87	0.050	8380541
Dissolved Potassium (K)	mg/L	1.36	1.35	1.53	2.30	0.050	8380541
Dissolved Sodium (Na)	mg/L	1.36	3.92	4.49	2.04	0.050	8380541
Dissolved Sulphur (S)	mg/L	8.7	11.7	10.6	6.7	3.0	8380541
RDL = Reportable Detection Limit							

Maxxam Job #: B673793  
Report Date: 2016/09/07

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		PJ7710	PJ7716	PJ7717		
Sampling Date		2016/08/25 10:05	2016/08/25 16:39	2016/08/25 17:35		
COC Number		08426814	08426814	08426814		
	UNITS	MW15-03D	MW15-07S	MW15-07D	RDL	QC Batch
<b>Calculated Parameters</b>						
Total Hardness (CaCO3)	mg/L	210	206	232	0.50	8380319
<b>Elements</b>						
Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	0.0000020	8383357
<b>Total Metals by ICPMS</b>						
Total Aluminum (Al)	mg/L	0.0400	0.0134	0.0178	0.00050	8383429
Total Antimony (Sb)	mg/L	0.000075	<0.000020	<0.000020	0.000020	8383429
Total Arsenic (As)	mg/L	0.00218	0.00164	<0.000020	0.000020	8383429
Total Barium (Ba)	mg/L	0.0457	0.0318	0.0374	0.000020	8383429
Total Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	0.000010	8383429
Total Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	0.0000050	8383429
Total Boron (B)	mg/L	<0.010	<0.010	<0.010	0.010	8383429
Total Cadmium (Cd)	mg/L	<0.0000050	<0.0000050	<0.0000050	0.0000050	8383429
Total Chromium (Cr)	mg/L	0.00027	0.00017	0.00010	0.00010	8383429
Total Cobalt (Co)	mg/L	0.0000840	0.0000770	0.0000180	0.0000050	8383429
Total Copper (Cu)	mg/L	0.000281	0.00542	0.00276	0.000050	8383429
Total Iron (Fe)	mg/L	0.918	0.557	0.546	0.0010	8383429
Total Lead (Pb)	mg/L	0.0000940	0.000267	0.000179	0.0000050	8383429
Total Lithium (Li)	mg/L	0.00608	0.00650	0.0112	0.00050	8383429
Total Manganese (Mn)	mg/L	0.0594	0.150	0.0589	0.000050	8383429
Total Molybdenum (Mo)	mg/L	0.00319	0.000213	0.000067	0.000050	8383429
Total Nickel (Ni)	mg/L	0.000284	0.000185	0.000055	0.000020	8383429
Total Phosphorus (P)	mg/L	0.0048	0.0046	<0.0020	0.0020	8383429
Total Selenium (Se)	mg/L	<0.000040	<0.000040	<0.000040	0.000040	8383429
Total Silicon (Si)	mg/L	4.43	6.15	7.74	0.050	8383429
Total Silver (Ag)	mg/L	0.0000160	<0.0000050	<0.0000050	0.0000050	8383429
Total Strontium (Sr)	mg/L	0.241	0.258	0.329	0.000050	8383429
Total Thallium (Tl)	mg/L	<0.0000020	<0.0000020	<0.0000020	0.0000020	8383429
Total Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	0.00020	8383429
Total Titanium (Ti)	mg/L	0.00189	0.00109	0.00334	0.00050	8383429
Total Uranium (U)	mg/L	0.00254	0.00173	0.00111	0.0000020	8383429
Total Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	0.00020	8383429
Total Zinc (Zn)	mg/L	0.00134	0.00401	0.00331	0.00010	8383429
RDL = Reportable Detection Limit						

Maxxam Job #: B673793  
Report Date: 2016/09/07

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		PJ7710	PJ7716	PJ7717		
Sampling Date		2016/08/25 10:05	2016/08/25 16:39	2016/08/25 17:35		
COC Number		08426814	08426814	08426814		
	UNITS	MW15-03D	MW15-07S	MW15-07D	RDL	QC Batch
Total Zirconium (Zr)	mg/L	0.00096	0.00014	0.00023	0.00010	8383429
Total Calcium (Ca)	mg/L	56.3	64.4	67.2	0.050	8380543
Total Magnesium (Mg)	mg/L	16.8	11.1	15.6	0.050	8380543
Total Potassium (K)	mg/L	2.35	1.31	1.58	0.050	8380543
Total Sodium (Na)	mg/L	1.83	3.68	4.59	0.050	8380543
Total Sulphur (S)	mg/L	7.7	11.8	11.6	3.0	8380543
RDL = Reportable Detection Limit						

Maxxam Job #: B673793  
Report Date: 2016/09/07

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PJ7711	PJ7712	PJ7713	PJ7714	PJ7715		
Sampling Date		2016/08/25 10:35	2016/08/25 11:58	2016/08/25 12:30	2016/08/25 13:20	2016/08/25 14:41		
COC Number		08426814	08426814	08426814	08426814	08426814		
	UNITS	MW15-03S	MW15-04D	MW15-04S	MW15-05D	MW15-08S	RDL	QC Batch
<b>Calculated Parameters</b>								
Total Hardness (CaCO3)	mg/L	319	230	221	219	412	0.50	8380319
<b>Elements</b>								
Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	0.0000022	<0.0000020	<0.0000020	0.0000020	8383357
<b>Total Metals by ICPMS</b>								
Total Aluminum (Al)	mg/L	22.8	3.49	23.8	0.782	34.4	0.0030	8383496
Total Antimony (Sb)	mg/L	0.000456	0.000053	0.000173	0.000026	0.000324	0.000020	8383496
Total Arsenic (As)	mg/L	0.0295	0.0123	0.0244	0.000716	0.0229	0.000020	8383496
Total Barium (Ba)	mg/L	0.413	0.134	0.475	0.0539	1.07	0.000050	8383496
Total Beryllium (Be)	mg/L	0.00109	0.000344	0.000590	0.000117	0.00107	0.000010	8383496
Total Bismuth (Bi)	mg/L	0.000591	0.000098	0.000581	0.000031	0.000718	0.000010	8383496
Total Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	8383496
Total Cadmium (Cd)	mg/L	0.00191	0.000358	0.000886	0.000139	0.00446	0.0000050	8383496
Total Chromium (Cr)	mg/L	0.111	0.0144	0.0623	0.00074	0.0963	0.00010	8383496
Total Cobalt (Co)	mg/L	0.0367	0.00976	0.0348	0.000578	0.0635	0.000010	8383496
Total Copper (Cu)	mg/L	0.169	0.0204	0.108	0.00342	0.305	0.00010	8383496
Total Iron (Fe)	mg/L	67.2	8.30	51.8	1.00	82.7	0.0050	8383496
Total Lead (Pb)	mg/L	0.0725	0.00842	0.0488	0.00664	0.259	0.000020	8383496
Total Lithium (Li)	mg/L	0.0295	0.00356	0.0155	0.00195	0.0307	0.00050	8383496
Total Manganese (Mn)	mg/L	1.98	0.483	1.37	0.0394	1.34	0.00010	8383496
Total Molybdenum (Mo)	mg/L	0.00619	0.00148	0.000925	0.000754	0.00124	0.000050	8383496
Total Nickel (Ni)	mg/L	0.117	0.0232	0.0674	0.00087	0.128	0.00010	8383496
Total Phosphorus (P)	mg/L	3.72	0.394	1.08	0.0144	1.73	0.0050	8383496
Total Selenium (Se)	mg/L	0.000531	0.000182	0.000817	0.00184	0.00240	0.000040	8383496
Total Silicon (Si)	mg/L	32.7	8.13	34.0	3.67	44.7	0.050	8383496
Total Silver (Ag)	mg/L	0.0140	0.000145	0.00410	0.000079	0.00576	0.000010	8383496
Total Strontium (Sr)	mg/L	0.351	0.319	0.228	0.268	0.405	0.000050	8383496
Total Thallium (Tl)	mg/L	0.000479	0.0000500	0.000469	0.0000100	0.000567	0.0000020	8383496
Total Tin (Sn)	mg/L	0.00128	0.00027	0.00046	<0.00020	0.00063	0.00020	8383496
Total Titanium (Ti)	mg/L	1.20	0.0541	1.17	0.0182	1.47	0.0020	8383496
Total Uranium (U)	mg/L	0.00326	0.00190	0.00171	0.00211	0.00511	0.0000050	8383496
Total Vanadium (V)	mg/L	0.0853	0.00589	0.0940	0.00082	0.158	0.00020	8383496
Total Zinc (Zn)	mg/L	0.252	0.0329	0.182	0.0101	0.878	0.0010	8383496
RDL = Reportable Detection Limit								



Maxxam Job #: B673793  
Report Date: 2016/09/07

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PJ7711	PJ7712	PJ7713	PJ7714	PJ7715		
Sampling Date		2016/08/25 10:35	2016/08/25 11:58	2016/08/25 12:30	2016/08/25 13:20	2016/08/25 14:41		
COC Number		08426814	08426814	08426814	08426814	08426814		
	UNITS	MW15-03S	MW15-04D	MW15-04S	MW15-05D	MW15-08S	RDL	QC Batch
Total Zirconium (Zr)	mg/L	0.00211	0.00085	0.00676	0.00058	0.00327	0.00010	8383496
Total Calcium (Ca)	mg/L	91.1	79.9	56.4	74.7	110	0.25	8380543
Total Magnesium (Mg)	mg/L	22.3	7.50	19.5	7.78	33.2	0.25	8380543
Total Potassium (K)	mg/L	6.71	2.85	7.23	1.64	7.81	0.25	8380543
Total Sodium (Na)	mg/L	1.99	2.21	1.06	1.37	1.68	0.25	8380543
Total Sulphur (S)	mg/L	4.4	7.0	<3.0	10.1	8.3	3.0	8380543
RDL = Reportable Detection Limit								

Maxxam Job #: B673793  
Report Date: 2016/09/07

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PJ7718		
Sampling Date		2016/08/25		
COC Number		08426814		
	UNITS	DUP2	RDL	QC Batch
<b>Calculated Parameters</b>				
Total Hardness (CaCO3)	mg/L	226	0.50	8380319
<b>Elements</b>				
Total Mercury (Hg)	mg/L	<0.0000020	0.0000020	8383357
<b>Total Metals by ICPMS</b>				
Total Aluminum (Al)	mg/L	3.27	0.0030	8383496
Total Antimony (Sb)	mg/L	0.000047	0.000020	8383496
Total Arsenic (As)	mg/L	0.0137	0.000020	8383496
Total Barium (Ba)	mg/L	0.134	0.000050	8383496
Total Beryllium (Be)	mg/L	0.000300	0.000010	8383496
Total Bismuth (Bi)	mg/L	0.000115	0.000010	8383496
Total Boron (B)	mg/L	<0.010	0.010	8383496
Total Cadmium (Cd)	mg/L	0.000401	0.0000050	8383496
Total Chromium (Cr)	mg/L	0.0123	0.00010	8383496
Total Cobalt (Co)	mg/L	0.00973	0.000010	8383496
Total Copper (Cu)	mg/L	0.0201	0.00010	8383496
Total Iron (Fe)	mg/L	8.14	0.0050	8383496
Total Lead (Pb)	mg/L	0.00842	0.000020	8383496
Total Lithium (Li)	mg/L	0.00371	0.00050	8383496
Total Manganese (Mn)	mg/L	0.501	0.00010	8383496
Total Molybdenum (Mo)	mg/L	0.00162	0.000050	8383496
Total Nickel (Ni)	mg/L	0.0205	0.00010	8383496
Total Phosphorus (P)	mg/L	0.492	0.0050	8383496
Total Selenium (Se)	mg/L	0.000203	0.000040	8383496
Total Silicon (Si)	mg/L	7.30	0.050	8383496
Total Silver (Ag)	mg/L	0.000336	0.000010	8383496
Total Strontium (Sr)	mg/L	0.336	0.000050	8383496
Total Thallium (Tl)	mg/L	0.0000470	0.0000020	8383496
Total Tin (Sn)	mg/L	0.00023	0.00020	8383496
Total Titanium (Ti)	mg/L	0.0461	0.0020	8383496
Total Uranium (U)	mg/L	0.00183	0.0000050	8383496
Total Vanadium (V)	mg/L	0.00546	0.00020	8383496
Total Zinc (Zn)	mg/L	0.0291	0.0010	8383496
RDL = Reportable Detection Limit				

Maxxam Job #: B673793  
Report Date: 2016/09/07

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

<b>Maxxam ID</b>		PJ7718		
<b>Sampling Date</b>		2016/08/25		
<b>COC Number</b>		08426814		
	<b>UNITS</b>	<b>DUP2</b>	<b>RDL</b>	<b>QC Batch</b>
Total Zirconium (Zr)	mg/L	0.00099	0.00010	8383496
Total Calcium (Ca)	mg/L	78.0	0.25	8380543
Total Magnesium (Mg)	mg/L	7.48	0.25	8380543
Total Potassium (K)	mg/L	2.78	0.25	8380543
Total Sodium (Na)	mg/L	2.03	0.25	8380543
Total Sulphur (S)	mg/L	7.0	3.0	8380543
RDL = Reportable Detection Limit				

Maxxam Job #: B673793  
Report Date: 2016/09/07

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** PJ7710  
**Sample ID:** MW15-03D  
**Matrix:** Water

**Collected:** 2016/08/25  
**Shipped:**  
**Received:** 2016/08/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8381806	N/A	2016/08/30	Maria Maclean
Alkalinity - Water	AT/ALK	8381849	2016/08/30	2016/08/30	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8384766	N/A	2016/08/31	Diana Cruz
Carbon (DOC) - field filtered/preserved	TRAA/COL	8383021	N/A	2016/08/30	Isabel Choi
Conductance - water	AT/ALK	8381855	N/A	2016/08/30	Wilson Au Yueng
Fluoride	ISE/ISE	8382387	N/A	2016/08/30	Isaac Wang
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8380319	N/A	2016/09/01	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8379972	N/A	2016/09/01	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8383380	N/A	2016/08/31	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8383357	2016/08/31	2016/08/31	Edwin Lamigo
Ion Balance	CALC	8379973	N/A	2016/09/01	Automated Statchk
Sum of cations, anions	CALC	8381005	N/A	2016/09/01	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8380541	N/A	2016/09/01	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8383192	N/A	2016/08/31	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8380543	N/A	2016/09/01	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8383429	N/A	2016/08/31	Andrew An
Ammonia-N (Preserved)	KONE/COL	8382582	N/A	2016/08/31	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8382434	N/A	2016/08/30	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8382439	N/A	2016/08/30	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8380400	N/A	2016/08/31	Automated Statchk
Filter and HNO <sub>3</sub> Preserve for Metals	ICP	ONSITE	N/A	2016/08/29	Terry Shore
pH Water	AT/ALK	8381854	N/A	2016/08/30	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8384760	N/A	2016/08/31	Diana Cruz
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8382544	2016/08/30	2016/08/30	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8382549	N/A	2016/08/30	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8383131	2016/08/31	2016/08/31	Coco Guo

**Maxxam ID:** PJ7710 Dup  
**Sample ID:** MW15-03D  
**Matrix:** Water

**Collected:** 2016/08/25  
**Shipped:**  
**Received:** 2016/08/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8381806	N/A	2016/08/30	Maria Maclean
Alkalinity - Water	AT/ALK	8381849	2016/08/30	2016/08/30	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8384766	N/A	2016/08/31	Diana Cruz
Conductance - water	AT/ALK	8381855	N/A	2016/08/30	Wilson Au Yueng
Fluoride	ISE/ISE	8382387	N/A	2016/08/30	Isaac Wang
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8383380	N/A	2016/08/31	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8383357	2016/08/31	2016/08/31	Edwin Lamigo
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8383192	N/A	2016/08/31	Andrew An
Nitrate+Nitrite (N) (low level)	TRAA/COL	8382434	N/A	2016/08/30	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8382439	N/A	2016/08/30	Isaac Wang
pH Water	AT/ALK	8381854	N/A	2016/08/30	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8384760	N/A	2016/08/31	Diana Cruz
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8382544	2016/08/30	2016/08/30	Diana Cruz

Maxxam Job #: B673793  
Report Date: 2016/09/07

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** PJ7710 Dup  
**Sample ID:** MW15-03D  
**Matrix:** Water

**Collected:** 2016/08/25  
**Shipped:**  
**Received:** 2016/08/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Phosphorus - unpreserved	KONE/COL	8382549	N/A	2016/08/30	Diana Cruz

**Maxxam ID:** PJ7711  
**Sample ID:** MW15-03S  
**Matrix:** Water

**Collected:** 2016/08/25  
**Shipped:**  
**Received:** 2016/08/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8381806	N/A	2016/08/30	Maria Maclean
Alkalinity - Water	AT/ALK	8381849	2016/08/30	2016/08/30	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8384766	N/A	2016/08/31	Diana Cruz
Carbon (DOC) - field filtered/preserved	TRAA/COL	8383021	N/A	2016/08/30	Isabel Choi
Conductance - water	AT/ALK	8381855	N/A	2016/08/30	Wilson Au Yueng
Fluoride	ISE/ISE	8382387	N/A	2016/08/30	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8380319	N/A	2016/09/01	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8379972	N/A	2016/09/01	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8383380	N/A	2016/08/31	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8383357	2016/08/31	2016/08/31	Edwin Lamigo
Ion Balance	CALC	8379973	N/A	2016/09/01	Automated Statchk
Sum of cations, anions	CALC	8381005	N/A	2016/09/01	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8380541	N/A	2016/09/01	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8383192	N/A	2016/08/31	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8383496	2016/08/31	2016/08/31	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8380543	N/A	2016/09/01	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8382586	N/A	2016/08/31	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8382434	N/A	2016/08/30	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8382439	N/A	2016/08/30	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8380400	N/A	2016/08/31	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2016/08/29	Terry Shore
pH Water	AT/ALK	8381854	N/A	2016/08/30	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8384760	N/A	2016/08/31	Diana Cruz
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8382544	2016/08/30	2016/08/30	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8382547	N/A	2016/08/30	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8383131	2016/08/31	2016/08/31	Coco Guo

**Maxxam ID:** PJ7712  
**Sample ID:** MW15-04D  
**Matrix:** Water

**Collected:** 2016/08/25  
**Shipped:**  
**Received:** 2016/08/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8381806	N/A	2016/08/30	Maria Maclean
Alkalinity - Water	AT/ALK	8381849	2016/08/30	2016/08/30	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8384766	N/A	2016/08/31	Diana Cruz
Carbon (DOC) - field filtered/preserved	TRAA/COL	8383021	N/A	2016/08/30	Isabel Choi
Conductance - water	AT/ALK	8381855	N/A	2016/08/30	Wilson Au Yueng
Fluoride	ISE/ISE	8382387	N/A	2016/08/30	Isaac Wang

Maxxam Job #: B673793  
Report Date: 2016/09/07

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** PJ7712  
**Sample ID:** MW15-04D  
**Matrix:** Water

**Collected:** 2016/08/25  
**Shipped:**  
**Received:** 2016/08/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hardness Total (calculated as CaCO3)	CALC	8380319	N/A	2016/09/01	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8379972	N/A	2016/09/01	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8383380	N/A	2016/08/31	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8383357	2016/08/31	2016/08/31	Edwin Lamigo
Ion Balance	CALC	8379973	N/A	2016/09/01	Automated Statchk
Sum of cations, anions	CALC	8381005	N/A	2016/09/01	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8380541	N/A	2016/09/01	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8383192	N/A	2016/08/31	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8383496	2016/08/31	2016/09/01	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8380543	N/A	2016/09/01	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8387833	N/A	2016/09/06	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8382434	N/A	2016/08/30	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8382439	N/A	2016/08/30	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8380400	N/A	2016/08/31	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2016/08/29	Terry Shore
pH Water	AT/ALK	8381854	N/A	2016/08/30	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8384760	N/A	2016/08/31	Diana Cruz
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8382544	2016/08/30	2016/08/30	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8382547	N/A	2016/08/30	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8383131	2016/08/31	2016/08/31	Coco Guo

**Maxxam ID:** PJ7713  
**Sample ID:** MW15-04S  
**Matrix:** Water

**Collected:** 2016/08/25  
**Shipped:**  
**Received:** 2016/08/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8381806	N/A	2016/08/30	Maria Maclean
Alkalinity - Water	AT/ALK	8381849	2016/08/30	2016/08/30	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8384766	N/A	2016/08/31	Diana Cruz
Carbon (DOC) - field filtered/preserved	TRAA/COL	8383021	N/A	2016/08/30	Isabel Choi
Conductance - water	AT/ALK	8381855	N/A	2016/08/30	Wilson Au Yueng
Fluoride	ISE/ISE	8382387	N/A	2016/08/30	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8380319	N/A	2016/09/01	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8379972	N/A	2016/09/01	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8383380	N/A	2016/08/31	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8383357	2016/08/31	2016/08/31	Edwin Lamigo
Ion Balance	CALC	8379973	N/A	2016/09/01	Automated Statchk
Sum of cations, anions	CALC	8381005	N/A	2016/09/01	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8380541	N/A	2016/09/01	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8383192	N/A	2016/08/31	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8383496	2016/08/31	2016/08/31	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8380543	N/A	2016/09/01	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8382583	N/A	2016/08/31	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8382434	N/A	2016/08/30	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8382439	N/A	2016/08/30	Isaac Wang

Maxxam Job #: B673793  
Report Date: 2016/09/07

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**TEST SUMMARY**

**Maxxam ID:** PJ7713  
**Sample ID:** MW15-04S  
**Matrix:** Water

**Collected:** 2016/08/25  
**Shipped:**  
**Received:** 2016/08/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrogen - Nitrate (as N)	CALC	8380400	N/A	2016/08/31	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2016/08/29	Terry Shore
pH Water	AT/ALK	8381854	N/A	2016/08/30	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8384760	N/A	2016/08/31	Diana Cruz
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8382544	2016/08/30	2016/08/30	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8382547	N/A	2016/08/30	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8383131	2016/08/31	2016/08/31	Coco Guo

**Maxxam ID:** PJ7714  
**Sample ID:** MW15-05D  
**Matrix:** Water

**Collected:** 2016/08/25  
**Shipped:**  
**Received:** 2016/08/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8381806	N/A	2016/08/30	Maria Maclean
Alkalinity - Water	AT/ALK	8381849	2016/08/30	2016/08/30	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8384766	N/A	2016/08/31	Diana Cruz
Carbon (DOC) - field filtered/preserved	TRAA/COL	8383021	N/A	2016/08/30	Isabel Choi
Conductance - water	AT/ALK	8381855	N/A	2016/08/30	Wilson Au Yueng
Fluoride	ISE/ISE	8382387	N/A	2016/08/30	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8380319	N/A	2016/09/01	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8379972	N/A	2016/09/01	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8383380	N/A	2016/08/31	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8383357	2016/08/31	2016/08/31	Edwin Lamigo
Ion Balance	CALC	8379973	N/A	2016/09/01	Automated Statchk
Sum of cations, anions	CALC	8381005	N/A	2016/09/01	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8380541	N/A	2016/09/01	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8383192	N/A	2016/08/31	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8383496	2016/08/31	2016/09/01	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8380543	N/A	2016/09/01	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8382583	N/A	2016/08/31	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8382434	N/A	2016/08/30	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8382439	N/A	2016/08/30	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8380400	N/A	2016/08/31	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2016/08/29	Terry Shore
pH Water	AT/ALK	8381854	N/A	2016/08/30	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8384760	N/A	2016/08/31	Diana Cruz
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8382544	2016/08/30	2016/08/30	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8382547	N/A	2016/08/30	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8383131	2016/08/31	2016/08/31	Coco Guo



Maxxam Job #: B673793  
Report Date: 2016/09/07

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** PJ7715  
**Sample ID:** MW15-08S  
**Matrix:** Water

**Collected:** 2016/08/25  
**Shipped:**  
**Received:** 2016/08/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8381806	N/A	2016/08/30	Maria Maclean
Alkalinity - Water	AT/ALK	8381885	2016/08/30	2016/08/31	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8384766	N/A	2016/08/31	Diana Cruz
Carbon (DOC) - field filtered/preserved	TRAA/COL	8383021	N/A	2016/08/30	Isabel Choi
Conductance - water	AT/ALK	8381889	N/A	2016/08/31	Wilson Au Yueng
Fluoride	ISE/ISE	8382387	N/A	2016/08/30	Isaac Wang
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8380319	N/A	2016/09/01	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8379972	N/A	2016/09/01	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8383380	N/A	2016/08/31	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8383357	2016/08/31	2016/08/31	Edwin Lamigo
Ion Balance	CALC	8379973	N/A	2016/09/01	Automated Statchk
Sum of cations, anions	CALC	8381005	N/A	2016/09/01	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8380541	N/A	2016/09/01	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8383192	N/A	2016/08/31	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8383496	2016/08/31	2016/08/31	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8380543	N/A	2016/09/01	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8382582	N/A	2016/08/31	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8382434	N/A	2016/08/30	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8382439	N/A	2016/08/30	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8380400	N/A	2016/08/31	Automated Statchk
Filter and HNO <sub>3</sub> Preserve for Metals	ICP	ONSITE	N/A	2016/08/29	Terry Shore
pH Water	AT/ALK	8381888	N/A	2016/08/30	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8384760	N/A	2016/08/31	Diana Cruz
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8382544	2016/08/30	2016/08/30	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8382547	N/A	2016/08/30	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8383131	2016/08/31	2016/08/31	Coco Guo

**Maxxam ID:** PJ7716  
**Sample ID:** MW15-07S  
**Matrix:** Water

**Collected:** 2016/08/25  
**Shipped:**  
**Received:** 2016/08/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8381806	N/A	2016/08/30	Maria Maclean
Alkalinity - Water	AT/ALK	8381849	2016/08/30	2016/08/30	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8384766	N/A	2016/08/31	Diana Cruz
Carbon (DOC) - field filtered/preserved	TRAA/COL	8383021	N/A	2016/08/30	Isabel Choi
Conductance - water	AT/ALK	8381855	N/A	2016/08/30	Wilson Au Yueng
Fluoride	ISE/ISE	8382387	N/A	2016/08/30	Isaac Wang
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8380319	N/A	2016/09/01	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8379972	N/A	2016/09/01	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8383380	N/A	2016/08/31	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8383357	2016/08/31	2016/08/31	Edwin Lamigo
Ion Balance	CALC	8379973	N/A	2016/09/01	Automated Statchk
Sum of cations, anions	CALC	8381005	N/A	2016/09/01	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8380541	N/A	2016/09/01	Automated Statchk



Maxxam Job #: B673793  
Report Date: 2016/09/07

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** PJ7716  
**Sample ID:** MW15-07S  
**Matrix:** Water

**Collected:** 2016/08/25  
**Shipped:**  
**Received:** 2016/08/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8383192	N/A	2016/08/31	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8380543	N/A	2016/09/01	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8383429	N/A	2016/08/31	Andrew An
Ammonia-N (Preserved)	KONE/COL	8382582	N/A	2016/08/31	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8382434	N/A	2016/08/30	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8382439	N/A	2016/08/30	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8380400	N/A	2016/08/31	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2016/08/29	Terry Shore
pH Water	AT/ALK	8381854	N/A	2016/08/30	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8384760	N/A	2016/08/31	Diana Cruz
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8382544	2016/08/30	2016/08/30	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8382547	N/A	2016/08/30	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8383131	2016/08/31	2016/08/31	Coco Guo

**Maxxam ID:** PJ7717  
**Sample ID:** MW15-07D  
**Matrix:** Water

**Collected:** 2016/08/25  
**Shipped:**  
**Received:** 2016/08/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8381806	N/A	2016/08/30	Maria Maclean
Alkalinity - Water	AT/ALK	8381849	2016/08/30	2016/08/30	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8384766	N/A	2016/08/31	Diana Cruz
Carbon (DOC) - field filtered/preserved	TRAA/COL	8383021	N/A	2016/08/30	Isabel Choi
Conductance - water	AT/ALK	8381855	N/A	2016/08/30	Wilson Au Yueng
Fluoride	ISE/ISE	8382397	N/A	2016/08/30	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8380319	N/A	2016/09/01	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8379972	N/A	2016/09/01	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8383380	N/A	2016/08/31	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8383357	2016/08/31	2016/08/31	Edwin Lamigo
Ion Balance	CALC	8379973	N/A	2016/09/01	Automated Statchk
Sum of cations, anions	CALC	8381005	N/A	2016/09/01	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8380541	N/A	2016/09/01	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8383192	N/A	2016/08/31	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8380543	N/A	2016/09/01	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8383429	N/A	2016/08/31	Andrew An
Ammonia-N (Preserved)	KONE/COL	8382583	N/A	2016/08/31	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8382434	N/A	2016/08/30	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8382439	N/A	2016/08/30	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8380400	N/A	2016/08/31	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2016/08/29	Terry Shore
pH Water	AT/ALK	8381854	N/A	2016/08/30	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8384760	N/A	2016/08/31	Diana Cruz
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8382544	2016/08/30	2016/08/30	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8382547	N/A	2016/08/30	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8383131	2016/08/31	2016/08/31	Coco Guo

Maxxam Job #: B673793  
Report Date: 2016/09/07

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**TEST SUMMARY**

**Maxxam ID:** PJ7718  
**Sample ID:** DUP2  
**Matrix:** Water

**Collected:** 2016/08/25  
**Shipped:**  
**Received:** 2016/08/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8381806	N/A	2016/08/30	Maria Maclean
Alkalinity - Water	AT/ALK	8381849	2016/08/30	2016/08/30	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8384766	N/A	2016/08/31	Diana Cruz
Carbon (DOC) - field filtered/preserved	TRAA/COL	8383021	N/A	2016/08/30	Isabel Choi
Conductance - water	AT/ALK	8381855	N/A	2016/08/30	Wilson Au Yueng
Fluoride	ISE/ISE	8382397	N/A	2016/08/30	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8380319	N/A	2016/09/01	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8379972	N/A	2016/09/01	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8383380	N/A	2016/08/31	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8383357	2016/08/31	2016/08/31	Edwin Lamigo
Ion Balance	CALC	8379973	N/A	2016/09/01	Automated Statchk
Sum of cations, anions	CALC	8381005	N/A	2016/09/01	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8380541	N/A	2016/09/01	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8383192	N/A	2016/08/31	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8383496	2016/08/31	2016/09/01	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8380543	N/A	2016/09/01	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8387833	N/A	2016/09/06	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8382434	N/A	2016/08/30	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8382439	N/A	2016/08/30	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8380400	N/A	2016/08/31	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2016/08/29	Terry Shore
pH Water	AT/ALK	8381854	N/A	2016/08/30	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8384760	N/A	2016/08/31	Diana Cruz
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8382544	2016/08/30	2016/08/30	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8382547	N/A	2016/08/30	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8387041	2016/09/03	2016/09/06	Wendy Fong

**Maxxam ID:** PJ7718 Dup  
**Sample ID:** DUP2  
**Matrix:** Water

**Collected:** 2016/08/25  
**Shipped:**  
**Received:** 2016/08/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbon (DOC) - field filtered/preserved	TRAA/COL	8383021	N/A	2016/08/30	Isabel Choi

Maxxam Job #: B673793  
Report Date: 2016/09/07

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	6.0°C
Package 2	7.7°C
Package 3	7.0°C
Package 4	7.0°C

Sample PJ7711-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PJ7712-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PJ7713-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PJ7714-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PJ7715-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PJ7718-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

**Results relate only to the items tested.**

Maxxam Job #: B673793  
Report Date: 2016/09/07

**QUALITY ASSURANCE REPORT**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8381806	Acidity (pH 4.5)	2016/08/30					<0.50	mg/L	NC	20
8381806	Acidity (pH 8.3)	2016/08/30			99	80 - 120	<0.50	mg/L	NC	20
8381849	Alkalinity (PP as CaCO3)	2016/08/30					<0.50	mg/L	NC	20
8381849	Alkalinity (Total as CaCO3)	2016/08/30	104	80 - 120	90	80 - 120	<0.50	mg/L	1.1	20
8381849	Bicarbonate (HCO3)	2016/08/30					<0.50	mg/L	1.1	20
8381849	Carbonate (CO3)	2016/08/30					<0.50	mg/L	NC	20
8381849	Hydroxide (OH)	2016/08/30					<0.50	mg/L	NC	20
8381854	pH	2016/08/30			102	97 - 103			0	N/A
8381855	Conductivity	2016/08/30			99	80 - 120	<1.0	uS/cm	0.26	20
8381885	Alkalinity (PP as CaCO3)	2016/08/31					<0.50	mg/L	NC	20
8381885	Alkalinity (Total as CaCO3)	2016/08/31	NC	80 - 120	97	80 - 120	<0.50	mg/L	1.5	20
8381885	Bicarbonate (HCO3)	2016/08/31					<0.50	mg/L	1.5	20
8381885	Carbonate (CO3)	2016/08/31					<0.50	mg/L	NC	20
8381885	Hydroxide (OH)	2016/08/31					<0.50	mg/L	NC	20
8381888	pH	2016/08/31			102	97 - 103			0	N/A
8381889	Conductivity	2016/08/31			101	80 - 120	<1.0	uS/cm	0.15	20
8382387	Fluoride (F)	2016/08/30			100	80 - 120	0.012, RDL=0.010	mg/L	6.5	20
8382397	Fluoride (F)	2016/08/30	98	80 - 120	102	80 - 120	0.011, RDL=0.010	mg/L	NC	20
8382434	Nitrate plus Nitrite (N)	2016/08/30	106	80 - 120	99	80 - 120	<0.0020	mg/L	NC	25
8382439	Nitrite (N)	2016/08/30	98	80 - 120	94	80 - 120	<0.0020	mg/L	NC	25
8382544	Dissolved Phosphorus (P)	2016/08/30	88	80 - 120	90	80 - 120	<0.0020	mg/L	NC	20
8382547	Total Phosphorus (P)	2016/08/30			87	80 - 120	<0.0020	mg/L		
8382549	Total Phosphorus (P)	2016/08/30	81	80 - 120	110	80 - 120	<0.0020	mg/L	NC	20
8382582	Total Ammonia (N)	2016/08/31	NC	80 - 120	98	80 - 120	<0.0050	mg/L	0.075	20
8382583	Total Ammonia (N)	2016/08/31	NC	80 - 120	100	80 - 120	<0.0050	mg/L	1.3	20
8382586	Total Ammonia (N)	2016/08/31	NC	80 - 120	101	80 - 120	<0.0050	mg/L	0.87	20
8383021	Dissolved Organic Carbon (C)	2016/08/30	104	80 - 120	106	80 - 120	<0.50	mg/L	NC	20
8383131	Total Suspended Solids	2016/08/31			101	80 - 120	<1.0	mg/L		
8383192	Dissolved Aluminum (Al)	2016/08/31	99	80 - 120	102	80 - 120	<0.00050	mg/L	9.6	20
8383192	Dissolved Antimony (Sb)	2016/08/31	104	80 - 120	99	80 - 120	<0.000020	mg/L	NC	20

Maxxam Job #: B673793  
Report Date: 2016/09/07

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8383192	Dissolved Arsenic (As)	2016/08/31	104	80 - 120	100	80 - 120	<0.000020	mg/L	1.4	20
8383192	Dissolved Barium (Ba)	2016/08/31	NC	80 - 120	106	80 - 120	<0.000020	mg/L	1.9	20
8383192	Dissolved Beryllium (Be)	2016/08/31	105	80 - 120	102	80 - 120	<0.000010	mg/L	NC	20
8383192	Dissolved Bismuth (Bi)	2016/08/31	98	80 - 120	98	80 - 120	<0.0000050	mg/L	NC	20
8383192	Dissolved Boron (B)	2016/08/31	99	80 - 120	98	80 - 120	<0.010	mg/L	NC	20
8383192	Dissolved Cadmium (Cd)	2016/08/31	96	80 - 120	96	80 - 120	<0.0000050	mg/L	NC	20
8383192	Dissolved Chromium (Cr)	2016/08/31	105	80 - 120	103	80 - 120	<0.00010	mg/L	NC	20
8383192	Dissolved Cobalt (Co)	2016/08/31	103	80 - 120	105	80 - 120	<0.0000050	mg/L	1.8	20
8383192	Dissolved Copper (Cu)	2016/08/31	103	80 - 120	104	80 - 120	<0.000050	mg/L	5.7	20
8383192	Dissolved Iron (Fe)	2016/08/31	NC	80 - 120	109	80 - 120	<0.0010	mg/L	1.1	20
8383192	Dissolved Lead (Pb)	2016/08/31	100	80 - 120	99	80 - 120	<0.0000050	mg/L	NC	20
8383192	Dissolved Lithium (Li)	2016/08/31	NC	80 - 120	98	80 - 120	<0.00050	mg/L	5.9	20
8383192	Dissolved Manganese (Mn)	2016/08/31	NC	80 - 120	103	80 - 120	<0.000050	mg/L	0.45	20
8383192	Dissolved Molybdenum (Mo)	2016/08/31	NC	80 - 120	104	80 - 120	<0.000050	mg/L	4.2	20
8383192	Dissolved Nickel (Ni)	2016/08/31	96	80 - 120	105	80 - 120	<0.000020	mg/L	4.2	20
8383192	Dissolved Phosphorus (P)	2016/08/31					<0.0020	mg/L	NC	20
8383192	Dissolved Selenium (Se)	2016/08/31	105	80 - 120	100	80 - 120	<0.000040	mg/L	NC	20
8383192	Dissolved Silicon (Si)	2016/08/31					<0.050	mg/L	2.9	20
8383192	Dissolved Silver (Ag)	2016/08/31	102	80 - 120	92	80 - 120	<0.0000050	mg/L	NC	20
8383192	Dissolved Strontium (Sr)	2016/08/31	NC	80 - 120	95	80 - 120	<0.000050	mg/L	1.6	20
8383192	Dissolved Thallium (Tl)	2016/08/31	98	80 - 120	95	80 - 120	<0.0000020	mg/L	NC	20
8383192	Dissolved Tin (Sn)	2016/08/31	105	80 - 120	103	80 - 120	<0.00020	mg/L	NC	20
8383192	Dissolved Titanium (Ti)	2016/08/31	108	80 - 120	104	80 - 120	<0.00050	mg/L	NC	20
8383192	Dissolved Uranium (U)	2016/08/31	102	80 - 120	99	80 - 120	<0.0000020	mg/L	1.3	20
8383192	Dissolved Vanadium (V)	2016/08/31	104	80 - 120	102	80 - 120	<0.00020	mg/L	NC	20
8383192	Dissolved Zinc (Zn)	2016/08/31	109	80 - 120	101	80 - 120	<0.00010	mg/L	NC	20
8383192	Dissolved Zirconium (Zr)	2016/08/31					<0.00010	mg/L	5.3	20
8383357	Total Mercury (Hg)	2016/08/31	89	80 - 120	95	80 - 120	<0.0000020	mg/L	NC	20
8383380	Dissolved Mercury (Hg)	2016/08/31	92	80 - 120	95	80 - 120	<0.0000020	mg/L	NC	20
8383429	Total Aluminum (Al)	2016/09/01	94	80 - 120	100	80 - 120	<0.00050	mg/L	2.4	20
8383429	Total Antimony (Sb)	2016/09/01	98	80 - 120	99	80 - 120	<0.000020	mg/L	NC	20

Maxxam Job #: B673793  
Report Date: 2016/09/07

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8383429	Total Arsenic (As)	2016/09/01	96	80 - 120	98	80 - 120	<0.000020	mg/L	0.26	20
8383429	Total Barium (Ba)	2016/09/01	NC	80 - 120	102	80 - 120	<0.000020	mg/L	0.65	20
8383429	Total Beryllium (Be)	2016/09/01	98	80 - 120	95	80 - 120	<0.000010	mg/L	NC	20
8383429	Total Bismuth (Bi)	2016/09/01	97	80 - 120	101	80 - 120	<0.0000050	mg/L	NC	20
8383429	Total Boron (B)	2016/09/01	92	80 - 120	93	80 - 120	<0.010	mg/L	NC	20
8383429	Total Cadmium (Cd)	2016/09/01	93	80 - 120	95	80 - 120	<0.0000050	mg/L	NC	20
8383429	Total Chromium (Cr)	2016/09/01	100	80 - 120	105	80 - 120	<0.00010	mg/L	NC	20
8383429	Total Cobalt (Co)	2016/09/01	100	80 - 120	105	80 - 120	<0.0000050	mg/L	NC	20
8383429	Total Copper (Cu)	2016/09/01	98	80 - 120	105	80 - 120	<0.000050	mg/L	0	20
8383429	Total Iron (Fe)	2016/09/01	NC	80 - 120	110	80 - 120	<0.0010	mg/L	3.4	20
8383429	Total Lead (Pb)	2016/09/01	98	80 - 120	104	80 - 120	<0.0000050	mg/L	3.8	20
8383429	Total Lithium (Li)	2016/09/01	92	80 - 120	88	80 - 120	<0.00050	mg/L	NC	20
8383429	Total Manganese (Mn)	2016/09/01	NC	80 - 120	102	80 - 120	<0.000050	mg/L	0.56	20
8383429	Total Molybdenum (Mo)	2016/09/01	NC	80 - 120	102	80 - 120	<0.000050	mg/L	2.8	20
8383429	Total Nickel (Ni)	2016/09/01	100	80 - 120	103	80 - 120	<0.000020	mg/L	2.3	20
8383429	Total Phosphorus (P)	2016/09/01					<0.0020	mg/L	3.0	20
8383429	Total Selenium (Se)	2016/09/01	96	80 - 120	99	80 - 120	<0.000040	mg/L	9.3	20
8383429	Total Silicon (Si)	2016/09/01					<0.050	mg/L	2.9	20
8383429	Total Silver (Ag)	2016/09/01	102	80 - 120	102	80 - 120	<0.0000050	mg/L	NC	20
8383429	Total Strontium (Sr)	2016/09/01	NC	80 - 120	96	80 - 120	<0.000050	mg/L	0.53	20
8383429	Total Thallium (Tl)	2016/09/01	95	80 - 120	101	80 - 120	<0.0000020	mg/L	NC	20
8383429	Total Tin (Sn)	2016/09/01	100	80 - 120	102	80 - 120	<0.00020	mg/L	NC	20
8383429	Total Titanium (Ti)	2016/09/01	94	80 - 120	104	80 - 120	<0.00050	mg/L	NC	20
8383429	Total Uranium (U)	2016/09/01	99	80 - 120	104	80 - 120	<0.0000020	mg/L	3.4	20
8383429	Total Vanadium (V)	2016/09/01	101	80 - 120	101	80 - 120	<0.00020	mg/L	NC	20
8383429	Total Zinc (Zn)	2016/09/01	104	80 - 120	102	80 - 120	<0.00010	mg/L	0.82	20
8383429	Total Zirconium (Zr)	2016/09/01					<0.00010	mg/L	NC	20
8383496	Total Aluminum (Al)	2016/09/02	NC	80 - 120	106	80 - 120	<0.0030	mg/L	2.7	20
8383496	Total Antimony (Sb)	2016/09/02	108	80 - 120	105	80 - 120	<0.000020	mg/L	7.0	20
8383496	Total Arsenic (As)	2016/09/02	106	80 - 120	105	80 - 120	<0.000020	mg/L	3.0	20
8383496	Total Barium (Ba)	2016/09/02	NC	80 - 120	108	80 - 120	<0.000050	mg/L	0.50	20

Maxxam Job #: B673793  
Report Date: 2016/09/07

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8383496	Total Beryllium (Be)	2016/09/02	104	80 - 120	101	80 - 120	<0.000010	mg/L	NC	20
8383496	Total Bismuth (Bi)	2016/09/02	100	80 - 120	102	80 - 120	<0.000010	mg/L	NC	20
8383496	Total Boron (B)	2016/09/02	103	80 - 120	98	80 - 120	<0.010	mg/L	NC	20
8383496	Total Cadmium (Cd)	2016/09/02	102	80 - 120	100	80 - 120	<0.0000050	mg/L	4.3	20
8383496	Total Chromium (Cr)	2016/09/02	106	80 - 120	108	80 - 120	<0.00010	mg/L	NC	20
8383496	Total Cobalt (Co)	2016/09/02	103	80 - 120	108	80 - 120	<0.000010	mg/L	0	20
8383496	Total Copper (Cu)	2016/09/02	100	80 - 120	111	80 - 120	<0.00010	mg/L	1.6	20
8383496	Total Iron (Fe)	2016/09/02	NC	80 - 120	113	80 - 120	<0.0050	mg/L	1.1	20
8383496	Total Lead (Pb)	2016/09/02	102	80 - 120	101	80 - 120	<0.000020	mg/L	1.4	20
8383496	Total Lithium (Li)	2016/09/02	NC	80 - 120	100	80 - 120	<0.00050	mg/L	11	20
8383496	Total Manganese (Mn)	2016/09/02	NC	80 - 120	107	80 - 120	<0.00010	mg/L	1.2	20
8383496	Total Molybdenum (Mo)	2016/09/02	NC	80 - 120	103	80 - 120	<0.000050	mg/L	1.5	20
8383496	Total Nickel (Ni)	2016/09/02	100	80 - 120	107	80 - 120	<0.00010	mg/L	3.6	20
8383496	Total Phosphorus (P)	2016/09/02					<0.0050	mg/L	NC	20
8383496	Total Selenium (Se)	2016/09/02	107	80 - 120	106	80 - 120	<0.000040	mg/L	NC	20
8383496	Total Silicon (Si)	2016/09/02					<0.050	mg/L	0.54	20
8383496	Total Silver (Ag)	2016/09/02	114	80 - 120	106	80 - 120	<0.000010	mg/L	8.3	20
8383496	Total Strontium (Sr)	2016/09/02	NC	80 - 120	103	80 - 120	<0.000050	mg/L	0.40	20
8383496	Total Thallium (Tl)	2016/09/02	101	80 - 120	96	80 - 120	<0.0000020	mg/L	NC	20
8383496	Total Tin (Sn)	2016/09/02	99	80 - 120	106	80 - 120	<0.00020	mg/L	NC	20
8383496	Total Titanium (Ti)	2016/09/02	92	80 - 120	105	80 - 120	<0.0020	mg/L	NC	20
8383496	Total Uranium (U)	2016/09/02	NC	80 - 120	99	80 - 120	<0.0000050	mg/L	1.4	20
8383496	Total Vanadium (V)	2016/09/02	107	80 - 120	107	80 - 120	<0.00020	mg/L	NC	20
8383496	Total Zinc (Zn)	2016/09/02	101	80 - 120	111	80 - 120	<0.0010	mg/L	NC	20
8383496	Total Zirconium (Zr)	2016/09/02					<0.00010	mg/L	4.7	20
8384760	Dissolved Sulphate (SO4)	2016/08/31	NC	80 - 120	100	80 - 120	<0.50	mg/L	0.66	20
8384766	Dissolved Chloride (Cl)	2016/08/31	94	80 - 120	106	80 - 120	0.76, RDL=0.50	mg/L	NC	20
8387041	Total Suspended Solids	2016/09/06			102	80 - 120	<1.0	mg/L		

Maxxam Job #: B673793  
Report Date: 2016/09/07

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8387833	Total Ammonia (N)	2016/09/06	NC	80 - 120	103	80 - 120	<0.0050	mg/L	2.7	20

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).



Maxxam Job #: B673793  
Report Date: 2016/09/07

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



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David Huang, M.Sc., P.Chem., QP, Scientific Services Manager

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: <b>BMC MINERALS LTD.</b>	Company Name: <b>ALEXCO ENVIRONMENTAL</b>	Quotation #: <b>B60751</b>	<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses)
Contact Name:	Contact Name: <b>KAI WOLOSHYN</b>	P.O. #/ AFE#:	<b>PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS</b>
Address: <b>530-1130 WEST PENDER ST</b> Vancouver, BC PC: V6E 4A4	Address: <b>UNIT 3 151 INDUSTRIAL RD</b> Whitehorse, YK PC: V1A 2V3	Project #: <b>BMC-16-01</b>	<b>Rush TAT (Surcharges will be applied)</b>
Phone:	Phone: <b>(867) 668-6463</b>	Site Location: <b>Kudz Ze Kayah</b>	<input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days
Email:	Email: <b>kwoloshyn@alexcoresource.com</b>	Site #:	<input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days
		Sampled By:	Date Required:

Regulatory Criteria	Special Instructions	Analysis Requested	Rush Confirmation #:
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> BC CSR Water <input type="checkbox"/> CCME (Specify) <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC Water Quality	<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify) <b>Also send report to:</b> lfougere@accessconsulting.ca rsnpeiss@accessconsulting.ca	TOTAL LOW LEVEL METALS INCL. MERCURY DISSOLVED LOW LEVEL METALS INCL. MERCURY LOW LEVEL TSS ANIONS (Cl, F, SO4, NO2, NO3) AMMONIA CONDUCTIVITY pH ALKALINITY & ACIDITY DOC TOTAL PHOSPHORUS - LOW LEVEL DISSOLVED PHOSPHORUS - LOW LEVEL	LABORATORY USE ONLY CUSTODY SEAL V / (N) Present Intact COOLER TEMPERATURES COOLING MEDIA PRESENT COMMENTS

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	TOTAL LOW LEVEL METALS INCL. MERCURY	DISSOLVED LOW LEVEL METALS INCL. MERCURY	LOW LEVEL TSS	ANIONS (Cl, F, SO4, NO2, NO3)	AMMONIA	CONDUCTIVITY	pH	ALKALINITY & ACIDITY	DOC	TOTAL PHOSPHORUS - LOW LEVEL	DISSOLVED PHOSPHORUS - LOW LEVEL	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE
1	MW15-03D	25-Aug-16	10:05	Water	X	X	X	X	X	X	X	X	X	X	X		
2	MW15-03S	25-Aug-16	10:35	Water	X	X	X	X	X	X	X	X	X	X	X		
3	MW15-04D	25-Aug-16	11:58	Water	X	X	X	X	X	X	X	X	X	X	X		
4	MW15-04S	25-Aug-16	12:30	Water	X	X	X	X	X	X	X	X	X	X	X		
5	MW15-05D	25-Aug-16	13:20	Water	X	X	X	X	X	X	X	X	X	X	X		
6	MW15-08S	25-Aug-16	14:41	Water	X	X	X	X	X	X	X	X	X	X	X		
7	MW15-07S	25-Aug-16	16:39	Water	X	X	X	X	X	X	X	X	X	X	X		
8	MW15-07D	25-Aug-16	17:35	Water	X	X	X	X	X	X	X	X	X	X	X		
9	DUP2	25-Aug-16		Water	X	X	X	X	X	X	X	X	X	X	X		
10																	

RECEIVED IN WHITEHORSE  
 Br. *kyom@1630*  
 2016-08-26  
 TEMP: 5.77°C

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)
			<i>Laurel Bernier</i>	2016/08/29	10:05



B673793\_COC

Your Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Your C.O.C. #: 08426813

**Attention: KAI WOLOSHYN**

ALEXCO ENVIRONMENTAL GROUP INC.  
Unit 3 Calcite Business Centre  
151 Industrial Road  
WHITEHORSE, YT  
Canada Y1A 2V3

**Report Date: 2016/09/02**  
Report #: R2252997  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B673795**

**Received: 2016/08/26, 16:30**

Sample Matrix: Water  
# Samples Received: 10

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Acidity pH 4.5 & pH 8.3 (as CaCO3)	10	N/A	2016/08/30	BBY6SOP-00037	SM 22 2310 B m
Alkalinity - Water	10	2016/08/30	2016/08/30	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry	10	N/A	2016/08/31	BBY6SOP-00011	SM 22 4500-Cl- E m
Carbon (DOC) - field filtered/preserved (1)	10	N/A	2016/08/30	BBY6SOP-00003	SM 22 5310 C m
Conductance - water	10	N/A	2016/08/30	BBY6SOP-00026	SM 22 2510 B m
Fluoride	10	N/A	2016/08/30	BBY6SOP-00048	SM 22 4500-F C m
Hardness Total (calculated as CaCO3)	10	N/A	2016/09/01	BBY WI-00033	Auto Calc
Hardness (calculated as CaCO3)	10	N/A	2016/09/01	BBY WI-00033	Auto Calc
Mercury (Dissolved-LowLevel) by CVAf	10	N/A	2016/08/31	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total-LowLevel) by CVAf	10	2016/08/31	2016/08/31	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Ion Balance	10	N/A	2016/09/01	BBY WI-00033	Auto Calc
Sum of cations, anions	10	N/A	2016/09/01	Calc	
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	10	N/A	2016/09/01	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Low Level (dissolved)	6	N/A	2016/08/31	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Low Level (dissolved)	4	N/A	2016/09/01	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Digested LL (total)	2	2016/08/31	2016/08/31	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Elements by ICPMS Digested LL (total)	5	2016/08/31	2016/09/01	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Elements by ICPMS Digested LL (total)	1	2016/08/31	2016/09/02	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Na, K, Ca, Mg, S by CRC ICPMS (total)	10	N/A	2016/09/01	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Elements by ICPMS Low Level (total)	1	N/A	2016/08/31	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Elements by ICPMS Low Level (total)	1	N/A	2016/09/01	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Ammonia-N (Preserved)	10	N/A	2016/08/31	BBY6SOP-00009	SM 22 4500-NH3- G m
Nitrate+Nitrite (N) (low level)	10	N/A	2016/08/30	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) (low level)	10	N/A	2016/08/30	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N)	10	N/A	2016/08/31	BBY6SOP-00010	SM 22 4500-NO3- I m
Filter and HNO3 Preserve for Metals	5	N/A	2016/08/31	BBY7 WI-00004	BCMOE Reqs 08/14
Filter and HNO3 Preserve for Metals	5	N/A	2016/09/01	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (2)	10	N/A	2016/08/30	BBY6SOP-00026	SM 22 4500-H+ B m
Sulphate by Automated Colourimetry	10	N/A	2016/08/31	BBY6SOP-00017	SM 22 4500-SO42- E m

Your Project #: BMC-16-01  
 Site Location: KUDZ ZE KAYAH  
 Your C.O.C. #: 08426813

**Attention: KAI WOLOSHYN**

ALEXCO ENVIRONMENTAL GROUP INC.  
 Unit 3 Calcite Business Centre  
 151 Industrial Road  
 WHITEHORSE, YT  
 Canada Y1A 2V3

**Report Date: 2016/09/02**  
 Report #: R2252997  
 Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B673795**

**Received: 2016/08/26, 16:30**

Sample Matrix: Water  
 # Samples Received: 10

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
Phosphorus-P (LL Tot, dissolved) - UF/UP	10	2016/08/30	2016/08/30	BBY6SOP-00013	SM 22 4500-P E m
Total Phosphorus - unpreserved	10	N/A	2016/08/30	BBY6SOP-00013	SM 22 4500-P E m
Total Suspended Solids-Low Level	10	2016/08/30	2016/08/31	BBY6SOP-00034	SM 22 2540 D

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) DOC present in the sample should be considered as non-purgeable DOC.

(2) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

**Encryption Key**

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Megan Smith, Project Manager

Email: msmith@maxxam.ca

Phone# (604) 734 7276

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B673795  
Report Date: 2016/09/02

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PJ7720		PJ7721		PJ7722		
Sampling Date		2016/08/23 14:37		2016/08/23 15:45		2016/08/23 16:30		
COC Number		08426813		08426813		08426813		
	<b>UNITS</b>	<b>BH95G-29</b>	<b>QC Batch</b>	<b>MW16-15D</b>	<b>QC Batch</b>	<b>MW16-15S</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>								
Anion Sum	meq/L	4.6	8381005	4.0	8381005	2.6	N/A	8381005
Cation Sum	meq/L	4.9	8381005	4.2	8381005	2.7	N/A	8381005
Filter and HNO3 Preservation	N/A	FIELD	ONSITE	FIELD	ONSITE	FIELD	N/A	ONSITE
Ion Balance	N/A	1.1	8379973	1.0	8379973	1.0	0.010	8379973
Nitrate (N)	mg/L	<0.0020	8380400	0.0033	8380400	0.362	0.0020	8380400
<b>Misc. Inorganics</b>								
Fluoride (F)	mg/L	0.120	8382399	0.120	8382397	0.055	0.010	8382397
Dissolved Organic Carbon (C)	mg/L	1.78	8383023	0.55	8383021	1.55	0.50	8383021
Acidity (pH 4.5)	mg/L	<0.50	8381809	<0.50	8381809	<0.50	0.50	8381809
Alkalinity (Total as CaCO3)	mg/L	181	8381862	129	8381862	84.5	0.50	8381862
Acidity (pH 8.3)	mg/L	1.55	8381809	0.55	8381809	7.66	0.50	8381809
Alkalinity (PP as CaCO3)	mg/L	<0.50	8381862	<0.50	8381862	<0.50	0.50	8381862
Bicarbonate (HCO3)	mg/L	221	8381862	158	8381862	103	0.50	8381862
Carbonate (CO3)	mg/L	<0.50	8381862	<0.50	8381862	<0.50	0.50	8381862
Hydroxide (OH)	mg/L	<0.50	8381862	<0.50	8381862	<0.50	0.50	8381862
<b>Anions</b>								
Dissolved Sulphate (SO4)	mg/L	45.8	8384770	66.8	8384770	43.0	0.50	8384770
Dissolved Chloride (Cl)	mg/L	0.94	8384768	0.59	8384768	0.96	0.50	8384768
<b>Nutrients</b>								
Dissolved Phosphorus (P)	mg/L	1.36 (1)	8382544	0.567 (1)	8382544	0.641 (1)	0.020	8382544
Total Ammonia (N)	mg/L	0.060	8382583	0.054	8382583	0.024	0.0050	8382583
Nitrate plus Nitrite (N)	mg/L	<0.0020 (2)	8382444	0.0033 (2)	8382444	0.362 (2)	0.0020	8382444
Nitrite (N)	mg/L	<0.0020 (2)	8382452	<0.0020 (2)	8382452	<0.0020 (2)	0.0020	8382452
Total Phosphorus (P)	mg/L	1.41 (1)	8382549	0.577 (1)	8382549	0.688 (1)	0.020	8382547
<b>Physical Properties</b>								
Conductivity	uS/cm	441	8381867	385	8381867	266	1.0	8381867
pH	pH	7.98	8381865	8.06	8381865	7.51		8381865
<b>Physical Properties</b>								
Total Suspended Solids	mg/L	887	8381739	1300	8381739	7430	1.0	8381739
RDL = Reportable Detection Limit N/A = Not Applicable (1) Detection limits raised due to dilution to bring analyte within the calibrated range. Sample analysed past recommended hold time. (2) Sample analysed past recommended hold time.								

Maxxam Job #: B673795  
Report Date: 2016/09/02

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PJ7723		PJ7724		PJ7725		PJ7726		
Sampling Date		2016/08/23 17:15		2016/08/24 09:45		2016/08/24 10:11		2016/08/24 13:05		
COC Number		08426813		08426813		08426813		08426813		
	UNITS	BH95G-21	QC Batch	MW15-11D	QC Batch	MW15-11S	QC Batch	MW15-02	RDL	QC Batch
<b>Calculated Parameters</b>										
Anion Sum	meq/L	4.3	8381005	6.1	8381005	6.3	8381005	5.1	N/A	8381005
Cation Sum	meq/L	4.5	8381005	6.3	8381005	6.6	8381005	5.1	N/A	8381005
Filter and HNO3 Preservation	N/A	FIELD	ONSITE	FIELD	ONSITE	FIELD	ONSITE	FIELD	N/A	ONSITE
Ion Balance	N/A	1.0	8379973	1.0	8379973	1.1	8379973	0.99	0.010	8379973
Nitrate (N)	mg/L	<0.0020	8380400	0.0025	8380400	0.0024	8380400	0.212	0.0020	8380400
<b>Misc. Inorganics</b>										
Fluoride (F)	mg/L	0.095	8382399	0.160	8382397	0.160	8382399	0.089	0.010	8382397
Dissolved Organic Carbon (C)	mg/L	1.35	8383021	3.06	8383021	2.41	8383021	0.76	0.50	8383021
Acidity (pH 4.5)	mg/L	<0.50	8381809	<0.50	8381809	<0.50	8381809	<0.50	0.50	8381809
Alkalinity (Total as CaCO3)	mg/L	165	8381862	235	8381862	245	8381862	195	0.50	8381862
Acidity (pH 8.3)	mg/L	1.11	8381809	7.39	8381809	3.90	8381809	1.94	0.50	8381809
Alkalinity (PP as CaCO3)	mg/L	<0.50	8381862	<0.50	8381862	<0.50	8381862	<0.50	0.50	8381862
Bicarbonate (HCO3)	mg/L	201	8381862	286	8381862	298	8381862	238	0.50	8381862
Carbonate (CO3)	mg/L	<0.50	8381862	<0.50	8381862	<0.50	8381862	<0.50	0.50	8381862
Hydroxide (OH)	mg/L	<0.50	8381862	<0.50	8381862	<0.50	8381862	<0.50	0.50	8381862
<b>Anions</b>										
Dissolved Sulphate (SO4)	mg/L	46.9	8384770	65.9	8384770	65.1	8384770	57.8	0.50	8384770
Dissolved Chloride (Cl)	mg/L	0.88	8384768	1.3	8384768	1.2	8384768	0.74	0.50	8384768
<b>Nutrients</b>										
Dissolved Phosphorus (P)	mg/L	0.393 (1)	8382544	0.0351 (1)	8382544	0.0132 (1)	8382544	<0.0020 (1)	0.0020	8382544
Total Ammonia (N)	mg/L	0.27	8382582	0.081	8382582	0.056	8382586	0.010	0.0050	8382583
Nitrate plus Nitrite (N)	mg/L	<0.0020 (1)	8382444	0.0025 (1)	8382444	0.0024 (1)	8382444	0.212 (1)	0.0020	8382444
Nitrite (N)	mg/L	<0.0020 (1)	8382452	<0.0020 (1)	8382452	<0.0020 (1)	8382452	<0.0020 (1)	0.0020	8382452
Total Phosphorus (P)	mg/L	0.393 (1)	8382549	0.0376 (1)	8382547	0.0168 (1)	8382549	0.0034 (1)	0.0020	8382547
<b>Physical Properties</b>										
Conductivity	uS/cm	406	8381867	567	8381867	570	8381867	461	1.0	8381867
pH	pH	8.00	8381865	8.01	8381865	7.93	8381865	8.04		8381865
<b>Physical Properties</b>										
Total Suspended Solids	mg/L	659	8381739	65.3	8381739	20.3	8381739	<1.0	1.0	8381739
RDL = Reportable Detection Limit N/A = Not Applicable (1) Sample analysed past recommended hold time.										

Maxxam Job #: B673795  
Report Date: 2016/09/02

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PJ7727		PJ7728	PJ7729		
Sampling Date		2016/08/24 14:10		2016/08/24 16:50	2016/08/24		
COC Number		08426813		08426813	08426813		
	UNITS	MW15-01	QC Batch	BH95G-32	DUP1	RDL	QC Batch
<b>Calculated Parameters</b>							
Anion Sum	meq/L	3.6	8381005	4.2	4.9	N/A	8381005
Cation Sum	meq/L	3.9	8381005	4.7	5.1	N/A	8381005
Filter and HNO3 Preservation	N/A	FIELD	ONSITE	FIELD	FIELD	N/A	ONSITE
Ion Balance	N/A	1.1	8379973	1.1	1.1	0.010	8379973
Nitrate (N)	mg/L	0.426	8380400	0.0598	0.217	0.0020	8380400
<b>Misc. Inorganics</b>							
Fluoride (F)	mg/L	0.090	8382397	0.040	0.090	0.010	8382399
Dissolved Organic Carbon (C)	mg/L	2.19	8383021	0.75	0.65	0.50	8383021
Acidity (pH 4.5)	mg/L	<0.50	8381809	<0.50	<0.50	0.50	8381809
Alkalinity (Total as CaCO3)	mg/L	133	8381862	173	182	0.50	8381862
Acidity (pH 8.3)	mg/L	<0.50	8381809	2.00	0.58	0.50	8381809
Alkalinity (PP as CaCO3)	mg/L	<0.50	8381862	<0.50	<0.50	0.50	8381862
Bicarbonate (HCO3)	mg/L	162	8381862	211	222	0.50	8381862
Carbonate (CO3)	mg/L	<0.50	8381862	<0.50	<0.50	0.50	8381862
Hydroxide (OH)	mg/L	<0.50	8381862	<0.50	<0.50	0.50	8381862
<b>Anions</b>							
Dissolved Sulphate (SO4)	mg/L	43.7	8384770	32.0	56.9	0.50	8384770
Dissolved Chloride (Cl)	mg/L	0.79	8384768	0.83	0.82	0.50	8384768
<b>Nutrients</b>							
Dissolved Phosphorus (P)	mg/L	0.0946 (1)	8382544	0.0627 (1)	<0.0020 (1)	0.0020	8382544
Total Ammonia (N)	mg/L	0.0098	8382583	0.015	0.013	0.0050	8382583
Nitrate plus Nitrite (N)	mg/L	0.430 (1)	8382444	0.0598 (1)	0.217 (1)	0.0020	8382444
Nitrite (N)	mg/L	0.0045 (1)	8382452	<0.0020 (1)	<0.0020 (1)	0.0020	8382452
Total Phosphorus (P)	mg/L	0.0925 (1)	8382547	0.0601 (1)	<0.0020 (1)	0.0020	8382549
<b>Physical Properties</b>							
Conductivity	uS/cm	350	8381867	403	462	1.0	8381867
pH	pH	8.08	8381865	8.06	8.11		8381865
<b>Physical Properties</b>							
Total Suspended Solids	mg/L	67.1	8381739	59.6	<1.0	1.0	8381739
RDL = Reportable Detection Limit N/A = Not Applicable (1) Sample analysed past recommended hold time.							



Maxxam Job #: B673795  
Report Date: 2016/09/02

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PJ7720	PJ7721	PJ7722	PJ7723	PJ7724		
Sampling Date		2016/08/23 14:37	2016/08/23 15:45	2016/08/23 16:30	2016/08/23 17:15	2016/08/24 09:45		
COC Number		08426813	08426813	08426813	08426813	08426813		
	UNITS	BH95G-29	MW16-15D	MW16-15S	BH95G-21	MW15-11D	RDL	QC Batch
<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO3)	mg/L	238	200	128	219	299	0.50	8381187
<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	<0.000020	<0.000020	0.000021	<0.000020	<0.000020	0.000020	8383380
<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	0.00171	0.00644	0.00422	0.00455	0.00296	0.00050	8383192
Dissolved Antimony (Sb)	mg/L	0.000061	0.000508	0.000075	0.000032	0.000085	0.000020	8383192
Dissolved Arsenic (As)	mg/L	0.00581	0.0191	0.000230	0.00134	0.000438	0.000020	8383192
Dissolved Barium (Ba)	mg/L	0.0608	0.0304	0.0727	0.0416	0.0334	0.000020	8383192
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000010	8383192
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8383192
Dissolved Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	8383192
Dissolved Cadmium (Cd)	mg/L	<0.0000050	<0.0000050	0.00176	0.0000060	<0.0000050	0.0000050	8383192
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	8383192
Dissolved Cobalt (Co)	mg/L	0.000119	0.000184	0.000423	0.0000170	0.0000680	0.0000050	8383192
Dissolved Copper (Cu)	mg/L	0.000112	0.000054	0.00452	0.000075	<0.000050	0.000050	8383192
Dissolved Iron (Fe)	mg/L	0.884	0.202	0.0183	0.643	0.969	0.0010	8383192
Dissolved Lead (Pb)	mg/L	0.0000140	0.0000070	0.000249	0.0000420	<0.0000050	0.0000050	8383192
Dissolved Lithium (Li)	mg/L	0.00526	0.00347	0.00194	0.00556	0.00985	0.00050	8383192
Dissolved Manganese (Mn)	mg/L	0.179	0.148	0.0620	0.0615	0.138	0.000050	8383192
Dissolved Molybdenum (Mo)	mg/L	0.000807	0.000885	0.000379	0.000328	0.000346	0.000050	8383192
Dissolved Nickel (Ni)	mg/L	0.000191	0.000332	0.00272	0.000053	0.000177	0.000020	8383192
Dissolved Phosphorus (P)	mg/L	0.159	0.0051	0.0047	0.0040	0.0041	0.0020	8383192
Dissolved Selenium (Se)	mg/L	<0.000040	<0.000040	0.00279	<0.000040	<0.000040	0.000040	8383192
Dissolved Silicon (Si)	mg/L	3.04	2.91	3.07	3.32	3.86	0.050	8383192
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	0.0000050	8383192
Dissolved Strontium (Sr)	mg/L	0.233	0.194	0.118	0.197	0.496	0.000050	8383192
Dissolved Thallium (Tl)	mg/L	<0.0000020	<0.0000020	0.0000120	<0.0000020	<0.0000020	0.0000020	8383192
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8383192
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	8383192
Dissolved Uranium (U)	mg/L	0.00276	0.00634	0.00211	0.00432	0.0114	0.0000020	8383192
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8383192
Dissolved Zinc (Zn)	mg/L	0.00111	0.00119	0.118	0.00071	0.00027	0.00010	8383192
RDL = Reportable Detection Limit								



Maxxam Job #: B673795  
Report Date: 2016/09/02

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PJ7720	PJ7721	PJ7722	PJ7723	PJ7724		
Sampling Date		2016/08/23 14:37	2016/08/23 15:45	2016/08/23 16:30	2016/08/23 17:15	2016/08/24 09:45		
COC Number		08426813	08426813	08426813	08426813	08426813		
	UNITS	BH95G-29	MW16-15D	MW16-15S	BH95G-21	MW15-11D	RDL	QC Batch
Dissolved Zirconium (Zr)	mg/L	<0.00010	0.00015	<0.00010	<0.00010	0.00156	0.00010	8383192
Dissolved Calcium (Ca)	mg/L	78.0	64.0	41.1	66.2	77.3	0.050	8380541
Dissolved Magnesium (Mg)	mg/L	10.5	9.72	6.22	13.1	25.6	0.050	8380541
Dissolved Potassium (K)	mg/L	2.73	3.56	2.26	1.37	3.92	0.050	8380541
Dissolved Sodium (Na)	mg/L	1.10	2.23	0.873	1.05	3.38	0.050	8380541
Dissolved Sulphur (S)	mg/L	15.9	22.9	15.1	16.5	23.4	3.0	8380541
RDL = Reportable Detection Limit								

Maxxam Job #: B673795  
Report Date: 2016/09/02

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PJ7725	PJ7726	PJ7727	PJ7728		
Sampling Date		2016/08/24 10:11	2016/08/24 13:05	2016/08/24 14:10	2016/08/24 16:50		
COC Number		08426813	08426813	08426813	08426813		
	UNITS	MW15-11S	MW15-02	MW15-01	BH95G-32	RDL	QC Batch
<b>Misc. Inorganics</b>							
Dissolved Hardness (CaCO3)	mg/L	314 (1)	252	191	226	0.50	8381187
<b>Elements</b>							
Dissolved Mercury (Hg)	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	0.000020	8383380
<b>Dissolved Metals by ICPMS</b>							
Dissolved Aluminum (Al)	mg/L	0.00277	0.00211	0.00355	0.00192	0.00050	8383192
Dissolved Antimony (Sb)	mg/L	0.000177 (1)	<0.000020	0.000035	0.000020	0.000020	8383192
Dissolved Arsenic (As)	mg/L	0.00248 (1)	0.000890	0.000116	0.000263	0.000020	8383192
Dissolved Barium (Ba)	mg/L	0.0485 (1)	0.0962	0.0177	0.169	0.000020	8383192
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	0.000010	8383192
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8383192
Dissolved Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	0.010	8383192
Dissolved Cadmium (Cd)	mg/L	0.0000070	<0.0000050	0.0000080	0.0000200	0.0000050	8383192
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	8383192
Dissolved Cobalt (Co)	mg/L	0.000652 (1)	0.0000320	0.0000310	0.000152	0.0000050	8383192
Dissolved Copper (Cu)	mg/L	0.000050	0.000085	0.000498	0.000175	0.000050	8383192
Dissolved Iron (Fe)	mg/L	1.67	<0.0010	0.0052	0.169	0.0010	8383192
Dissolved Lead (Pb)	mg/L	<0.0000050	0.0000820	<0.0000050	0.0000400	0.0000050	8383192
Dissolved Lithium (Li)	mg/L	0.00960 (1)	0.00222	0.00125	0.00152	0.00050	8383192
Dissolved Manganese (Mn)	mg/L	0.518 (1)	0.000050	0.000640	0.0753	0.000050	8383192
Dissolved Molybdenum (Mo)	mg/L	0.00103 (1)	0.000789	0.000764	0.000654	0.000050	8383192
Dissolved Nickel (Ni)	mg/L	0.00124	0.000157	0.000332	0.000670	0.000020	8383192
Dissolved Phosphorus (P)	mg/L	0.0035	<0.0020	<0.0020	<0.0020	0.0020	8383192
Dissolved Selenium (Se)	mg/L	<0.000040	0.00191	0.000352	0.000559	0.000040	8383192
Dissolved Silicon (Si)	mg/L	3.95 (1)	2.11	1.73	2.41	0.050	8383192
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8383192
Dissolved Strontium (Sr)	mg/L	0.498	0.301	0.171	0.293	0.000050	8383192
Dissolved Thallium (Tl)	mg/L	<0.0000020	0.0000020	<0.0000020	0.0000050	0.0000020	8383192
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8383192
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	8383192
Dissolved Uranium (U)	mg/L	0.0139 (1)	0.00339	0.00191	0.00109	0.0000020	8383192
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8383192
RDL = Reportable Detection Limit							
(1) Dissolved greater than total. Reanalysis yields similar results.							

Maxxam Job #: B673795  
Report Date: 2016/09/02

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PJ7725	PJ7726	PJ7727	PJ7728		
Sampling Date		2016/08/24 10:11	2016/08/24 13:05	2016/08/24 14:10	2016/08/24 16:50		
COC Number		08426813	08426813	08426813	08426813		
	UNITS	MW15-11S	MW15-02	MW15-01	BH95G-32	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	0.00027	0.00059	0.00106	0.00131	0.00010	8383192
Dissolved Zirconium (Zr)	mg/L	0.00131 (1)	<0.00010	<0.00010	<0.00010	0.00010	8383192
Dissolved Calcium (Ca)	mg/L	83.0 (1)	80.7	64.6	83.0	0.050	8380541
Dissolved Magnesium (Mg)	mg/L	25.9 (1)	12.3	7.27	4.49	0.050	8380541
Dissolved Potassium (K)	mg/L	3.99 (1)	2.33	0.480	4.43	0.050	8380541
Dissolved Sodium (Na)	mg/L	3.34 (1)	0.723	0.867	0.695	0.050	8380541
Dissolved Sulphur (S)	mg/L	23.6 (1)	20.4	15.9	12.9	3.0	8380541
RDL = Reportable Detection Limit							
(1) Dissolved greater than total. Reanalysis yields similar results.							

Maxxam Job #: B673795  
Report Date: 2016/09/02

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		PJ7729		
<b>Sampling Date</b>		2016/08/24		
<b>COC Number</b>		08426813		
	<b>UNITS</b>	<b>DUP1</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Misc. Inorganics</b>				
Dissolved Hardness (CaCO3)	mg/L	252	0.50	8381187
<b>Elements</b>				
Dissolved Mercury (Hg)	mg/L	<0.0000020	0.0000020	8383380
<b>Dissolved Metals by ICPMS</b>				
Dissolved Aluminum (Al)	mg/L	0.00184	0.00050	8383192
Dissolved Antimony (Sb)	mg/L	<0.000020	0.000020	8383192
Dissolved Arsenic (As)	mg/L	0.000918	0.000020	8383192
Dissolved Barium (Ba)	mg/L	0.0958	0.000020	8383192
Dissolved Beryllium (Be)	mg/L	<0.000010	0.000010	8383192
Dissolved Bismuth (Bi)	mg/L	<0.0000050	0.0000050	8383192
Dissolved Boron (B)	mg/L	<0.010	0.010	8383192
Dissolved Cadmium (Cd)	mg/L	<0.0000050	0.0000050	8383192
Dissolved Chromium (Cr)	mg/L	<0.00010	0.00010	8383192
Dissolved Cobalt (Co)	mg/L	0.0000350	0.0000050	8383192
Dissolved Copper (Cu)	mg/L	0.000096	0.000050	8383192
Dissolved Iron (Fe)	mg/L	<0.0010	0.0010	8383192
Dissolved Lead (Pb)	mg/L	0.0000590 (1)	0.0000050	8385098
Dissolved Lithium (Li)	mg/L	0.00142	0.00050	8383192
Dissolved Manganese (Mn)	mg/L	0.000059	0.000050	8383192
Dissolved Molybdenum (Mo)	mg/L	0.000806	0.000050	8383192
Dissolved Nickel (Ni)	mg/L	0.000427 (1)	0.000020	8385098
Dissolved Phosphorus (P)	mg/L	<0.0020	0.0020	8383192
Dissolved Selenium (Se)	mg/L	0.00192	0.000040	8383192
Dissolved Silicon (Si)	mg/L	2.17	0.050	8383192
Dissolved Silver (Ag)	mg/L	<0.0000050	0.0000050	8383192
Dissolved Strontium (Sr)	mg/L	0.307	0.000050	8383192
Dissolved Thallium (Tl)	mg/L	0.0000020	0.0000020	8383192
Dissolved Tin (Sn)	mg/L	<0.00020	0.00020	8383192
Dissolved Titanium (Ti)	mg/L	<0.00050	0.00050	8383192
Dissolved Uranium (U)	mg/L	0.00334	0.0000020	8383192
Dissolved Vanadium (V)	mg/L	<0.00020	0.00020	8383192
RDL = Reportable Detection Limit				
(1) Dissolved greater than total. Reanalysis yields similar results.				

Maxxam Job #: B673795  
Report Date: 2016/09/02

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		PJ7729		
<b>Sampling Date</b>		2016/08/24		
<b>COC Number</b>		08426813		
	<b>UNITS</b>	<b>DUP1</b>	<b>RDL</b>	<b>QC Batch</b>
Dissolved Zinc (Zn)	mg/L	0.00033	0.00010	8383192
Dissolved Zirconium (Zr)	mg/L	<0.00010	0.00010	8383192
Dissolved Calcium (Ca)	mg/L	80.6	0.050	8380541
Dissolved Magnesium (Mg)	mg/L	12.3	0.050	8380541
Dissolved Potassium (K)	mg/L	2.33	0.050	8380541
Dissolved Sodium (Na)	mg/L	0.743	0.050	8380541
Dissolved Sulphur (S)	mg/L	21.2	3.0	8380541
RDL = Reportable Detection Limit				

Maxxam Job #: B673795  
Report Date: 2016/09/02

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		PJ7726	PJ7729		
Sampling Date		2016/08/24 13:05	2016/08/24		
COC Number		08426813	08426813		
	UNITS	MW15-02	DUP1	RDL	QC Batch
<b>Calculated Parameters</b>					
Total Hardness (CaCO3)	mg/L	249	248	0.50	8381199
<b>Elements</b>					
Total Mercury (Hg)	mg/L	<0.000020	<0.000020	0.000020	8383357
<b>Total Metals by ICPMS</b>					
Total Aluminum (Al)	mg/L	0.00420	0.00135	0.00050	8383429
Total Antimony (Sb)	mg/L	<0.000020	<0.000020	0.000020	8383429
Total Arsenic (As)	mg/L	0.000891	0.000846	0.000020	8383429
Total Barium (Ba)	mg/L	0.0953	0.0956	0.000020	8383429
Total Beryllium (Be)	mg/L	<0.000010	<0.000010	0.000010	8383429
Total Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	0.0000050	8383429
Total Boron (B)	mg/L	<0.010	<0.010	0.010	8383429
Total Cadmium (Cd)	mg/L	<0.0000050	<0.0000050	0.0000050	8383429
Total Chromium (Cr)	mg/L	<0.00010	<0.00010	0.00010	8383429
Total Cobalt (Co)	mg/L	0.0000360	0.0000300	0.0000050	8383429
Total Copper (Cu)	mg/L	0.000109	0.000085	0.000050	8383429
Total Iron (Fe)	mg/L	0.0061	<0.0010	0.0010	8383429
Total Lead (Pb)	mg/L	0.0000710	0.0000050	0.0000050	8383429
Total Lithium (Li)	mg/L	0.00207	0.00198	0.00050	8383429
Total Manganese (Mn)	mg/L	0.000346	0.000075	0.000050	8383429
Total Molybdenum (Mo)	mg/L	0.000784	0.000799	0.000050	8383429
Total Nickel (Ni)	mg/L	0.000159	0.000167	0.000020	8383429
Total Phosphorus (P)	mg/L	<0.0020	<0.0020	0.0020	8383429
Total Selenium (Se)	mg/L	0.00182	0.00178	0.000040	8383429
Total Silicon (Si)	mg/L	2.01	2.18	0.050	8383429
Total Silver (Ag)	mg/L	<0.0000050	<0.0000050	0.0000050	8383429
Total Strontium (Sr)	mg/L	0.289	0.287	0.000050	8383429
Total Thallium (Tl)	mg/L	<0.0000020	<0.0000020	0.0000020	8383429
Total Tin (Sn)	mg/L	<0.00020	<0.00020	0.00020	8383429
Total Titanium (Ti)	mg/L	<0.00050	<0.00050	0.00050	8383429
Total Uranium (U)	mg/L	0.00323	0.00331	0.0000020	8383429
Total Vanadium (V)	mg/L	<0.00020	<0.00020	0.00020	8383429
Total Zinc (Zn)	mg/L	0.00050	0.00055	0.00010	8383429
RDL = Reportable Detection Limit					

Maxxam Job #: B673795  
Report Date: 2016/09/02

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		PJ7726	PJ7729		
Sampling Date		2016/08/24 13:05	2016/08/24		
COC Number		08426813	08426813		
	UNITS	MW15-02	DUP1	RDL	QC Batch
Total Zirconium (Zr)	mg/L	<0.00010	<0.00010	0.00010	8383429
Total Calcium (Ca)	mg/L	78.6	78.6	0.050	8380543
Total Magnesium (Mg)	mg/L	12.9	12.6	0.050	8380543
Total Potassium (K)	mg/L	2.35	2.32	0.050	8380543
Total Sodium (Na)	mg/L	0.784	0.770	0.050	8380543
Total Sulphur (S)	mg/L	21.0	20.5	3.0	8380543
RDL = Reportable Detection Limit					

Maxxam Job #: B673795  
Report Date: 2016/09/02

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PJ7720	PJ7721	PJ7722	PJ7723	PJ7724		
Sampling Date		2016/08/23 14:37	2016/08/23 15:45	2016/08/23 16:30	2016/08/23 17:15	2016/08/24 09:45		
COC Number		08426813	08426813	08426813	08426813	08426813		
	UNITS	BH95G-29	MW16-15D	MW16-15S	BH95G-21	MW15-11D	RDL	QC Batch
<b>Calculated Parameters</b>								
Total Hardness (CaCO3)	mg/L	277	286	180	239	328	0.50	8381199
<b>Elements</b>								
Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	0.0000337	<0.0000020	<0.0000020	0.0000020	8383357
<b>Total Metals by ICPMS</b>								
Total Aluminum (Al)	mg/L	7.84	12.4	12.6	6.56	0.313	0.0030	8383496
Total Antimony (Sb)	mg/L	0.000704	0.00211	0.0325	0.000777	0.000374	0.000020	8383496
Total Arsenic (As)	mg/L	0.0187	0.0397	0.603	0.0163	0.00260	0.000020	8383496
Total Barium (Ba)	mg/L	0.266	0.249	0.583	1.94	0.0917	0.000050	8383496
Total Beryllium (Be)	mg/L	0.000619	0.000831	0.000796	0.000362	0.000022	0.000010	8383496
Total Bismuth (Bi)	mg/L	0.000453	0.00107	0.00581	0.000488	0.000054	0.000010	8383496
Total Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	8383496
Total Cadmium (Cd)	mg/L	0.00173	0.0223	0.0163	0.000164	0.000366	0.0000050	8383496
Total Chromium (Cr)	mg/L	0.0130	0.0148	0.0352	0.0108	0.00083	0.00010	8383496
Total Cobalt (Co)	mg/L	0.00616	0.00923	0.0334	0.00582	0.000376	0.000010	8383496
Total Copper (Cu)	mg/L	0.0509	0.0803	0.775	0.0557	0.00346	0.00010	8383496
Total Iron (Fe)	mg/L	15.8	39.3	66.4	27.5	2.16	0.0050	8383496
Total Lead (Pb)	mg/L	0.185	0.0844	2.73	0.0205	0.0391	0.000020	8383496
Total Lithium (Li)	mg/L	0.0126	0.0179	0.0170	0.0109	0.0108	0.00050	8383496
Total Manganese (Mn)	mg/L	0.656	1.49	2.43	0.237	0.184	0.00010	8383496
Total Molybdenum (Mo)	mg/L	0.000991	0.00157	0.00606	0.000543	0.000826	0.000050	8383496
Total Nickel (Ni)	mg/L	0.0162	0.0130	0.0457	0.0121	0.00055	0.00010	8383496
Total Phosphorus (P)	mg/L	1.37	0.780	0.672	0.478	0.0411	0.0050	8383496
Total Selenium (Se)	mg/L	0.000198	0.000398	0.00499	0.000420	0.000051	0.000040	8383496
Total Silicon (Si)	mg/L	16.8	20.7	20.7	12.3	4.58	0.050	8383496
Total Silver (Ag)	mg/L	0.000409	0.00412	0.0138	0.000317	0.00117	0.000010	8383496
Total Strontium (Sr)	mg/L	0.299	0.254	0.159	0.265	0.541	0.000050	8383496
Total Thallium (Tl)	mg/L	0.000153	0.000382	0.000886	0.0000920	0.0000180	0.0000020	8383496
Total Tin (Sn)	mg/L	0.00040	0.00048	0.00169	<0.00020	<0.00020	0.00020	8383496
Total Titanium (Ti)	mg/L	0.200	0.436	0.525	0.188	0.0133	0.0020	8383496
Total Uranium (U)	mg/L	0.00676	0.0124	0.0293	0.00630	0.0127	0.0000050	8383496
Total Vanadium (V)	mg/L	0.0175	0.0202	0.0403	0.0180	0.00093	0.00020	8383496
Total Zinc (Zn)	mg/L	0.306	3.38	2.47	0.156	0.0732	0.0010	8383496
RDL = Reportable Detection Limit								



Maxxam Job #: B673795  
Report Date: 2016/09/02

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PJ7720	PJ7721	PJ7722	PJ7723	PJ7724		
Sampling Date		2016/08/23 14:37	2016/08/23 15:45	2016/08/23 16:30	2016/08/23 17:15	2016/08/24 09:45		
COC Number		08426813	08426813	08426813	08426813	08426813		
	UNITS	BH95G-29	MW16-15D	MW16-15S	BH95G-21	MW15-11D	RDL	QC Batch
Total Zirconium (Zr)	mg/L	0.00232	0.0184	0.00319	0.00506	0.00147	0.00010	8383496
Total Calcium (Ca)	mg/L	88.3	82.6	48.3	69.6	87.9	0.25	8380543
Total Magnesium (Mg)	mg/L	13.8	19.4	14.5	15.8	26.4	0.25	8380543
Total Potassium (K)	mg/L	4.51	9.02	6.16	2.98	4.17	0.25	8380543
Total Sodium (Na)	mg/L	1.14	2.40	1.31	1.11	3.28	0.25	8380543
Total Sulphur (S)	mg/L	17.2	25.3	16.4	17.6	25.5	3.0	8380543
RDL = Reportable Detection Limit								

Maxxam Job #: B673795  
Report Date: 2016/09/02

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PJ7725	PJ7727	PJ7728		
Sampling Date		2016/08/24 10:11	2016/08/24 14:10	2016/08/24 16:50		
COC Number		08426813	08426813	08426813		
	<b>UNITS</b>	<b>MW15-11S</b>	<b>MW15-01</b>	<b>BH95G-32</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>						
Total Hardness (CaCO3)	mg/L	231	201	227	0.50	8381199
<b>Elements</b>						
Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	0.0000020	8383357
<b>Total Metals by ICPMS</b>						
Total Aluminum (Al)	mg/L	0.0624	1.20	1.72	0.0030	8383496
Total Antimony (Sb)	mg/L	0.000119	0.000102	0.000071	0.000020	8383496
Total Arsenic (As)	mg/L	0.00169	0.00178	0.00195	0.000020	8383496
Total Barium (Ba)	mg/L	0.0393	0.0348	0.236	0.000050	8383496
Total Beryllium (Be)	mg/L	0.000010	0.000035	0.000109	0.000010	8383496
Total Bismuth (Bi)	mg/L	<0.000010	0.000013	0.000044	0.000010	8383496
Total Boron (B)	mg/L	<0.010	<0.010	<0.010	0.010	8383496
Total Cadmium (Cd)	mg/L	0.0000460	0.0000630	0.000122	0.0000050	8383496
Total Chromium (Cr)	mg/L	0.00024	0.00282	0.00465	0.00010	8383496
Total Cobalt (Co)	mg/L	0.000529	0.00130	0.00188	0.000010	8383496
Total Copper (Cu)	mg/L	0.00073	0.00575	0.00608	0.00010	8383496
Total Iron (Fe)	mg/L	1.46	5.93	3.76	0.0050	8383496
Total Lead (Pb)	mg/L	0.000367	0.00153	0.00429	0.000020	8383496
Total Lithium (Li)	mg/L	0.00634	0.00220	0.00227	0.00050	8383496
Total Manganese (Mn)	mg/L	0.420	0.0553	0.151	0.00010	8383496
Total Molybdenum (Mo)	mg/L	0.000812	0.000980	0.000694	0.000050	8383496
Total Nickel (Ni)	mg/L	0.00108	0.00313	0.00331	0.00010	8383496
Total Phosphorus (P)	mg/L	0.0159	0.106	0.0755	0.0050	8383496
Total Selenium (Se)	mg/L	<0.000040	0.000460	0.000782	0.000040	8383496
Total Silicon (Si)	mg/L	3.20	3.32	4.84	0.050	8383496
Total Silver (Ag)	mg/L	0.000069	0.000791	0.000054	0.000010	8383496
Total Strontium (Sr)	mg/L	0.365	0.180	0.300	0.000050	8383496
Total Thallium (Tl)	mg/L	0.0000030	0.0000120	0.0000150	0.0000020	8383496
Total Tin (Sn)	mg/L	<0.00020	0.00047	<0.00020	0.00020	8383496
Total Titanium (Ti)	mg/L	0.0039	0.0821	0.202	0.0020	8383496
Total Uranium (U)	mg/L	0.00958	0.00211	0.00135	0.0000050	8383496
Total Vanadium (V)	mg/L	0.00025	0.00631	0.0107	0.00020	8383496
Total Zinc (Zn)	mg/L	0.0026	0.0199	0.0158	0.0010	8383496
RDL = Reportable Detection Limit						

Maxxam Job #: B673795  
Report Date: 2016/09/02

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PJ7725	PJ7727	PJ7728		
Sampling Date		2016/08/24 10:11	2016/08/24 14:10	2016/08/24 16:50		
COC Number		08426813	08426813	08426813		
	UNITS	MW15-11S	MW15-01	BH95G-32	RDL	QC Batch
Total Zirconium (Zr)	mg/L	0.00091	0.00076	0.00039	0.00010	8383496
Total Calcium (Ca)	mg/L	57.5	67.3	82.1	0.25	8380543
Total Magnesium (Mg)	mg/L	17.7	7.99	5.36	0.25	8380543
Total Potassium (K)	mg/L	2.78	0.65	4.68	0.25	8380543
Total Sodium (Na)	mg/L	2.13	0.90	0.78	0.25	8380543
Total Sulphur (S)	mg/L	17.3	15.8	12.7	3.0	8380543
RDL = Reportable Detection Limit						

Maxxam Job #: B673795  
Report Date: 2016/09/02

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** PJ7720  
**Sample ID:** BH95G-29  
**Matrix:** Water

**Collected:** 2016/08/23  
**Shipped:**  
**Received:** 2016/08/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8381809	N/A	2016/08/30	Maria Maclean
Alkalinity - Water	AT/ALK	8381862	2016/08/30	2016/08/30	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8384768	N/A	2016/08/31	Diana Cruz
Carbon (DOC) - field filtered/preserved	TRAA/COL	8383023	N/A	2016/08/30	Isabel Choi
Conductance - water	AT/ALK	8381867	N/A	2016/08/30	Wilson Au Yueng
Fluoride	ISE/ISE	8382399	N/A	2016/08/30	Isaac Wang
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8381199	N/A	2016/09/01	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8381187	N/A	2016/09/01	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8383380	N/A	2016/08/31	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8383357	2016/08/31	2016/08/31	Edwin Lamigo
Ion Balance	CALC	8379973	N/A	2016/09/01	Automated Statchk
Sum of cations, anions	CALC	8381005	N/A	2016/09/01	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8380541	N/A	2016/09/01	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8383192	N/A	2016/08/31	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8383496	2016/08/31	2016/09/01	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8380543	N/A	2016/09/01	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8382583	N/A	2016/08/31	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8382444	N/A	2016/08/30	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8382452	N/A	2016/08/30	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8380400	N/A	2016/08/31	Automated Statchk
Filter and HNO <sub>3</sub> Preserve for Metals	ICP	ONSITE	N/A	2016/08/29	Terry Shore
pH Water	AT/ALK	8381865	N/A	2016/08/30	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8384770	N/A	2016/08/31	Diana Cruz
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8382544	2016/08/30	2016/08/30	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8382549	N/A	2016/08/30	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8381739	2016/08/30	2016/08/31	Jamie Sun

**Maxxam ID:** PJ7721  
**Sample ID:** MW16-15D  
**Matrix:** Water

**Collected:** 2016/08/23  
**Shipped:**  
**Received:** 2016/08/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8381809	N/A	2016/08/30	Maria Maclean
Alkalinity - Water	AT/ALK	8381862	2016/08/30	2016/08/30	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8384768	N/A	2016/08/31	Diana Cruz
Carbon (DOC) - field filtered/preserved	TRAA/COL	8383021	N/A	2016/08/30	Isabel Choi
Conductance - water	AT/ALK	8381867	N/A	2016/08/30	Wilson Au Yueng
Fluoride	ISE/ISE	8382397	N/A	2016/08/30	Isaac Wang
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8381199	N/A	2016/09/01	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8381187	N/A	2016/09/01	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8383380	N/A	2016/08/31	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8383357	2016/08/31	2016/08/31	Edwin Lamigo
Ion Balance	CALC	8379973	N/A	2016/09/01	Automated Statchk
Sum of cations, anions	CALC	8381005	N/A	2016/09/01	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8380541	N/A	2016/09/01	Automated Statchk

Maxxam Job #: B673795  
Report Date: 2016/09/02

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** PJ7721  
**Sample ID:** MW16-15D  
**Matrix:** Water

**Collected:** 2016/08/23  
**Shipped:**  
**Received:** 2016/08/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8383192	N/A	2016/08/31	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8383496	2016/08/31	2016/08/31	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8380543	N/A	2016/09/01	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8382583	N/A	2016/08/31	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8382444	N/A	2016/08/30	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8382452	N/A	2016/08/30	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8380400	N/A	2016/08/31	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2016/08/29	Terry Shore
pH Water	AT/ALK	8381865	N/A	2016/08/30	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8384770	N/A	2016/08/31	Diana Cruz
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8382544	2016/08/30	2016/08/30	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8382549	N/A	2016/08/30	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8381739	2016/08/30	2016/08/31	Jamie Sun

**Maxxam ID:** PJ7722  
**Sample ID:** MW16-15S  
**Matrix:** Water

**Collected:** 2016/08/23  
**Shipped:**  
**Received:** 2016/08/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8381809	N/A	2016/08/30	Maria Maclean
Alkalinity - Water	AT/ALK	8381862	2016/08/30	2016/08/30	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8384768	N/A	2016/08/31	Diana Cruz
Carbon (DOC) - field filtered/preserved	TRAA/COL	8383021	N/A	2016/08/30	Isabel Choi
Conductance - water	AT/ALK	8381867	N/A	2016/08/30	Wilson Au Yueng
Fluoride	ISE/ISE	8382397	N/A	2016/08/30	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8381199	N/A	2016/09/01	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8381187	N/A	2016/09/01	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8383380	N/A	2016/08/31	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8383357	2016/08/31	2016/08/31	Edwin Lamigo
Ion Balance	CALC	8379973	N/A	2016/09/01	Automated Statchk
Sum of cations, anions	CALC	8381005	N/A	2016/09/01	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8380541	N/A	2016/09/01	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8383192	N/A	2016/08/31	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8383496	2016/08/31	2016/08/31	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8380543	N/A	2016/09/01	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8382583	N/A	2016/08/31	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8382444	N/A	2016/08/30	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8382452	N/A	2016/08/30	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8380400	N/A	2016/08/31	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2016/08/29	Terry Shore
pH Water	AT/ALK	8381865	N/A	2016/08/30	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8384770	N/A	2016/08/31	Diana Cruz
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8382544	2016/08/30	2016/08/30	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8382547	N/A	2016/08/30	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8381739	2016/08/30	2016/08/31	Jamie Sun

Maxxam Job #: B673795  
Report Date: 2016/09/02

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** PJ7723  
**Sample ID:** BH95G-21  
**Matrix:** Water

**Collected:** 2016/08/23  
**Shipped:**  
**Received:** 2016/08/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8381809	N/A	2016/08/30	Maria Maclean
Alkalinity - Water	AT/ALK	8381862	2016/08/30	2016/08/30	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8384768	N/A	2016/08/31	Diana Cruz
Carbon (DOC) - field filtered/preserved	TRAA/COL	8383021	N/A	2016/08/30	Isabel Choi
Conductance - water	AT/ALK	8381867	N/A	2016/08/30	Wilson Au Yueng
Fluoride	ISE/ISE	8382399	N/A	2016/08/30	Isaac Wang
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8381199	N/A	2016/09/01	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8381187	N/A	2016/09/01	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8383380	N/A	2016/08/31	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8383357	2016/08/31	2016/08/31	Edwin Lamigo
Ion Balance	CALC	8379973	N/A	2016/09/01	Automated Statchk
Sum of cations, anions	CALC	8381005	N/A	2016/09/01	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8380541	N/A	2016/09/01	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8383192	N/A	2016/08/31	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8383496	2016/08/31	2016/09/01	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8380543	N/A	2016/09/01	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8382582	N/A	2016/08/31	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8382444	N/A	2016/08/30	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8382452	N/A	2016/08/30	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8380400	N/A	2016/08/31	Automated Statchk
Filter and HNO <sub>3</sub> Preserve for Metals	ICP	ONSITE	N/A	2016/08/29	Terry Shore
pH Water	AT/ALK	8381865	N/A	2016/08/30	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8384770	N/A	2016/08/31	Diana Cruz
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8382544	2016/08/30	2016/08/30	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8382549	N/A	2016/08/30	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8381739	2016/08/30	2016/08/31	Jamie Sun

**Maxxam ID:** PJ7724  
**Sample ID:** MW15-11D  
**Matrix:** Water

**Collected:** 2016/08/24  
**Shipped:**  
**Received:** 2016/08/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8381809	N/A	2016/08/30	Maria Maclean
Alkalinity - Water	AT/ALK	8381862	2016/08/30	2016/08/30	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8384768	N/A	2016/08/31	Diana Cruz
Carbon (DOC) - field filtered/preserved	TRAA/COL	8383021	N/A	2016/08/30	Isabel Choi
Conductance - water	AT/ALK	8381867	N/A	2016/08/30	Wilson Au Yueng
Fluoride	ISE/ISE	8382397	N/A	2016/08/30	Isaac Wang
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8381199	N/A	2016/09/01	David Huang
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8381187	N/A	2016/09/01	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8383380	N/A	2016/08/31	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8383357	2016/08/31	2016/08/31	Edwin Lamigo
Ion Balance	CALC	8379973	N/A	2016/09/01	Automated Statchk
Sum of cations, anions	CALC	8381005	N/A	2016/09/01	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8380541	N/A	2016/09/01	Automated Statchk

Maxxam Job #: B673795  
Report Date: 2016/09/02

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** PJ7724  
**Sample ID:** MW15-11D  
**Matrix:** Water

**Collected:** 2016/08/24  
**Shipped:**  
**Received:** 2016/08/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8383192	N/A	2016/08/31	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8383496	2016/08/31	2016/09/01	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8380543	N/A	2016/09/01	David Huang
Ammonia-N (Preserved)	KONE/COL	8382582	N/A	2016/08/31	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8382444	N/A	2016/08/30	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8382452	N/A	2016/08/30	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8380400	N/A	2016/08/31	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2016/08/29	Terry Shore
pH Water	AT/ALK	8381865	N/A	2016/08/30	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8384770	N/A	2016/08/31	Diana Cruz
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8382544	2016/08/30	2016/08/30	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8382547	N/A	2016/08/30	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8381739	2016/08/30	2016/08/31	Jamie Sun

**Maxxam ID:** PJ7725  
**Sample ID:** MW15-11S  
**Matrix:** Water

**Collected:** 2016/08/24  
**Shipped:**  
**Received:** 2016/08/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8381809	N/A	2016/08/30	Maria Maclean
Alkalinity - Water	AT/ALK	8381862	2016/08/30	2016/08/30	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8384768	N/A	2016/08/31	Diana Cruz
Carbon (DOC) - field filtered/preserved	TRAA/COL	8383021	N/A	2016/08/30	Isabel Choi
Conductance - water	AT/ALK	8381867	N/A	2016/08/30	Wilson Au Yueng
Fluoride	ISE/ISE	8382399	N/A	2016/08/30	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8381199	N/A	2016/09/01	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8381187	N/A	2016/09/01	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8383380	N/A	2016/08/31	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8383357	2016/08/31	2016/08/31	Edwin Lamigo
Ion Balance	CALC	8379973	N/A	2016/09/01	Automated Statchk
Sum of cations, anions	CALC	8381005	N/A	2016/09/01	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8380541	N/A	2016/09/01	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8383192	N/A	2016/08/31	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8383496	2016/08/31	2016/09/02	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8380543	N/A	2016/09/01	David Huang
Ammonia-N (Preserved)	KONE/COL	8382586	N/A	2016/08/31	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8382444	N/A	2016/08/30	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8382452	N/A	2016/08/30	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8380400	N/A	2016/08/31	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2016/08/29	Terry Shore
pH Water	AT/ALK	8381865	N/A	2016/08/30	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8384770	N/A	2016/08/31	Diana Cruz
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8382544	2016/08/30	2016/08/30	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8382549	N/A	2016/08/30	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8381739	2016/08/30	2016/08/31	Jamie Sun



Maxxam Job #: B673795  
Report Date: 2016/09/02

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** PJ7725 Dup  
**Sample ID:** MW15-11S  
**Matrix:** Water

**Collected:** 2016/08/24  
**Shipped:**  
**Received:** 2016/08/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Elements by ICPMS Digested LL (total)	ICP/CRCM	8383496	2016/08/31	2016/09/02	Andrew An

**Maxxam ID:** PJ7726  
**Sample ID:** MW15-02  
**Matrix:** Water

**Collected:** 2016/08/24  
**Shipped:**  
**Received:** 2016/08/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8381809	N/A	2016/08/30	Maria Maclean
Alkalinity - Water	AT/ALK	8381862	2016/08/30	2016/08/30	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8384768	N/A	2016/08/31	Diana Cruz
Carbon (DOC) - field filtered/preserved	TRAA/COL	8383021	N/A	2016/08/30	Isabel Choi
Conductance - water	AT/ALK	8381867	N/A	2016/08/30	Wilson Au Yueng
Fluoride	ISE/ISE	8382397	N/A	2016/08/30	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8381199	N/A	2016/09/01	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8381187	N/A	2016/09/01	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8383380	N/A	2016/08/31	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8383357	2016/08/31	2016/08/31	Edwin Lamigo
Ion Balance	CALC	8379973	N/A	2016/09/01	Automated Statchk
Sum of cations, anions	CALC	8381005	N/A	2016/09/01	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8380541	N/A	2016/09/01	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8383192	N/A	2016/09/01	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8380543	N/A	2016/09/01	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8383429	N/A	2016/08/31	Andrew An
Ammonia-N (Preserved)	KONE/COL	8382583	N/A	2016/08/31	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8382444	N/A	2016/08/30	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8382452	N/A	2016/08/30	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8380400	N/A	2016/08/31	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2016/08/29	Terry Shore
pH Water	AT/ALK	8381865	N/A	2016/08/30	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8384770	N/A	2016/08/31	Diana Cruz
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8382544	2016/08/30	2016/08/30	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8382547	N/A	2016/08/30	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8381739	2016/08/30	2016/08/31	Jamie Sun

**Maxxam ID:** PJ7727  
**Sample ID:** MW15-01  
**Matrix:** Water

**Collected:** 2016/08/24  
**Shipped:**  
**Received:** 2016/08/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8381809	N/A	2016/08/30	Maria Maclean
Alkalinity - Water	AT/ALK	8381862	2016/08/30	2016/08/30	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8384768	N/A	2016/08/31	Diana Cruz
Carbon (DOC) - field filtered/preserved	TRAA/COL	8383021	N/A	2016/08/30	Isabel Choi
Conductance - water	AT/ALK	8381867	N/A	2016/08/30	Wilson Au Yueng
Fluoride	ISE/ISE	8382397	N/A	2016/08/30	Isaac Wang



Maxxam Job #: B673795  
Report Date: 2016/09/02

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** PJ7727  
**Sample ID:** MW15-01  
**Matrix:** Water

**Collected:** 2016/08/24  
**Shipped:**  
**Received:** 2016/08/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hardness Total (calculated as CaCO3)	CALC	8381199	N/A	2016/09/01	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8381187	N/A	2016/09/01	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8383380	N/A	2016/08/31	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8383357	2016/08/31	2016/08/31	Edwin Lamigo
Ion Balance	CALC	8379973	N/A	2016/09/01	Automated Statchk
Sum of cations, anions	CALC	8381005	N/A	2016/09/01	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8380541	N/A	2016/09/01	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8383192	N/A	2016/09/01	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8383496	2016/08/31	2016/09/01	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8380543	N/A	2016/09/01	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8382583	N/A	2016/08/31	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8382444	N/A	2016/08/30	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8382452	N/A	2016/08/30	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8380400	N/A	2016/08/31	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2016/08/29	Terry Shore
pH Water	AT/ALK	8381865	N/A	2016/08/30	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8384770	N/A	2016/08/31	Diana Cruz
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8382544	2016/08/30	2016/08/30	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8382547	N/A	2016/08/30	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8381739	2016/08/30	2016/08/31	Jamie Sun

**Maxxam ID:** PJ7728  
**Sample ID:** BH95G-32  
**Matrix:** Water

**Collected:** 2016/08/24  
**Shipped:**  
**Received:** 2016/08/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8381809	N/A	2016/08/30	Maria Maclean
Alkalinity - Water	AT/ALK	8381862	2016/08/30	2016/08/30	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8384768	N/A	2016/08/31	Diana Cruz
Carbon (DOC) - field filtered/preserved	TRAA/COL	8383021	N/A	2016/08/30	Isabel Choi
Conductance - water	AT/ALK	8381867	N/A	2016/08/30	Wilson Au Yueng
Fluoride	ISE/ISE	8382399	N/A	2016/08/30	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8381199	N/A	2016/09/01	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8381187	N/A	2016/09/01	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8383380	N/A	2016/08/31	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8383357	2016/08/31	2016/08/31	Edwin Lamigo
Ion Balance	CALC	8379973	N/A	2016/09/01	Automated Statchk
Sum of cations, anions	CALC	8381005	N/A	2016/09/01	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8380541	N/A	2016/09/01	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8383192	N/A	2016/09/01	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8383496	2016/08/31	2016/09/01	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8380543	N/A	2016/09/01	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8382583	N/A	2016/08/31	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8382444	N/A	2016/08/30	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8382452	N/A	2016/08/30	Isaac Wang

Maxxam Job #: B673795  
Report Date: 2016/09/02

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### TEST SUMMARY

**Maxxam ID:** PJ7728  
**Sample ID:** BH95G-32  
**Matrix:** Water

**Collected:** 2016/08/24  
**Shipped:**  
**Received:** 2016/08/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrogen - Nitrate (as N)	CALC	8380400	N/A	2016/08/31	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2016/08/29	Terry Shore
pH Water	AT/ALK	8381865	N/A	2016/08/30	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8384770	N/A	2016/08/31	Diana Cruz
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8382544	2016/08/30	2016/08/30	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8382549	N/A	2016/08/30	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8381739	2016/08/30	2016/08/31	Jamie Sun

**Maxxam ID:** PJ7729  
**Sample ID:** DUP1  
**Matrix:** Water

**Collected:** 2016/08/24  
**Shipped:**  
**Received:** 2016/08/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8381809	N/A	2016/08/30	Maria Maclean
Alkalinity - Water	AT/ALK	8381862	2016/08/30	2016/08/30	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8384768	N/A	2016/08/31	Diana Cruz
Carbon (DOC) - field filtered/preserved	TRAA/COL	8383021	N/A	2016/08/30	Isabel Choi
Conductance - water	AT/ALK	8381867	N/A	2016/08/30	Wilson Au Yueng
Fluoride	ISE/ISE	8382399	N/A	2016/08/30	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8381199	N/A	2016/09/01	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8381187	N/A	2016/09/01	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8383380	N/A	2016/08/31	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8383357	2016/08/31	2016/08/31	Edwin Lamigo
Ion Balance	CALC	8379973	N/A	2016/09/01	Automated Statchk
Sum of cations, anions	CALC	8381005	N/A	2016/09/01	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8380541	N/A	2016/09/01	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8383192	N/A	2016/09/01	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8380543	N/A	2016/09/01	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8383429	N/A	2016/09/01	Andrew An
Ammonia-N (Preserved)	KONE/COL	8382583	N/A	2016/08/31	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8382444	N/A	2016/08/30	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8382452	N/A	2016/08/30	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8380400	N/A	2016/08/31	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2016/08/29	Terry Shore
pH Water	AT/ALK	8381865	N/A	2016/08/30	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8384770	N/A	2016/08/31	Diana Cruz
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8382544	2016/08/30	2016/08/30	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8382549	N/A	2016/08/30	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8381739	2016/08/30	2016/08/31	Jamie Sun

Maxxam Job #: B673795  
Report Date: 2016/09/02

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

**GENERAL COMMENTS**

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	6.0°C
Package 2	7.7°C
Package 3	7.0°C
Package 4	7.0°C

Sample PJ7720-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PJ7721-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PJ7722-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PJ7723-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PJ7724-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PJ7725-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PJ7727-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PJ7728-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PJ7729, Elements by ICPMS Low Level (dissolved): Test repeated.

**Results relate only to the items tested.**

Maxxam Job #: B673795  
Report Date: 2016/09/02

**QUALITY ASSURANCE REPORT**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8381739	Total Suspended Solids	2016/08/31			106	80 - 120	<1.0	mg/L		
8381809	Acidity (pH 4.5)	2016/08/30					<0.50	mg/L	NC	20
8381809	Acidity (pH 8.3)	2016/08/30			99	80 - 120	<0.50	mg/L	NC	20
8381862	Alkalinity (PP as CaCO3)	2016/08/30					<0.50	mg/L	NC	20
8381862	Alkalinity (Total as CaCO3)	2016/08/30	101	80 - 120	101	80 - 120	<0.50	mg/L	NC	20
8381862	Bicarbonate (HCO3)	2016/08/30					<0.50	mg/L	NC	20
8381862	Carbonate (CO3)	2016/08/30					<0.50	mg/L	NC	20
8381862	Hydroxide (OH)	2016/08/30					<0.50	mg/L	NC	20
8381865	pH	2016/08/30			102	97 - 103			4.5	N/A
8381867	Conductivity	2016/08/30			100	80 - 120	<1.0	uS/cm	NC	20
8382397	Fluoride (F)	2016/08/30	98	80 - 120	102	80 - 120	0.011, RDL=0.010	mg/L	NC	20
8382399	Fluoride (F)	2016/08/30	98	80 - 120	102	80 - 120	0.011, RDL=0.010	mg/L	0	20
8382444	Nitrate plus Nitrite (N)	2016/08/30	108	80 - 120	103	80 - 120	<0.0020	mg/L	NC	25
8382452	Nitrite (N)	2016/08/30	98	80 - 120	98	80 - 120	<0.0020	mg/L	NC	25
8382544	Dissolved Phosphorus (P)	2016/08/30	88	80 - 120	90	80 - 120	<0.0020	mg/L	NC	20
8382547	Total Phosphorus (P)	2016/08/30			87	80 - 120	<0.0020	mg/L		
8382549	Total Phosphorus (P)	2016/08/30	81	80 - 120	110	80 - 120	<0.0020	mg/L	NC	20
8382582	Total Ammonia (N)	2016/08/31	NC	80 - 120	98	80 - 120	<0.0050	mg/L	0.075	20
8382583	Total Ammonia (N)	2016/08/31	NC	80 - 120	100	80 - 120	<0.0050	mg/L	1.3	20
8382586	Total Ammonia (N)	2016/08/31	NC	80 - 120	101	80 - 120	<0.0050	mg/L	0.87	20
8383021	Dissolved Organic Carbon (C)	2016/08/30	104	80 - 120	106	80 - 120	<0.50	mg/L	NC	20
8383023	Dissolved Organic Carbon (C)	2016/08/30	NC	80 - 120	111	80 - 120	<0.50	mg/L	2.4	20
8383192	Dissolved Aluminum (Al)	2016/08/31	99	80 - 120	102	80 - 120	<0.00050	mg/L	9.6	20
8383192	Dissolved Antimony (Sb)	2016/08/31	104	80 - 120	99	80 - 120	<0.000020	mg/L	NC	20
8383192	Dissolved Arsenic (As)	2016/08/31	104	80 - 120	100	80 - 120	<0.000020	mg/L	1.4	20
8383192	Dissolved Barium (Ba)	2016/08/31	NC	80 - 120	106	80 - 120	<0.000020	mg/L	1.9	20
8383192	Dissolved Beryllium (Be)	2016/08/31	105	80 - 120	102	80 - 120	<0.000010	mg/L	NC	20
8383192	Dissolved Bismuth (Bi)	2016/08/31	98	80 - 120	98	80 - 120	<0.0000050	mg/L	NC	20
8383192	Dissolved Boron (B)	2016/08/31	99	80 - 120	98	80 - 120	<0.010	mg/L	NC	20
8383192	Dissolved Cadmium (Cd)	2016/08/31	96	80 - 120	96	80 - 120	<0.0000050	mg/L	NC	20

Maxxam Job #: B673795  
Report Date: 2016/09/02

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8383192	Dissolved Chromium (Cr)	2016/08/31	105	80 - 120	103	80 - 120	<0.00010	mg/L	NC	20
8383192	Dissolved Cobalt (Co)	2016/08/31	103	80 - 120	105	80 - 120	<0.0000050	mg/L	1.8	20
8383192	Dissolved Copper (Cu)	2016/08/31	103	80 - 120	104	80 - 120	<0.000050	mg/L	5.7	20
8383192	Dissolved Iron (Fe)	2016/08/31	NC	80 - 120	109	80 - 120	<0.0010	mg/L	1.1	20
8383192	Dissolved Lead (Pb)	2016/08/31	100	80 - 120	99	80 - 120	<0.0000050	mg/L	NC	20
8383192	Dissolved Lithium (Li)	2016/08/31	NC	80 - 120	98	80 - 120	<0.00050	mg/L	5.9	20
8383192	Dissolved Manganese (Mn)	2016/08/31	NC	80 - 120	103	80 - 120	<0.000050	mg/L	0.45	20
8383192	Dissolved Molybdenum (Mo)	2016/08/31	NC	80 - 120	104	80 - 120	<0.000050	mg/L	4.2	20
8383192	Dissolved Nickel (Ni)	2016/08/31	96	80 - 120	105	80 - 120	<0.000020	mg/L	4.2	20
8383192	Dissolved Phosphorus (P)	2016/08/31					<0.0020	mg/L	NC	20
8383192	Dissolved Selenium (Se)	2016/08/31	105	80 - 120	100	80 - 120	<0.000040	mg/L	NC	20
8383192	Dissolved Silicon (Si)	2016/08/31					<0.050	mg/L	2.9	20
8383192	Dissolved Silver (Ag)	2016/08/31	102	80 - 120	92	80 - 120	<0.0000050	mg/L	NC	20
8383192	Dissolved Strontium (Sr)	2016/08/31	NC	80 - 120	95	80 - 120	<0.000050	mg/L	1.6	20
8383192	Dissolved Thallium (Tl)	2016/08/31	98	80 - 120	95	80 - 120	<0.0000020	mg/L	NC	20
8383192	Dissolved Tin (Sn)	2016/08/31	105	80 - 120	103	80 - 120	<0.00020	mg/L	NC	20
8383192	Dissolved Titanium (Ti)	2016/08/31	108	80 - 120	104	80 - 120	<0.00050	mg/L	NC	20
8383192	Dissolved Uranium (U)	2016/08/31	102	80 - 120	99	80 - 120	<0.0000020	mg/L	1.3	20
8383192	Dissolved Vanadium (V)	2016/08/31	104	80 - 120	102	80 - 120	<0.00020	mg/L	NC	20
8383192	Dissolved Zinc (Zn)	2016/08/31	109	80 - 120	101	80 - 120	<0.00010	mg/L	NC	20
8383192	Dissolved Zirconium (Zr)	2016/08/31					<0.00010	mg/L	5.3	20
8383357	Total Mercury (Hg)	2016/08/31	89	80 - 120	95	80 - 120	<0.0000020	mg/L	NC	20
8383380	Dissolved Mercury (Hg)	2016/08/31	92	80 - 120	95	80 - 120	<0.0000020	mg/L	NC	20
8383429	Total Aluminum (Al)	2016/09/01	94	80 - 120	100	80 - 120	<0.00050	mg/L	2.4	20
8383429	Total Antimony (Sb)	2016/09/01	98	80 - 120	99	80 - 120	<0.000020	mg/L	NC	20
8383429	Total Arsenic (As)	2016/09/01	96	80 - 120	98	80 - 120	<0.000020	mg/L	0.26	20
8383429	Total Barium (Ba)	2016/09/01	NC	80 - 120	102	80 - 120	<0.000020	mg/L	0.65	20
8383429	Total Beryllium (Be)	2016/09/01	98	80 - 120	95	80 - 120	<0.000010	mg/L	NC	20
8383429	Total Bismuth (Bi)	2016/09/01	97	80 - 120	101	80 - 120	<0.0000050	mg/L	NC	20
8383429	Total Boron (B)	2016/09/01	92	80 - 120	93	80 - 120	<0.010	mg/L	NC	20
8383429	Total Cadmium (Cd)	2016/09/01	93	80 - 120	95	80 - 120	<0.0000050	mg/L	NC	20

Maxxam Job #: B673795  
Report Date: 2016/09/02

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8383429	Total Chromium (Cr)	2016/09/01	100	80 - 120	105	80 - 120	<0.00010	mg/L	NC	20
8383429	Total Cobalt (Co)	2016/09/01	100	80 - 120	105	80 - 120	<0.0000050	mg/L	NC	20
8383429	Total Copper (Cu)	2016/09/01	98	80 - 120	105	80 - 120	<0.000050	mg/L	0	20
8383429	Total Iron (Fe)	2016/09/01	NC	80 - 120	110	80 - 120	<0.0010	mg/L	3.4	20
8383429	Total Lead (Pb)	2016/09/01	98	80 - 120	104	80 - 120	<0.0000050	mg/L	3.8	20
8383429	Total Lithium (Li)	2016/09/01	92	80 - 120	88	80 - 120	<0.00050	mg/L	NC	20
8383429	Total Manganese (Mn)	2016/09/01	NC	80 - 120	102	80 - 120	<0.000050	mg/L	0.56	20
8383429	Total Molybdenum (Mo)	2016/09/01	NC	80 - 120	102	80 - 120	<0.000050	mg/L	2.8	20
8383429	Total Nickel (Ni)	2016/09/01	100	80 - 120	103	80 - 120	<0.000020	mg/L	2.3	20
8383429	Total Phosphorus (P)	2016/09/01					<0.0020	mg/L	3.0	20
8383429	Total Selenium (Se)	2016/09/01	96	80 - 120	99	80 - 120	<0.000040	mg/L	9.3	20
8383429	Total Silicon (Si)	2016/09/01					<0.050	mg/L	2.9	20
8383429	Total Silver (Ag)	2016/09/01	102	80 - 120	102	80 - 120	<0.0000050	mg/L	NC	20
8383429	Total Strontium (Sr)	2016/09/01	NC	80 - 120	96	80 - 120	<0.000050	mg/L	0.53	20
8383429	Total Thallium (Tl)	2016/09/01	95	80 - 120	101	80 - 120	<0.0000020	mg/L	NC	20
8383429	Total Tin (Sn)	2016/09/01	100	80 - 120	102	80 - 120	<0.00020	mg/L	NC	20
8383429	Total Titanium (Ti)	2016/09/01	94	80 - 120	104	80 - 120	<0.00050	mg/L	NC	20
8383429	Total Uranium (U)	2016/09/01	99	80 - 120	104	80 - 120	<0.0000020	mg/L	3.4	20
8383429	Total Vanadium (V)	2016/09/01	101	80 - 120	101	80 - 120	<0.00020	mg/L	NC	20
8383429	Total Zinc (Zn)	2016/09/01	104	80 - 120	102	80 - 120	<0.00010	mg/L	0.82	20
8383429	Total Zirconium (Zr)	2016/09/01					<0.00010	mg/L	NC	20
8383496	Total Aluminum (Al)	2016/09/02	NC	80 - 120	106	80 - 120	<0.0030	mg/L	2.7	20
8383496	Total Antimony (Sb)	2016/09/02	108	80 - 120	105	80 - 120	<0.000020	mg/L	7.0	20
8383496	Total Arsenic (As)	2016/09/02	106	80 - 120	105	80 - 120	<0.000020	mg/L	3.0	20
8383496	Total Barium (Ba)	2016/09/02	NC	80 - 120	108	80 - 120	<0.000050	mg/L	0.50	20
8383496	Total Beryllium (Be)	2016/09/02	104	80 - 120	101	80 - 120	<0.000010	mg/L	NC	20
8383496	Total Bismuth (Bi)	2016/09/02	100	80 - 120	102	80 - 120	<0.000010	mg/L	NC	20
8383496	Total Boron (B)	2016/09/02	103	80 - 120	98	80 - 120	<0.010	mg/L	NC	20
8383496	Total Cadmium (Cd)	2016/09/02	102	80 - 120	100	80 - 120	<0.0000050	mg/L	4.3	20
8383496	Total Chromium (Cr)	2016/09/02	106	80 - 120	108	80 - 120	<0.00010	mg/L	NC	20
8383496	Total Cobalt (Co)	2016/09/02	103	80 - 120	108	80 - 120	<0.000010	mg/L	0	20

Maxxam Job #: B673795  
Report Date: 2016/09/02

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8383496	Total Copper (Cu)	2016/09/02	100	80 - 120	111	80 - 120	<0.00010	mg/L	1.6	20
8383496	Total Iron (Fe)	2016/09/02	NC	80 - 120	113	80 - 120	<0.0050	mg/L	1.1	20
8383496	Total Lead (Pb)	2016/09/02	102	80 - 120	101	80 - 120	<0.000020	mg/L	1.4	20
8383496	Total Lithium (Li)	2016/09/02	NC	80 - 120	100	80 - 120	<0.00050	mg/L	11	20
8383496	Total Manganese (Mn)	2016/09/02	NC	80 - 120	107	80 - 120	<0.00010	mg/L	1.2	20
8383496	Total Molybdenum (Mo)	2016/09/02	NC	80 - 120	103	80 - 120	<0.000050	mg/L	1.5	20
8383496	Total Nickel (Ni)	2016/09/02	100	80 - 120	107	80 - 120	<0.00010	mg/L	3.6	20
8383496	Total Phosphorus (P)	2016/09/02					<0.0050	mg/L	NC	20
8383496	Total Selenium (Se)	2016/09/02	107	80 - 120	106	80 - 120	<0.000040	mg/L	NC	20
8383496	Total Silicon (Si)	2016/09/02					<0.050	mg/L	0.54	20
8383496	Total Silver (Ag)	2016/09/02	114	80 - 120	106	80 - 120	<0.000010	mg/L	8.3	20
8383496	Total Strontium (Sr)	2016/09/02	NC	80 - 120	103	80 - 120	<0.000050	mg/L	0.40	20
8383496	Total Thallium (Tl)	2016/09/02	101	80 - 120	96	80 - 120	<0.0000020	mg/L	NC	20
8383496	Total Tin (Sn)	2016/09/02	99	80 - 120	106	80 - 120	<0.00020	mg/L	NC	20
8383496	Total Titanium (Ti)	2016/09/02	92	80 - 120	105	80 - 120	<0.0020	mg/L	NC	20
8383496	Total Uranium (U)	2016/09/02	NC	80 - 120	99	80 - 120	<0.0000050	mg/L	1.4	20
8383496	Total Vanadium (V)	2016/09/02	107	80 - 120	107	80 - 120	<0.00020	mg/L	NC	20
8383496	Total Zinc (Zn)	2016/09/02	101	80 - 120	111	80 - 120	<0.0010	mg/L	NC	20
8383496	Total Zirconium (Zr)	2016/09/02					<0.00010	mg/L	4.7	20
8384768	Dissolved Chloride (Cl)	2016/08/31	94	80 - 120	100	80 - 120	0.53, RDL=0.50	mg/L	NC	20
8384770	Dissolved Sulphate (SO4)	2016/08/31	92	80 - 120	97	80 - 120	<0.50	mg/L	NC	20
8385098	Dissolved Lead (Pb)	2016/09/02	101	80 - 120	100	80 - 120	<0.0000050	mg/L	NC	20

Maxxam Job #: B673795  
Report Date: 2016/09/02

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8385098	Dissolved Nickel (Ni)	2016/09/02	100	80 - 120	100	80 - 120	<0.000020	mg/L	2.3	20

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).



Maxxam Job #: B673795  
Report Date: 2016/09/02

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



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David Huang, M.Sc., P.Chem., QP, Scientific Services Manager

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Invoice Information	Report Information (If differs from invoice)	Project Information (when applicable)	Turnaround Time (TAT) Required
Company Name: <b>BMC MINERALS LTD.</b>	Company Name: <b>ALEXCO ENVIRONMENTAL</b>	Quotation #: <b>860751</b>	<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses)
Contact Name:	Contact Name: <b>KAI WOLOSHYN</b>	P.O. #/ AFE#:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: <b>530-1130 WEST PENDER ST</b> Vancouver, BC PC: V6E 4A4	Address: <b>UNIT 3 151 INDUSTRIAL RD</b> Whitehorse, YK PC: V1A 2V3	Project #: <b>BMC-16-01</b>	Rush TAT (Surcharges will be applied)
Phone:	Phone: <b>(867) 668-6463</b>	Site Location: <b>Kudz Ze Kayah</b>	<input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days
Email:	Email: <b>kwoloshyn@alexcoresource.com</b>	Site #:	<input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days
Sampled By:			Date Required:

Regulatory Criteria	Special Instructions	Analysis Requested	Rush Confirmation #:
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> BC CSR Water <input type="checkbox"/> CCME (Specify) <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC Water Quality	<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify) Also send report to: <a href="mailto:lfougere@accessconsulting.ca">lfougere@accessconsulting.ca</a> <a href="mailto:spnells@accessconsulting.ca">spnells@accessconsulting.ca</a>	TOTAL LOW LEVEL METALS INCL. MERCURY DISSOLVED LOW LEVEL METALS INCL. MERCURY LOW LEVEL TSS ANIONS (Cl, F, SO4, NO2, NO3) AMMONIA CONDUCTIVITY pH ALKALINITY & ACIDITY DOC TOTAL PHOSPHORUS - LOW LEVEL DISSOLVED PHOSPHORUS - LOW LEVEL	LABORATORY USE ONLY CUSTODY SEAL Present Intact COOLER TEMPERATURES HOLD - DO NOT ANALYZE # OF CONTAINERS SUBMITTED COOLING MEDIA PRESENT

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	TOTAL LOW LEVEL METALS INCL. MERCURY	DISSOLVED LOW LEVEL METALS INCL. MERCURY	LOW LEVEL TSS	ANIONS (Cl, F, SO4, NO2, NO3)	AMMONIA	CONDUCTIVITY	pH	ALKALINITY & ACIDITY	DOC	TOTAL PHOSPHORUS - LOW LEVEL	DISSOLVED PHOSPHORUS - LOW LEVEL	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	COOLING MEDIA PRESENT	COMMENTS
1	BH95G-29	23-Aug-16	14:37	Water	X	X	X	X	X	X	X	X	X	X	X				
2	MW16-15D	23-Aug-16	15:45	Water	X	X	X	X	X	X	X	X	X	X	X				
3	MW16-15S	23-Aug-16	16:30	Water	X	X	X	X	X	X	X	X	X	X	X				
4	BH95G-21	23-Aug-16	17:15	Water	X	X	X	X	X	X	X	X	X	X	X				
5	MW15-11D	24-Aug-16	9:45	Water	X	X	X	X	X	X	X	X	X	X	X				
6	MW15-11S	24-Aug-16	10:11	Water	X	X	X	X	X	X	X	X	X	X	X				
7	MW15-02	24-Aug-16	13:05	Water	X	X	X	X	X	X	X	X	X	X	X				
8	MW15-01	24-Aug-16	14:10	Water	X	X	X	X	X	X	X	X	X	X	X				
9	BH95G-32	24-Aug-16	16:50	Water	X	X	X	X	X	X	X	X	X	X	X				
10	DUP1	24-Aug-16		Water	X	X	X	X	X	X	X	X	X	X	X				

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)
			<i>M. Laurel Bethner</i>	2016/08/29	10:05



B673795\_COC

Your Project #: BMC-16-01  
 Site Location: KUDZ ZE KAYAH  
 Your C.O.C. #: 08427565, 08427567, 08427566

**Attention: KAI WOLOSHYN**

ALEXCO ENVIRONMENTAL GROUP INC.  
 Unit 3 Calcite Business Centre  
 151 Industrial Road  
 WHITEHORSE, YT  
 Canada Y1A 2V3

**Report Date: 2016/09/28**  
 Report #: R2271034  
 Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B682252**

**Received: 2016/09/20, 11:10**

Sample Matrix: Water  
 # Samples Received: 29

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
Acidity pH 4.5 & pH 8.3 (as CaCO3)	18	N/A	2016/09/22	BBY6SOP-00037	SM 22 2310 B m
Acidity pH 4.5 & pH 8.3 (as CaCO3)	11	N/A	2016/09/23	BBY6SOP-00037	SM 22 2310 B m
Alkalinity - Water	28	2016/09/22	2016/09/22	BBY6SOP-00026	SM 22 2320 B m
Alkalinity - Water	1	2016/09/26	2016/09/26	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry	28	N/A	2016/09/22	BBY6SOP-00011	SM 22 4500-Cl- E m
Chloride by Automated Colourimetry	1	N/A	2016/09/27	BBY6SOP-00011	SM 22 4500-Cl- E m
Carbon (DOC) - field filtered/preserved (1)	28	N/A	2016/09/22	BBY6SOP-00003	SM 22 5310 C m
Carbon (DOC) - unfiltered/unpreserved (1)	1	N/A	2016/09/23	BBY6SOP-00003	SM 22 5310 C m
Conductance - water	29	N/A	2016/09/22	BBY6SOP-00026	SM 22 2510 B m
Fluoride	28	N/A	2016/09/22	BBY6SOP-00048	SM 22 4500-F C m
Fluoride	1	N/A	2016/09/23	BBY6SOP-00048	SM 22 4500-F C m
Hardness Total (calculated as CaCO3)	21	N/A	2016/09/23	BBY WI-00033	Auto Calc
Hardness Total (calculated as CaCO3)	7	N/A	2016/09/24	BBY WI-00033	Auto Calc
Hardness Total (calculated as CaCO3)	1	N/A	2016/09/28	BBY WI-00033	Auto Calc
Hardness (calculated as CaCO3)	27	N/A	2016/09/23	BBY WI-00033	Auto Calc
Hardness (calculated as CaCO3)	2	N/A	2016/09/26	BBY WI-00033	Auto Calc
Mercury (Dissolved-LowLevel) by CVAF	29	N/A	2016/09/23	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total-LowLevel) by CVAF	29	2016/09/23	2016/09/23	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Ion Balance	27	N/A	2016/09/23	BBY WI-00033	Auto Calc
Ion Balance	2	N/A	2016/09/27	BBY WI-00033	Auto Calc
Sum of cations, anions	27	N/A	2016/09/23	Calc	
Sum of cations, anions	1	N/A	2016/09/26	Calc	
Sum of cations, anions	1	N/A	2016/09/27	Calc	
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	27	N/A	2016/09/23	BBY7SOP-00002	EPA 6020B R2 m
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	2	N/A	2016/09/26	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Low Level (dissolved)	28	N/A	2016/09/23	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Low Level (dissolved)	1	N/A	2016/09/26	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Digested LL (total)	19	2016/09/22	2016/09/23	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Elements by ICPMS Digested LL (total)	7	2016/09/23	2016/09/23	BBY7SOP-00003,	BCLM2005,EPA6020bR2m

Your Project #: BMC-16-01  
 Site Location: KUDZ ZE KAYAH  
 Your C.O.C. #: 08427565, 08427567, 08427566

**Attention: KAI WOLOSHYN**

ALEXCO ENVIRONMENTAL GROUP INC.  
 Unit 3 Calcite Business Centre  
 151 Industrial Road  
 WHITEHORSE, YT  
 Canada Y1A 2V3

**Report Date: 2016/09/28**  
 Report #: R2271034  
 Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B682252**

**Received: 2016/09/20, 11:10**

Sample Matrix: Water  
 # Samples Received: 29

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Elements by ICPMS Digested LL (total)	1	2016/09/28	2016/09/28	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Na, K, Ca, Mg, S by CRC ICPMS (total)	21	N/A	2016/09/23	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Na, K, Ca, Mg, S by CRC ICPMS (total)	7	N/A	2016/09/24	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Na, K, Ca, Mg, S by CRC ICPMS (total)	1	N/A	2016/09/28	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Elements by ICPMS Low Level (total)	2	N/A	2016/09/23	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Ammonia-N (Unpreserved)	1	N/A	2016/09/22	BBY6SOP-00009	SM 22 4500-NH3- G m
Ammonia-N (Preserved)	28	N/A	2016/09/22	BBY6SOP-00009	SM 22 4500-NH3- G m
Nitrate+Nitrite (N) (low level)	28	N/A	2016/09/22	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrate+Nitrite (N) (low level)	1	N/A	2016/09/23	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) (low level)	28	N/A	2016/09/22	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) (low level)	1	N/A	2016/09/23	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N)	29	N/A	2016/09/23	BBY6SOP-00010	SM 22 4500-NO3- I m
Filter and HNO3 Preserve for Metals	28	N/A	2016/09/22	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (2)	29	N/A	2016/09/22	BBY6SOP-00026	SM 22 4500-H+ B m
Sulphate by Automated Colourimetry	24	N/A	2016/09/22	BBY6SOP-00017	SM 22 4500-SO42- E m
Sulphate by Automated Colourimetry	4	N/A	2016/09/23	BBY6SOP-00017	SM 22 4500-SO42- E m
Sulphate by Automated Colourimetry	1	N/A	2016/09/27	BBY6SOP-00017	SM 22 4500-SO42- E m
Phosphorus-P (LL Tot, dissolved) - UF/UP	27	2016/09/22	2016/09/22	BBY6SOP-00013	SM 22 4500-P E m
Phosphorus-P (LL Tot, dissolved) - UF/UP	1	2016/09/23	2016/09/23	BBY6SOP-00013	SM 22 4500-P E m
Phosphorus-P (LL Tot, dissolved) - UF/UP	1	2016/09/27	2016/09/27	BBY6SOP-00013	SM 22 4500-P E m
Total Phosphorus - unpreserved	26	N/A	2016/09/22	BBY6SOP-00013	SM 22 4500-P E m
Total Phosphorus - unpreserved	2	N/A	2016/09/23	BBY6SOP-00013	SM 22 4500-P E m
Total Phosphorus - unpreserved	1	N/A	2016/09/27	BBY6SOP-00013	SM 22 4500-P E m
Total Suspended Solids-Low Level	29	2016/09/22	2016/09/23	BBY6SOP-00034	SM 22 2540 D

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) DOC present in the sample should be considered as non-purgeable DOC.

(2) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Your Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Your C.O.C. #: 08427565, 08427567, 08427566

**Attention:KAI WOLOSHYN**

ALEXCO ENVIRONMENTAL GROUP INC.  
Unit 3 Calcite Business Centre  
151 Industrial Road  
WHITEHORSE, YT  
Canada Y1A 2V3

**Report Date: 2016/09/28**  
Report #: R2271034  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B682252**  
**Received: 2016/09/20, 11:10**

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.  
Megan Smith, Project Manager  
Email: msmith@maxxam.ca  
Phone# (604) 734 7276

=====  
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PO3612			PO3633			PO3634		
Sampling Date		2016/09/15 09:15			2016/09/15 09:40			2016/09/15 13:15		
COC Number		08427565			08427565			08427565		
	UNITS	BH95G-25D	RDL	QC Batch	BH95G-25S	RDL	QC Batch	BH95G-131	RDL	QC Batch
<b>Calculated Parameters</b>										
Anion Sum	meq/L	12	N/A	8405945	11	N/A	8405945	14	N/A	8405945
Cation Sum	meq/L	12	N/A	8405945	10	N/A	8405945	13	N/A	8405945
Filter and HNO3 Preservation	N/A	LAB	N/A	8406949	LAB	N/A	8406949	LAB	N/A	8406949
Ion Balance	N/A	0.99	0.010	8405944	0.93	0.010	8405944	0.95	0.010	8405944
Nitrate (N)	mg/L	<0.0020	0.0020	8405271	<0.0020	0.0020	8405271	<0.0020	0.0020	8405271
<b>Misc. Inorganics</b>										
Fluoride (F)	mg/L	0.087	0.010	8407674	0.120	0.010	8407680	0.088	0.010	8407680
Dissolved Organic Carbon (C)	mg/L	2.74	0.50	8408810	2.88	0.50	8408811	1.43	0.50	8408812
Acidity (pH 4.5)	mg/L	<0.50	0.50	8407672	<0.50	0.50	8407672	<0.50	0.50	8407672
Alkalinity (Total as CaCO3)	mg/L	351	0.50	8407658	336	0.50	8407658	443	0.50	8407658
Acidity (pH 8.3)	mg/L	22.6	0.50	8407672	23.5	0.50	8407672	31.2	0.50	8407672
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8407658	<0.50	0.50	8407658	<0.50	0.50	8407658
Bicarbonate (HCO3)	mg/L	429	0.50	8407658	410	0.50	8407658	540	0.50	8407658
Carbonate (CO3)	mg/L	<0.50	0.50	8407658	<0.50	0.50	8407658	<0.50	0.50	8407658
Hydroxide (OH)	mg/L	<0.50	0.50	8407658	<0.50	0.50	8407658	<0.50	0.50	8407658
<b>Anions</b>										
Dissolved Sulphate (SO4)	mg/L	243 (1)	5.0	8407786	200 (1)	5.0	8409350	237 (1)	5.0	8407786
Dissolved Chloride (Cl)	mg/L	1.1	0.50	8407782	0.88	0.50	8407782	0.88	0.50	8407782
<b>Nutrients</b>										
Dissolved Phosphorus (P)	mg/L	0.0231 (2)	0.0020	8407369	0.0668 (2)	0.0020	8407369	0.0313 (2)	0.0020	8407369
Total Ammonia (N)	mg/L	0.070	0.0050	8407017	0.29	0.0050	8407017	0.038	0.0050	8407020
Nitrate plus Nitrite (N)	mg/L	<0.0020 (2)	0.0020	8409077	<0.0020 (2)	0.0020	8409077	<0.0020 (2)	0.0020	8409077
Nitrite (N)	mg/L	<0.0020 (2)	0.0020	8409079	<0.0020 (2)	0.0020	8409079	<0.0020 (2)	0.0020	8409079
Total Phosphorus (P)	mg/L	0.413 (2)	0.0020	8407372	1.03 (3)	0.020	8407372	0.292 (2)	0.0020	8407372
<b>Physical Properties</b>										
Conductivity	uS/cm	1060	1.0	8407662	951	1.0	8407662	1150	1.0	8407662
pH	pH	7.65		8407661	7.86		8407661	7.75		8407661
RDL = Reportable Detection Limit N/A = Not Applicable (1) Detection limits raised due to dilution to bring analyte within the calibrated range. (2) Sample analysed past recommended hold time. (3) Detection limits raised due to dilution to bring analyte within the calibrated range. Sample analysed past recommended hold time.										

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PO3612			PO3633			PO3634		
Sampling Date		2016/09/15 09:15			2016/09/15 09:40			2016/09/15 13:15		
COC Number		08427565			08427565			08427565		
	<b>UNITS</b>	<b>BH95G-25D</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH95G-25S</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH95G-131</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Physical Properties</b>										
Total Suspended Solids	mg/L	1020 (1)	10	8406940	1870 (1)	20	8406940	67.3 (2)	2.5	8406940
RDL = Reportable Detection Limit										
(1) RDL raised due to high concentration of solids in the sample.										
(2) RDL raised due to sample matrix interference.										

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PO3635			PO3636			PO3637		
Sampling Date		2016/09/15 15:00			2016/09/15			2016/09/16 08:35		
COC Number		08427565			08427565			08427565		
	UNITS	BH95G-33D	RDL	QC Batch	DUP2	RDL	QC Batch	MW15-06	RDL	QC Batch
<b>Calculated Parameters</b>										
Anion Sum	meq/L	5.2	N/A	8405945	13	N/A	8405945	4.1	N/A	8405945
Cation Sum	meq/L	4.7	N/A	8405945	13	N/A	8405945	3.8	N/A	8405945
Filter and HNO3 Preservation	N/A	LAB	N/A	8406949	LAB	N/A	8406949	LAB	N/A	8406949
Ion Balance	N/A	0.90	0.010	8405944	0.97	0.010	8405944	0.93	0.010	8405944
Nitrate (N)	mg/L	0.183	0.0020	8405271	<0.0020	0.0020	8405271	0.355	0.0020	8405271
<b>Misc. Inorganics</b>										
Fluoride (F)	mg/L	0.051	0.010	8407674	0.084	0.010	8407674	0.110	0.010	8407674
Dissolved Organic Carbon (C)	mg/L	0.52	0.50	8408811	1.12	0.50	8408811	0.64	0.50	8408812
Acidity (pH 4.5)	mg/L	<0.50	0.50	8407672	<0.50	0.50	8407672	<0.50	0.50	8407666
Alkalinity (Total as CaCO3)	mg/L	179	0.50	8407658	436	0.50	8407658	177	0.50	8407658
Acidity (pH 8.3)	mg/L	3.48	0.50	8407672	28.1	0.50	8407672	0.92	0.50	8407666
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8407658	<0.50	0.50	8407658	<0.50	0.50	8407658
Bicarbonate (HCO3)	mg/L	218	0.50	8407658	532	0.50	8407658	216	0.50	8407658
Carbonate (CO3)	mg/L	<0.50	0.50	8407658	<0.50	0.50	8407658	<0.50	0.50	8407658
Hydroxide (OH)	mg/L	<0.50	0.50	8407658	<0.50	0.50	8407658	<0.50	0.50	8407658
<b>Anions</b>										
Dissolved Sulphate (SO4)	mg/L	75.5	0.50	8409350	221 (1)	5.0	8407786	22.7	0.50	8407786
Dissolved Chloride (Cl)	mg/L	0.86	0.50	8407782	1.5	0.50	8407782	1.3	0.50	8407782
<b>Nutrients</b>										
Dissolved Phosphorus (P)	mg/L	0.0079 (2)	0.0020	8407369	0.0196 (2)	0.0020	8407369	0.0189 (2)	0.0020	8407369
Total Ammonia (N)	mg/L	0.013	0.0050	8407017	0.044	0.0050	8407017	0.019	0.0050	8407017
Nitrate plus Nitrite (N)	mg/L	0.183 (2)	0.0020	8409077	<0.0020 (2)	0.0020	8409077	0.355 (2)	0.0020	8409077
Nitrite (N)	mg/L	<0.0020 (2)	0.0020	8409079	<0.0020 (2)	0.0020	8409079	<0.0020 (2)	0.0020	8409079
Total Phosphorus (P)	mg/L	0.198 (2)	0.0020	8407372	0.201 (2)	0.0020	8407372	0.173 (2)	0.0020	8407372
<b>Physical Properties</b>										
Conductivity	uS/cm	466	1.0	8407662	1140	1.0	8407662	378	1.0	8407662
pH	pH	7.83		8407661	7.52		8407661	7.94		8407661
RDL = Reportable Detection Limit N/A = Not Applicable (1) Detection limits raised due to dilution to bring analyte within the calibrated range. (2) Sample analysed past recommended hold time.										



Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		PO3635			PO3636			PO3637		
<b>Sampling Date</b>		2016/09/15 15:00			2016/09/15			2016/09/16 08:35		
<b>COC Number</b>		08427565			08427565			08427565		
	<b>UNITS</b>	<b>BH95G-33D</b>	<b>RDL</b>	<b>QC Batch</b>	<b>DUP2</b>	<b>RDL</b>	<b>QC Batch</b>	<b>MW15-06</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Physical Properties</b>										
Total Suspended Solids	mg/L	266 (1)	5.0	8406941	95.7 (2)	3.3	8406941	142 (1)	2.0	8406941

RDL = Reportable Detection Limit  
(1) RDL raised due to high concentration of solids in the sample.  
(2) RDL raised due to sample matrix interference.

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PO3638		PO3639			PO3640		
Sampling Date		2016/09/16 09:45		2016/09/16 11:02			2016/09/16 11:50		
COC Number		08427565		08427565			08427565		
	UNITS	MW15-09S	QC Batch	MW15-10S	RDL	QC Batch	MW15-10D	RDL	QC Batch
<b>Calculated Parameters</b>									
Anion Sum	meq/L	4.5	8405945	5.4	N/A	8411484	37	N/A	8411484
Cation Sum	meq/L	4.3	8405945	5.4	N/A	8411484	39	N/A	8411484
Filter and HNO3 Preservation	N/A	LAB	8406949	LAB	N/A	8406949	LAB	N/A	8406949
Ion Balance	N/A	0.96	8405944	1.0	0.010	8411003	1.1	0.010	8411003
Nitrate (N)	mg/L	0.0649	8405271	0.184	0.0020	8405271	<0.0020	0.0020	8405271
<b>Misc. Inorganics</b>									
Fluoride (F)	mg/L	0.240	8407674	0.160	0.010	8407674	1.30	0.010	8407674
Dissolved Organic Carbon (C)	mg/L	<0.50	8408811	0.65	0.50	8408811	<0.50	0.50	8408812
Acidity (pH 4.5)	mg/L	<0.50	8407666	<0.50	0.50	8407666	<0.50	0.50	8407672
Alkalinity (Total as CaCO3)	mg/L	205	8407658	239	0.50	8407658	1820	0.50	8411339
Acidity (pH 8.3)	mg/L	<0.50	8407666	20.6	0.50	8407666	546	0.50	8407672
Alkalinity (PP as CaCO3)	mg/L	<0.50	8407658	<0.50	0.50	8407658	<0.50	0.50	8411339
Bicarbonate (HCO3)	mg/L	250	8407658	292	0.50	8407658	2220	0.50	8411339
Carbonate (CO3)	mg/L	<0.50	8407658	<0.50	0.50	8407658	<0.50	0.50	8411339
Hydroxide (OH)	mg/L	<0.50	8407658	<0.50	0.50	8407658	<0.50	0.50	8411339
<b>Anions</b>									
Dissolved Sulphate (SO4)	mg/L	18.7	8407786	28.1	0.50	8407786	9.05	0.50	8413218
Dissolved Chloride (Cl)	mg/L	0.75	8407782	1.0	0.50	8407782	4.0	0.50	8413217
<b>Nutrients</b>									
Dissolved Phosphorus (P)	mg/L	0.0097 (1)	8407369	0.0160 (1)	0.0020	8407369	0.0132 (1)	0.0020	8412593
Total Ammonia (N)	mg/L	0.019	8407020	0.033	0.0050	8407017	0.22	0.0050	8407017
Nitrate plus Nitrite (N)	mg/L	0.0706 (1)	8409077	0.189 (1)	0.0020	8409077	<0.0020 (1)	0.0020	8409077
Nitrite (N)	mg/L	0.0057 (1)	8409079	0.0050 (1)	0.0020	8409079	<0.0020 (1)	0.0020	8409079
Total Phosphorus (P)	mg/L	0.0099 (1)	8407372	0.0564 (1)	0.0020	8407372	0.0640 (1)	0.0020	8412516
<b>Physical Properties</b>									
Conductivity	uS/cm	417	8407662	503	1.0	8407662	3000	1.0	8407662
pH	pH	8.00	8407661	6.67		8407661	6.78		8407661
<b>Physical Properties</b>									
Total Suspended Solids	mg/L	55.1	8406941	19.7	1.0	8406941	65.4 (2)	2.0	8406941
RDL = Reportable Detection Limit N/A = Not Applicable (1) Sample analysed past recommended hold time. (2) RDL raised due to sample matrix interference.									

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PO3641			PO3642		PO3643		
Sampling Date		2016/09/16 15:07			2016/09/18 10:01		2016/09/18 11:10		
COC Number		08427565			08427567		08427567		
	UNITS	BH95G-30	RDL	QC Batch	MW16-17	QC Batch	MW16-16D	RDL	QC Batch
<b>Calculated Parameters</b>									
Anion Sum	meq/L	4.4	N/A	8405945	4.0	8405945	4.7	N/A	8405945
Cation Sum	meq/L	4.1	N/A	8405945	3.7	8405945	4.6	N/A	8405945
Filter and HNO3 Preservation	N/A	LAB	N/A	8406949	LAB	8406949	LAB	N/A	8406949
Ion Balance	N/A	0.95	0.010	8405944	0.93	8405944	0.97	0.010	8405944
Nitrate (N)	mg/L	0.312	0.0020	8405271	0.0037	8405271	<0.0020	0.0020	8405271
<b>Misc. Inorganics</b>									
Fluoride (F)	mg/L	0.130	0.010	8407674	0.550	8407674	0.160	0.010	8407674
Dissolved Organic Carbon (C)	mg/L	<0.50	0.50	8408811	<0.50	8408810	<0.50	0.50	8408810
Acidity (pH 4.5)	mg/L	<0.50	0.50	8407666	<0.50	8407666	<0.50	0.50	8407666
Alkalinity (Total as CaCO3)	mg/L	189	0.50	8407658	164	8407658	196	0.50	8407658
Acidity (pH 8.3)	mg/L	<0.50	0.50	8407666	<0.50	8407666	2.70	0.50	8407666
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8407658	<0.50	8407658	<0.50	0.50	8407658
Bicarbonate (HCO3)	mg/L	231	0.50	8407658	200	8407658	239	0.50	8407658
Carbonate (CO3)	mg/L	<0.50	0.50	8407658	<0.50	8407658	<0.50	0.50	8407658
Hydroxide (OH)	mg/L	<0.50	0.50	8407658	<0.50	8407658	<0.50	0.50	8407658
<b>Anions</b>									
Dissolved Sulphate (SO4)	mg/L	25.0	0.50	8407786	32.3	8407786	38.6	0.50	8407786
Dissolved Chloride (Cl)	mg/L	0.77	0.50	8407782	0.95	8407782	0.67	0.50	8407782
<b>Nutrients</b>									
Dissolved Phosphorus (P)	mg/L	0.0061 (1)	0.0020	8407369	0.0294 (1)	8407369	0.0177 (1)	0.0020	8407369
Total Ammonia (N)	mg/L	0.015	0.0050	8407017	0.036	8407017	0.051	0.0050	8407017
Nitrate plus Nitrite (N)	mg/L	0.312 (1)	0.0020	8409077	0.0037 (1)	8409077	0.0060 (1)	0.0020	8409077
Nitrite (N)	mg/L	<0.0020 (1)	0.0020	8409079	<0.0020 (1)	8409079	0.0058 (1)	0.0020	8409079
Total Phosphorus (P)	mg/L	0.0309 (1)	0.0020	8407372	0.375 (1)	8407372	0.0452 (1)	0.0020	8408630
<b>Physical Properties</b>									
Conductivity	uS/cm	392	1.0	8407662	362	8407662	440	1.0	8407662
pH	pH	7.99		8407661	8.03	8407661	7.93		8407661
<b>Physical Properties</b>									
Total Suspended Solids	mg/L	9.1	1.0	8406941	1150 (2)	8406941	640 (2)	20	8406941
RDL = Reportable Detection Limit N/A = Not Applicable (1) Sample analysed past recommended hold time. (2) RDL raised due to high concentration of solids in the sample.									

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PO3644			PO3645			PO3646		
Sampling Date		2016/09/18 12:40			2016/09/18 13:37			2016/09/18 14:13		
COC Number		08427567			08427567			08427567		
	UNITS	MW16-14D	RDL	QC Batch	MW16-12D	RDL	QC Batch	MW16-12S	RDL	QC Batch
<b>Calculated Parameters</b>										
Anion Sum	meq/L	4.9	N/A	8405945	18	N/A	8405945	18	N/A	8405945
Cation Sum	meq/L	4.7	N/A	8405945	17	N/A	8405945	17	N/A	8405945
Filter and HNO3 Preservation	N/A	LAB	N/A	8406949	LAB	N/A	8406949	LAB	N/A	8406949
Ion Balance	N/A	0.96	0.010	8405944	0.96	0.010	8405944	0.93	0.010	8405944
Nitrate (N)	mg/L	<0.0020	0.0020	8405271	<0.0020	0.0020	8405271	<0.0020	0.0020	8405271
<b>Misc. Inorganics</b>										
Fluoride (F)	mg/L	0.230	0.010	8407680	1.10	0.010	8407680	0.880	0.010	8407680
Dissolved Organic Carbon (C)	mg/L	<0.50	0.50	8408810	<0.50	0.50	8408810	10.8	0.50	8408812
Acidity (pH 4.5)	mg/L	<0.50	0.50	8407682	<0.50	0.50	8407682	<0.50	0.50	8407682
Alkalinity (Total as CaCO3)	mg/L	157	0.50	8407679	870	0.50	8407679	882	0.50	8407679
Acidity (pH 8.3)	mg/L	1.67	0.50	8407682	109	0.50	8407682	107	0.50	8407682
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8407679	<0.50	0.50	8407679	<0.50	0.50	8407679
Bicarbonate (HCO3)	mg/L	191	0.50	8407679	1060	0.50	8407679	1080	0.50	8407679
Carbonate (CO3)	mg/L	<0.50	0.50	8407679	<0.50	0.50	8407679	<0.50	0.50	8407679
Hydroxide (OH)	mg/L	<0.50	0.50	8407679	<0.50	0.50	8407679	<0.50	0.50	8407679
<b>Anions</b>										
Dissolved Sulphate (SO4)	mg/L	81.7	0.50	8407791	<0.50	0.50	8409350	3.72	0.50	8409350
Dissolved Chloride (Cl)	mg/L	0.96	0.50	8407788	2.2	0.50	8407788	2.7	0.50	8407788
<b>Nutrients</b>										
Dissolved Phosphorus (P)	mg/L	0.0112 (1)	0.0020	8407370	0.252 (1)	0.0020	8407370	0.0682 (1)	0.0020	8407370
Total Ammonia (N)	mg/L	0.031	0.0050	8407017	0.28	0.0050	8407017	0.085	0.0050	8407017
Nitrate plus Nitrite (N)	mg/L	<0.0020 (1)	0.0020	8409081	<0.0020 (1)	0.0020	8409081	0.0058 (1)	0.0020	8409081
Nitrite (N)	mg/L	<0.0020 (1)	0.0020	8409082	<0.0020 (1)	0.0020	8409082	0.0046 (1)	0.0020	8409082
Total Phosphorus (P)	mg/L	0.0875 (1)	0.0020	8407373	0.223 (1)	0.0020	8407373	0.465 (1)	0.0020	8407373
<b>Physical Properties</b>										
Conductivity	uS/cm	452	1.0	8407684	1510	1.0	8407684	1610	1.0	8407684
pH	pH	7.92		8407683	6.96		8407683	6.93		8407683
<b>Physical Properties</b>										
Total Suspended Solids	mg/L	191 (2)	2.0	8406941	141 (2)	5.0	8406941	3140 (2)	20	8406941
RDL = Reportable Detection Limit N/A = Not Applicable (1) Sample analysed past recommended hold time. (2) RDL raised due to high concentration of solids in the sample.										

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PO3647		PO3648			PO3649		PO3650		
Sampling Date		2016/09/18 15:30		2016/09/19 12:56			2016/09/19 13:37		2016/09/19		
COC Number		08427567		08427567			08427567		08427567		
	UNITS	BH95G-02	RDL	BH95G-146	RDL	QC Batch	BH95G-129	QC Batch	FIELD BLANK	RDL	QC Batch

**Calculated Parameters**

Anion Sum	meq/L	6.2	N/A	7.5	N/A	8405945	4.1	8405945	0.023	N/A	8405945
Cation Sum	meq/L	6.3	N/A	8.0	N/A	8405945	4.0	8405945	0.0011	N/A	8405945
Filter and HNO3 Preservation	N/A	LAB	N/A	LAB	N/A	8406949	LAB	8406949	LAB	N/A	8406949
Ion Balance	N/A	1.0	0.010	1.1	0.010	8405944	0.98	8405944	0.048 (1)	0.010	8405944
Nitrate (N)	mg/L	0.428	0.0020	<0.0020	0.0020	8406448	<0.0020	8406448	<0.0020	0.0020	8406448

**Misc. Inorganics**

Fluoride (F)	mg/L	0.059	0.010	0.300	0.010	8407680	0.200	8407680	0.013	0.010	8407680
Dissolved Organic Carbon (C)	mg/L	0.77	0.50	1.11	0.50	8408811	1.08	8408811	<0.50	0.50	8408810
Acidity (pH 4.5)	mg/L	<0.50	0.50	<0.50	0.50	8407682	<0.50	8407672	<0.50	0.50	8407672
Alkalinity (Total as CaCO3)	mg/L	268	0.50	130	0.50	8407679	165	8407668	0.54	0.50	8407668
Acidity (pH 8.3)	mg/L	<0.50	0.50	2.68	0.50	8407682	<0.50	8407672	<0.50	0.50	8407672
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	<0.50	0.50	8407679	<0.50	8407668	<0.50	0.50	8407668
Bicarbonate (HCO3)	mg/L	327	0.50	159	0.50	8407679	201	8407668	0.66	0.50	8407668
Carbonate (CO3)	mg/L	<0.50	0.50	<0.50	0.50	8407679	<0.50	8407668	<0.50	0.50	8407668
Hydroxide (OH)	mg/L	<0.50	0.50	<0.50	0.50	8407679	<0.50	8407668	<0.50	0.50	8407668

**Anions**

Dissolved Sulphate (SO4)	mg/L	39.2	0.50	234 (2)	5.0	8407791	35.7	8407786	0.55	0.50	8407791
Dissolved Chloride (Cl)	mg/L	1.0	0.50	0.80	0.50	8407788	0.70	8407782	<0.50	0.50	8407788

**Nutrients**

Dissolved Phosphorus (P)	mg/L	0.0324 (3)	0.0020	0.164 (3)	0.0020	8407370	0.0087 (3)	8407369	<0.0020 (3)	0.0020	8407370
Total Ammonia (N)	mg/L	0.0091	0.0050	0.045	0.0050	8407017	0.036	8407020	<0.0050	0.0050	8407017
Nitrate plus Nitrite (N)	mg/L	0.428 (3)	0.0020	<0.0020 (3)	0.0020	8409081	<0.0020 (3)	8409077	<0.0020 (3)	0.0020	8409081
Nitrite (N)	mg/L	<0.0020 (3)	0.0020	<0.0020 (3)	0.0020	8409082	<0.0020 (3)	8409079	<0.0020 (3)	0.0020	8409082
Total Phosphorus (P)	mg/L	0.0282 (3)	0.0020	0.149	0.0020	8407373	0.0241 (3)	8407372	<0.0020	0.0020	8407373

**Physical Properties**

Conductivity	uS/cm	546	1.0	740	1.0	8407684	378	8407676	1.2	1.0	8407676
pH	pH	8.08		7.81		8407683	8.08	8407675	5.96		8407675

RDL = Reportable Detection Limit  
N/A = Not Applicable  
(1) Ion balance out of optimal range due to high measurement uncertainty at this level (Ion Sum < 0.4 meq/L for both cations and anions).  
(2) Detection limits raised due to dilution to bring analyte within the calibrated range.  
(3) Sample analysed past recommended hold time.

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		PO3647		PO3648			PO3649		PO3650		
<b>Sampling Date</b>		2016/09/18 15:30		2016/09/19 12:56			2016/09/19 13:37		2016/09/19		
<b>COC Number</b>		08427567		08427567			08427567		08427567		
	<b>UNITS</b>	<b>BH95G-02</b>	<b>RDL</b>	<b>BH95G-146</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH95G-129</b>	<b>QC Batch</b>	<b>FIELD BLANK</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Physical Properties</b>											
Total Suspended Solids	mg/L	50.1 (1)	1.0	10.4	1.0	8406941	9.0	8406941	<1.0	1.0	8406941

RDL = Reportable Detection Limit

(1) RDL raised due to limited initial sample amount.

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PO3651			PO3652			PO3664	PO3665		
Sampling Date		2016/09/16			2016/09/17 09:40			2016/09/17 10:05	2016/09/17 11:17		
COC Number		08427566			08427566			08427566	08427566		
	UNITS	DUP3	RDL	QC Batch	MW15-03D	RDL	QC Batch	MW15-03S	MW15-04S	RDL	QC Batch

Calculated Parameters											
Anion Sum	meq/L	4.1	N/A	8405945	4.3	N/A	8405945	2.9	2.5	N/A	8405945
Cation Sum	meq/L	3.9	N/A	8405945	4.2	N/A	8405945	2.7	2.4	N/A	8405945
Filter and HNO3 Preservation	N/A	LAB	N/A	8406949	LAB	N/A	8406949	LAB	LAB	N/A	8406949
Ion Balance	N/A	0.96	0.010	8405944	0.98	0.010	8405944	0.94	0.94	0.010	8405944
Nitrate (N)	mg/L	0.348	0.0020	8406448	<0.0020	0.0020	8406448	0.128	0.226	0.0020	8406448

Misc. Inorganics											
Fluoride (F)	mg/L	0.110	0.010	8407680	0.150	0.010	8407680	0.057	0.078	0.010	8407680
Dissolved Organic Carbon (C)	mg/L	0.94	0.50	8408812	<0.50	0.50	8408811	<0.50	<0.50	0.50	8408812
Acidity (pH 4.5)	mg/L	<0.50	0.50	8407672	<0.50	0.50	8407672	<0.50	<0.50	0.50	8407672
Alkalinity (Total as CaCO3)	mg/L	177	0.50	8407668	189	0.50	8407668	132	114	0.50	8407668
Acidity (pH 8.3)	mg/L	0.53	0.50	8407672	<0.50	0.50	8407672	<0.50	<0.50	0.50	8407672
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8407668	<0.50	0.50	8407668	<0.50	<0.50	0.50	8407668
Bicarbonate (HCO3)	mg/L	215	0.50	8407668	231	0.50	8407668	162	139	0.50	8407668
Carbonate (CO3)	mg/L	<0.50	0.50	8407668	<0.50	0.50	8407668	<0.50	<0.50	0.50	8407668
Hydroxide (OH)	mg/L	<0.50	0.50	8407668	<0.50	0.50	8407668	<0.50	<0.50	0.50	8407668

Anions											
Dissolved Sulphate (SO4)	mg/L	22.8	0.50	8407791	22.1	0.50	8407786	10.2	10.1	0.50	8407786
Dissolved Chloride (Cl)	mg/L	0.73	0.50	8407788	0.71	0.50	8407782	0.53	0.50	0.50	8407782

Nutrients											
Dissolved Phosphorus (P)	mg/L	0.0091 (1)	0.0020	8407369	0.0091 (1)	0.0020	8407369	0.0099 (1)	0.0138 (1)	0.0020	8407369
Total Ammonia (N)	mg/L	0.020	0.0050	8407020	0.072	0.0050	8407020	0.011	0.033	0.0050	8407020
Nitrate plus Nitrite (N)	mg/L	0.350 (1)	0.0020	8409081	<0.0020 (1)	0.0020	8409077	0.128 (1)	0.226 (1)	0.0020	8409077
Nitrite (N)	mg/L	0.0022 (1)	0.0020	8409082	<0.0020 (1)	0.0020	8409079	<0.0020 (1)	<0.0020 (1)	0.0020	8409079
Total Phosphorus (P)	mg/L	0.0920 (1)	0.0020	8407372	0.0062 (1)	0.0020	8407372	0.215 (1)	0.249 (1)	0.0020	8407372

Physical Properties											
Conductivity	uS/cm	377	1.0	8407676	391	1.0	8407676	265	233	1.0	8407676
pH	pH	8.10		8407675	8.12		8407675	8.03	8.05		8407675

Physical Properties											
Total Suspended Solids	mg/L	166 (2)	2.5	8406941	14.7	1.0	8406941	2680 (2)	2400 (2)	20	8406941

RDL = Reportable Detection Limit  
N/A = Not Applicable  
(1) Sample analysed past recommended hold time.  
(2) RDL raised due to high concentration of solids in the sample.

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PO3666			PO3667			PO3668		
Sampling Date		2016/09/17 12:03			2016/09/17 13:34			2016/09/17 14:56		
COC Number		08427566			08427566			08427566		
	UNITS	MW15-04D	RDL	QC Batch	MW15-05D	RDL	QC Batch	MW15-07S	RDL	QC Batch
<b>Calculated Parameters</b>										
Anion Sum	meq/L	3.2	N/A	8405945	4.2	N/A	8405945	4.1	N/A	8405945
Cation Sum	meq/L	3.0	N/A	8405945	4.1	N/A	8405945	4.0	N/A	8405945
Filter and HNO3 Preservation	N/A	LAB	N/A	8406949	LAB	N/A	8406949	LAB	N/A	8406949
Ion Balance	N/A	0.95	0.010	8405944	0.97	0.010	8405944	0.97	0.010	8405944
Nitrate (N)	mg/L	0.0133	0.0020	8406448	0.217	0.0020	8406448	0.0021	0.0020	8406448
<b>Misc. Inorganics</b>										
Fluoride (F)	mg/L	0.210	0.010	8407680	0.140	0.010	8407680	0.280	0.010	8407680
Dissolved Organic Carbon (C)	mg/L	<0.50	0.50	8408812	1.64	0.50	8408812	0.80	0.50	8408812
Acidity (pH 4.5)	mg/L	<0.50	0.50	8407672	<0.50	0.50	8407672	<0.50	0.50	8407672
Alkalinity (Total as CaCO3)	mg/L	137	0.50	8407668	177	0.50	8407668	172	0.50	8407679
Acidity (pH 8.3)	mg/L	<0.50	0.50	8407672	0.77	0.50	8407672	<0.50	0.50	8407672
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8407668	<0.50	0.50	8407668	<0.50	0.50	8407679
Bicarbonate (HCO3)	mg/L	167	0.50	8407668	216	0.50	8407668	210	0.50	8407679
Carbonate (CO3)	mg/L	<0.50	0.50	8407668	<0.50	0.50	8407668	<0.50	0.50	8407679
Hydroxide (OH)	mg/L	<0.50	0.50	8407668	<0.50	0.50	8407668	<0.50	0.50	8407679
<b>Anions</b>										
Dissolved Sulphate (SO4)	mg/L	18.8	0.50	8407786	30.4	0.50	8407786	31.0	0.50	8407791
Dissolved Chloride (Cl)	mg/L	0.57	0.50	8407782	0.79	0.50	8407782	0.63	0.50	8407788
<b>Nutrients</b>										
Dissolved Phosphorus (P)	mg/L	0.0102 (1)	0.0020	8407369	0.0353 (1)	0.0020	8407369	0.0326 (1)	0.0020	8407370
Total Ammonia (N)	mg/L	0.026	0.0050	8407017	0.019	0.0050	8407020	0.032	0.0050	8407017
Nitrate plus Nitrite (N)	mg/L	0.0133 (1)	0.0020	8409077	0.219 (1)	0.0020	8409077	0.0021 (1)	0.0020	8409081
Nitrite (N)	mg/L	<0.0020 (1)	0.0020	8409079	0.0026 (1)	0.0020	8409079	<0.0020 (1)	0.0020	8409082
Total Phosphorus (P)	mg/L	0.155 (1)	0.0020	8407372	0.327 (1)	0.0020	8407372	0.0276 (1)	0.0020	8407373
<b>Physical Properties</b>										
Conductivity	uS/cm	292	1.0	8407676	386	1.0	8407676	388	1.0	8407684
pH	pH	8.06		8407675	8.04		8407675	8.08		8407683
<b>Physical Properties</b>										
Total Suspended Solids	mg/L	602 (2)	10	8406947	3000 (2)	20	8406947	25.7	1.0	8406947
RDL = Reportable Detection Limit N/A = Not Applicable (1) Sample analysed past recommended hold time. (2) RDL raised due to high concentration of solids in the sample.										



Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		PO3669			PO3670			PO3671		
Sampling Date		2016/09/17 15:30			2016/09/17 16:25			2016/09/17		
COC Number		08427566			08427566			08427566		
	<b>UNITS</b>	<b>MW15-07D</b>	<b>RDL</b>	<b>QC Batch</b>	<b>MW15-08S</b>	<b>RDL</b>	<b>QC Batch</b>	<b>TRAVEL BLANK</b>	<b>RDL</b>	<b>QC Batch</b>

Calculated Parameters										
Anion Sum	meq/L	4.4	N/A	8405945	4.2	N/A	8405945	0.026	N/A	8405945
Cation Sum	meq/L	4.3	N/A	8405945	4.0	N/A	8405945	0.0018	N/A	8405945
Filter and HNO3 Preservation	N/A	LAB	N/A	8406949	LAB	N/A	8406949		N/A	8406949
Ion Balance	N/A	0.96	0.010	8405944	0.96	0.010	8405944	0.070 (1)	0.010	8405944
Nitrate (N)	mg/L	<0.0020	0.0020	8406448	0.265	0.0020	8406448	<0.0020	0.0020	8406448
Misc. Inorganics										
Fluoride (F)	mg/L	0.340	0.010	8407680	0.087	0.010	8407680	0.013	0.010	8409659
Dissolved Organic Carbon (C)	mg/L	<0.50	0.50	8408812	0.72	0.50	8408810	<0.50 (2)	0.50	8409487
Acidity (pH 4.5)	mg/L	<0.50	0.50	8407672	<0.50	0.50	8407672	<0.50	0.50	8409249
Alkalinity (Total as CaCO3)	mg/L	188	0.50	8407668	178	0.50	8407668	0.70	0.50	8407879
Acidity (pH 8.3)	mg/L	<0.50	0.50	8407672	0.96	0.50	8407672	<0.50	0.50	8409249
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8407668	<0.50	0.50	8407668	<0.50	0.50	8407879
Bicarbonate (HCO3)	mg/L	230	0.50	8407668	217	0.50	8407668	0.85	0.50	8407879
Carbonate (CO3)	mg/L	<0.50	0.50	8407668	<0.50	0.50	8407668	<0.50	0.50	8407879
Hydroxide (OH)	mg/L	<0.50	0.50	8407668	<0.50	0.50	8407668	<0.50	0.50	8407879
Anions										
Dissolved Sulphate (SO4)	mg/L	30.2	0.50	8407786	26.7	0.50	8407791	0.53	0.50	8407877
Dissolved Chloride (Cl)	mg/L	0.76	0.50	8407782	0.57	0.50	8407788	<0.50	0.50	8407875
Nutrients										
Dissolved Phosphorus (P)	mg/L	0.0190 (2)	0.0020	8407369	0.101 (2)	0.0020	8407370	<0.0020 (2)	0.0020	8408622
Total Ammonia (N)	mg/L	0.046	0.0050	8407017	0.080	0.0050	8407017	<0.0050 (3)	0.0050	8407021
Nitrate plus Nitrite (N)	mg/L	<0.0020 (2)	0.0020	8409077	0.268 (2)	0.0020	8409081	<0.0020 (2)	0.0020	8409630
Nitrite (N)	mg/L	<0.0020 (2)	0.0020	8409079	0.0025 (2)	0.0020	8409082	<0.0020 (2)	0.0020	8409632
Total Phosphorus (P)	mg/L	0.0886 (2)	0.0020	8407372	0.308 (2)	0.0020	8407373	<0.0020 (2)	0.0020	8408630
Physical Properties										
Conductivity	uS/cm	401	1.0	8407676	385	1.0	8407676	<1.0	1.0	8407882
pH	pH	8.07		8407675	8.09		8407675	5.74		8407881

RDL = Reportable Detection Limit

N/A = Not Applicable

(1) Ion balance out of optimal range due to high measurement uncertainty at this level (Ion Sum < 0.4 meq/L for both cations and anions).

(2) Sample analysed past recommended hold time.

(3) Sample arrived to laboratory past recommended hold time.

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		PO3669			PO3670			PO3671		
<b>Sampling Date</b>		2016/09/17 15:30			2016/09/17 16:25			2016/09/17		
<b>COC Number</b>		08427566			08427566			08427566		
	<b>UNITS</b>	<b>MW15-07D</b>	<b>RDL</b>	<b>QC Batch</b>	<b>MW15-08S</b>	<b>RDL</b>	<b>QC Batch</b>	<b>TRAVEL BLANK</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Physical Properties</b>										
Total Suspended Solids	mg/L	109	1.0	8406947	3100 (1)	20	8406947	<1.0	1.0	8406947
RDL = Reportable Detection Limit										
(1) RDL raised due to high concentration of solids in the sample.										

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PO3612	PO3633	PO3634	PO3635	PO3636		
Sampling Date		2016/09/15 09:15	2016/09/15 09:40	2016/09/15 13:15	2016/09/15 15:00	2016/09/15		
COC Number		08427565	08427565	08427565	08427565	08427565		
	UNITS	BH95G-25D	BH95G-25S	BH95G-131	BH95G-33D	DUP2	RDL	QC Batch

**Misc. Inorganics**

Dissolved Hardness (CaCO3)	mg/L	587	491	646	230	637	0.50	8406413
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**Elements**

Dissolved Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000020	8409146
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**Dissolved Metals by ICPMS**

Dissolved Aluminum (Al)	mg/L	<0.00050	<0.00050	<0.00050	0.00088	<0.00050	0.00050	8407409
Dissolved Antimony (Sb)	mg/L	0.000090	0.000028	0.00354	0.000035	0.00311	0.000020	8407409
Dissolved Arsenic (As)	mg/L	0.000470	0.00136	0.00132	0.000304	0.00123	0.000020	8407409
Dissolved Barium (Ba)	mg/L	0.0215	0.0564	0.0221	0.0876	0.0214	0.000020	8407409
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	0.000013	<0.000010	0.000010	8407409
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8407409
Dissolved Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	8407409
Dissolved Cadmium (Cd)	mg/L	<0.0000050	0.0000060	<0.0000050	<0.0000050	<0.0000050	0.0000050	8407409
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	8407409
Dissolved Cobalt (Co)	mg/L	0.000849	0.000228	0.0000190	<0.0000050	0.0000150	0.0000050	8407409
Dissolved Copper (Cu)	mg/L	<0.000050	0.000084	<0.000050	0.000899	<0.000050	0.000050	8407409
Dissolved Iron (Fe)	mg/L	0.0011	0.0011	0.0016	<0.0010	0.0019	0.0010	8407409
Dissolved Lead (Pb)	mg/L	<0.0000050	<0.0000050	0.000897	<0.0000050	0.000478	0.0000050	8407409
Dissolved Lithium (Li)	mg/L	0.0125	0.0116	0.0168	0.00115	0.0166	0.00050	8407409
Dissolved Manganese (Mn)	mg/L	0.401	0.387	0.132	0.000875	0.133	0.000050	8407409
Dissolved Molybdenum (Mo)	mg/L	0.000251	0.00168 (1)	0.000079	0.00115 (1)	0.000085	0.000050	8407409
Dissolved Nickel (Ni)	mg/L	0.000932	0.000487	0.000099	0.00111	0.000115	0.000020	8407409
Dissolved Phosphorus (P)	mg/L	0.0026	0.0036	0.0064	0.0054	0.0048	0.0020	8407409
Dissolved Selenium (Se)	mg/L	<0.000040	<0.000040	<0.000040	0.00762	<0.000040	0.000040	8407409
Dissolved Silicon (Si)	mg/L	4.42	4.99	10.3	2.58	9.92	0.050	8407409
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	0.0000120	<0.0000050	0.0000110	0.0000050	8407409
Dissolved Strontium (Sr)	mg/L	0.505	0.445	0.743	0.222	0.768	0.000050	8407409
Dissolved Thallium (Tl)	mg/L	0.0000020	0.0000020	0.0000270	<0.0000020	0.0000240	0.0000020	8407409
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8407409
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	8407409
Dissolved Uranium (U)	mg/L	0.00772	0.00380	0.0114	0.00441	0.0109	0.0000020	8407409

RDL = Reportable Detection Limit

(1) Dissolved greater than total. Reanalysis yields similar results.

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PO3612	PO3633	PO3634	PO3635	PO3636		
Sampling Date		2016/09/15 09:15	2016/09/15 09:40	2016/09/15 13:15	2016/09/15 15:00	2016/09/15		
COC Number		08427565	08427565	08427565	08427565	08427565		
	UNITS	BH95G-25D	BH95G-25S	BH95G-131	BH95G-33D	DUP2	RDL	QC Batch
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8407409
Dissolved Zinc (Zn)	mg/L	0.00787	0.00048	0.00241	0.00067	0.00197	0.00010	8407409
Dissolved Zirconium (Zr)	mg/L	0.00092	<0.00010	0.00462	<0.00010	0.00485	0.00010	8407409
Dissolved Calcium (Ca)	mg/L	143	133	161	77.0	158	0.050	8405176
Dissolved Magnesium (Mg)	mg/L	55.9	38.4	59.6	9.13	59.3	0.050	8405176
Dissolved Potassium (K)	mg/L	4.44	5.73	3.82	0.927	3.87	0.050	8405176
Dissolved Sodium (Na)	mg/L	2.02	2.48	2.75	0.713	2.93	0.050	8405176
Dissolved Sulphur (S)	mg/L	78.5	60.2	75.3	20.7	75.4	3.0	8405176
RDL = Reportable Detection Limit								

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PO3637	PO3638		PO3639		
Sampling Date		2016/09/16 08:35	2016/09/16 09:45		2016/09/16 11:02		
COC Number		08427565	08427565		08427565		
	UNITS	MW15-06	MW15-09S	QC Batch	MW15-10S	RDL	QC Batch
<b>Misc. Inorganics</b>							
Dissolved Hardness (CaCO3)	mg/L	186	208	8406413	260 (1)	0.50	8411002
<b>Elements</b>							
Dissolved Mercury (Hg)	mg/L	<0.0000020	<0.0000020	8409146	<0.0000020	0.0000020	8409146
<b>Dissolved Metals by ICPMS</b>							
Dissolved Aluminum (Al)	mg/L	0.00129	<0.00050	8407409	0.00225	0.00050	8411672
Dissolved Antimony (Sb)	mg/L	<0.000020	0.000107	8407409	<0.000020	0.000020	8411672
Dissolved Arsenic (As)	mg/L	0.000038	0.000438	8407409	0.000799	0.000020	8411672
Dissolved Barium (Ba)	mg/L	0.0716	0.182	8407409	0.0916	0.000020	8411672
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	8407409	0.000010	0.000010	8411672
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	8407409	<0.0000050	0.0000050	8411672
Dissolved Boron (B)	mg/L	<0.010	<0.010	8407409	<0.010	0.010	8411672
Dissolved Cadmium (Cd)	mg/L	0.000153	0.0000570	8407409	0.000154 (1)	0.0000050	8411672
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	8407409	<0.00010	0.00010	8411672
Dissolved Cobalt (Co)	mg/L	0.0000100	0.000250	8407409	0.00144	0.0000050	8411672
Dissolved Copper (Cu)	mg/L	0.000341	0.000115	8407409	0.0358	0.000050	8411672
Dissolved Iron (Fe)	mg/L	<0.0010	<0.0010	8407409	0.0315	0.0010	8411672
Dissolved Lead (Pb)	mg/L	0.0000100	<0.0000050	8407409	<0.0000050	0.0000050	8411672
Dissolved Lithium (Li)	mg/L	0.00168	0.00369	8407409	0.00292	0.00050	8411672
Dissolved Manganese (Mn)	mg/L	0.000379	0.116	8407409	0.177 (1)	0.000050	8411672
Dissolved Molybdenum (Mo)	mg/L	0.00280 (1)	0.00456	8407409	0.000371	0.000050	8411672
Dissolved Nickel (Ni)	mg/L	0.000463	0.000588	8407409	0.00796 (1)	0.000020	8411672
Dissolved Phosphorus (P)	mg/L	<0.0020	0.0058	8407409	0.0031	0.0020	8411672
Dissolved Selenium (Se)	mg/L	0.00261	0.000942	8407409	0.00228 (1)	0.000040	8411672
Dissolved Silicon (Si)	mg/L	2.76	3.89	8407409	3.86	0.050	8411672
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	8407409	<0.0000050	0.0000050	8411672
Dissolved Strontium (Sr)	mg/L	0.199	0.235	8407409	0.371	0.000050	8411672
Dissolved Thallium (Tl)	mg/L	0.0000040	0.0000030	8407409	<0.0000020	0.0000020	8411672
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	8407409	<0.00020	0.00020	8411672
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	8407409	<0.00050	0.00050	8411672
Dissolved Uranium (U)	mg/L	0.00276	0.00337	8407409	0.00175 (1)	0.0000020	8411672
RDL = Reportable Detection Limit							
(1) Dissolved greater than total. Reanalysis yields similar results.							

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PO3637	PO3638		PO3639		
Sampling Date		2016/09/16 08:35	2016/09/16 09:45		2016/09/16 11:02		
COC Number		08427565	08427565		08427565		
	UNITS	MW15-06	MW15-09S	QC Batch	MW15-10S	RDL	QC Batch
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	8407409	<0.00020	0.00020	8411672
Dissolved Zinc (Zn)	mg/L	0.00328	0.00149	8407409	0.00493	0.00010	8411672
Dissolved Zirconium (Zr)	mg/L	<0.00010	<0.00010	8407409	<0.00010	0.00010	8411672
Dissolved Calcium (Ca)	mg/L	64.7	66.1	8405176	88.6 (1)	0.050	8411412
Dissolved Magnesium (Mg)	mg/L	5.83	10.5	8405176	9.37 (1)	0.050	8411412
Dissolved Potassium (K)	mg/L	1.71	2.00	8405176	2.11	0.050	8411412
Dissolved Sodium (Na)	mg/L	1.14	2.51	8405176	3.31	0.050	8411412
Dissolved Sulphur (S)	mg/L	6.9	5.7	8405176	9.7	3.0	8411412
RDL = Reportable Detection Limit							
(1) Dissolved greater than total. Reanalysis yields similar results.							

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PO3640			PO3641	PO3642		
Sampling Date		2016/09/16 11:50			2016/09/16 15:07	2016/09/18 10:01		
COC Number		08427565			08427565	08427567		
	UNITS	MW15-10D	RDL	QC Batch	BH95G-30	MW16-17	RDL	QC Batch
<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO3)	mg/L	1890	0.50	8411002	202	179	0.50	8406413
<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	<0.000020	0.000020	8409146	<0.000020	<0.000020	0.000020	8409146
<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	0.0481	0.0025	8407409	0.00050	0.00924	0.00050	8407409
Dissolved Antimony (Sb)	mg/L	<0.00010	0.00010	8407409	0.000030	0.000263	0.000020	8407409
Dissolved Arsenic (As)	mg/L	0.00020	0.00010	8407409	0.000028	0.000901	0.000020	8407409
Dissolved Barium (Ba)	mg/L	0.277	0.00010	8407409	0.0731	0.0436	0.000020	8407409
Dissolved Beryllium (Be)	mg/L	0.000603	0.000050	8407409	<0.000010	<0.000010	0.000010	8407409
Dissolved Bismuth (Bi)	mg/L	<0.000025	0.000025	8407409	<0.0000050	<0.0000050	0.0000050	8407409
Dissolved Boron (B)	mg/L	<0.050	0.050	8407409	<0.010	<0.010	0.010	8407409
Dissolved Cadmium (Cd)	mg/L	0.000045	0.000025	8407409	0.000186	<0.0000050	0.0000050	8407409
Dissolved Chromium (Cr)	mg/L	<0.00050	0.00050	8407409	<0.00010	<0.00010	0.00010	8407409
Dissolved Cobalt (Co)	mg/L	0.000257	0.000025	8407409	0.0000260	0.000207	0.0000050	8407409
Dissolved Copper (Cu)	mg/L	0.00052	0.00025	8407409	0.000369	0.000169	0.000050	8407409
Dissolved Iron (Fe)	mg/L	3.35	0.0050	8407409	<0.0010	<0.0010	0.0010	8407409
Dissolved Lead (Pb)	mg/L	0.000140	0.000025	8407409	0.0000060	<0.0000050	0.0000050	8407409
Dissolved Lithium (Li)	mg/L	0.235	0.0025	8407409	0.00213	0.00304	0.00050	8407409
Dissolved Manganese (Mn)	mg/L	5.08	0.00025	8407409	0.00200	0.0951	0.000050	8407409
Dissolved Molybdenum (Mo)	mg/L	<0.00025	0.00025	8407409	0.00314	0.00182	0.000050	8407409
Dissolved Nickel (Ni)	mg/L	0.00087	0.00010	8407409	0.00242	0.00231	0.000020	8407409
Dissolved Phosphorus (P)	mg/L	<0.010	0.010	8407409	<0.0020	<0.0020	0.0020	8407409
Dissolved Selenium (Se)	mg/L	<0.00020	0.00020	8407409	0.00250	0.000201	0.000040	8407409
Dissolved Silicon (Si)	mg/L	36.5	0.25	8407409	2.83	3.77	0.050	8407409
Dissolved Silver (Ag)	mg/L	<0.000025	0.000025	8407409	<0.0000050	<0.0000050	0.0000050	8407409
Dissolved Strontium (Sr)	mg/L	2.50	0.00025	8407409	0.233	0.173	0.000050	8407409
Dissolved Thallium (Tl)	mg/L	0.000014	0.000010	8407409	<0.0000020	0.0000030	0.0000020	8407409
Dissolved Tin (Sn)	mg/L	<0.0010	0.0010	8407409	<0.00020	<0.00020	0.00020	8407409
Dissolved Titanium (Ti)	mg/L	<0.0025	0.0025	8407409	<0.00050	<0.00050	0.00050	8407409
Dissolved Uranium (U)	mg/L	0.000407	0.000010	8407409	0.00304	0.00396	0.0000020	8407409
Dissolved Vanadium (V)	mg/L	<0.0010	0.0010	8407409	<0.00020	<0.00020	0.00020	8407409
RDL = Reportable Detection Limit								

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PO3640			PO3641	PO3642		
Sampling Date		2016/09/16 11:50			2016/09/16 15:07	2016/09/18 10:01		
COC Number		08427565			08427565	08427567		
	UNITS	MW15-10D	RDL	QC Batch	BH95G-30	MW16-17	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	0.00338	0.00050	8407409	0.00926	0.00088	0.00010	8407409
Dissolved Zirconium (Zr)	mg/L	0.00180	0.00050	8407409	<0.00010	0.00017	0.00010	8407409
Dissolved Calcium (Ca)	mg/L	641	0.050	8411412	69.0	57.7	0.050	8405176
Dissolved Magnesium (Mg)	mg/L	71.0	0.050	8411412	7.14	8.57	0.050	8405176
Dissolved Potassium (K)	mg/L	8.45	0.050	8411412	1.77	2.21	0.050	8405176
Dissolved Sodium (Na)	mg/L	20.7	0.050	8411412	1.24	1.74	0.050	8405176
Dissolved Sulphur (S)	mg/L	4.0	3.0	8411412	7.9	10.6	3.0	8405176
RDL = Reportable Detection Limit								



Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PO3643	PO3644	PO3645	PO3646	PO3647		
Sampling Date		2016/09/18 11:10	2016/09/18 12:40	2016/09/18 13:37	2016/09/18 14:13	2016/09/18 15:30		
COC Number		08427567	08427567	08427567	08427567	08427567		
	<b>UNITS</b>	<b>MW16-16D</b>	<b>MW16-14D</b>	<b>MW16-12D</b>	<b>MW16-12S</b>	<b>BH95G-02</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO3)	mg/L	221	225	752	709	312	0.50	8406413

<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000020	8409146

**Dissolved Metals by ICPMS**

Dissolved Aluminum (Al)	mg/L	0.00366	0.00312	0.00258	<0.00050	0.00116	0.00050	8407409
Dissolved Antimony (Sb)	mg/L	0.000190	<0.000020	<0.000020	0.000093	<0.000020	0.000020	8407409
Dissolved Arsenic (As)	mg/L	0.000407	0.00312	<0.000020	0.000187	0.000074	0.000020	8407409
Dissolved Barium (Ba)	mg/L	0.0405	0.0193	2.91	1.18	0.0260	0.000020	8407409
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	0.000080	<0.000010	<0.000010	0.000010	8407409
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8407409
Dissolved Boron (B)	mg/L	<0.010	<0.010	0.017	0.019	<0.010	0.010	8407409
Dissolved Cadmium (Cd)	mg/L	0.0000080	0.0000120	0.0000060	0.0000120	0.00152	0.0000050	8407409
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	8407409
Dissolved Cobalt (Co)	mg/L	0.000236	0.000216	0.0000410	0.0715	<0.0000050	0.0000050	8407409
Dissolved Copper (Cu)	mg/L	0.000090	<0.000050	<0.000050	<0.000050	0.000306	0.000050	8407409
Dissolved Iron (Fe)	mg/L	<0.0010	<0.0010	0.518	11.3	<0.0010	0.0010	8407409
Dissolved Lead (Pb)	mg/L	0.0000120	<0.0000050	<0.0000050	<0.0000050	0.0000150	0.0000050	8407409
Dissolved Lithium (Li)	mg/L	0.00471	0.00294	0.425	0.422	0.00121	0.00050	8407409
Dissolved Manganese (Mn)	mg/L	0.0521	0.273	0.266	1.22	0.000070	0.000050	8407409
Dissolved Molybdenum (Mo)	mg/L	0.00131	0.000311	<0.000050	0.00148	0.00234	0.000050	8407409
Dissolved Nickel (Ni)	mg/L	0.000702	0.000726	0.000147	0.0591	0.000439	0.000020	8407409
Dissolved Phosphorus (P)	mg/L	0.0025	0.0037	0.0034	0.0046	0.0059	0.0020	8407409
Dissolved Selenium (Se)	mg/L	0.000111	<0.000040	<0.000040	<0.000040	0.00546	0.000040	8407409
Dissolved Silicon (Si)	mg/L	3.65	4.01	13.2	11.7	2.28	0.050	8407409
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	0.0000830	0.0000080	<0.0000050	0.0000050	8407409
Dissolved Strontium (Sr)	mg/L	0.274	0.276	2.09	1.90	0.231	0.000050	8407409
Dissolved Thallium (Tl)	mg/L	0.0000020	0.0000030	0.0000040	0.0000110	<0.0000020	0.0000020	8407409
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8407409
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	0.00100	<0.00050	<0.00050	0.00050	8407409
Dissolved Uranium (U)	mg/L	0.00484	0.00381	0.000336	0.000709	0.00333	0.0000020	8407409
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8407409

RDL = Reportable Detection Limit

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PO3643	PO3644	PO3645	PO3646	PO3647		
Sampling Date		2016/09/18 11:10	2016/09/18 12:40	2016/09/18 13:37	2016/09/18 14:13	2016/09/18 15:30		
COC Number		08427567	08427567	08427567	08427567	08427567		
	UNITS	MW16-16D	MW16-14D	MW16-12D	MW16-12S	BH95G-02	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	0.00581	0.00037	0.00192	0.0908	0.0254	0.00010	8407409
Dissolved Zirconium (Zr)	mg/L	0.00017	<0.00010	0.0338	0.00302	<0.00010	0.00010	8407409
Dissolved Calcium (Ca)	mg/L	76.0	80.6	151	141	73.2	0.050	8405176
Dissolved Magnesium (Mg)	mg/L	7.59	5.86	91.0	87.0	31.3	0.050	8405176
Dissolved Potassium (K)	mg/L	2.58	2.13	11.9	10.9	0.395	0.050	8405176
Dissolved Sodium (Na)	mg/L	2.07	3.05	31.3	35.2	0.651	0.050	8405176
Dissolved Sulphur (S)	mg/L	12.2	25.6	<3.0	<3.0	14.2	3.0	8405176
RDL = Reportable Detection Limit								

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		PO3648	PO3649	PO3650		PO3651		
<b>Sampling Date</b>		2016/09/19 12:56	2016/09/19 13:37	2016/09/19		2016/09/16		
<b>COC Number</b>		08427567	08427567	08427567		08427566		
	<b>UNITS</b>	<b>BH95G-146</b>	<b>BH95G-129</b>	<b>FIELD BLANK</b>	<b>QC Batch</b>	<b>DUP3</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO3)	mg/L	389	191	<0.50	8406413	190	0.50	8406413
<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	8409146	<0.0000020	0.0000020	8409146
<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	0.00053	0.00325	<0.00050	8407409	0.00136	0.00050	8407409
Dissolved Antimony (Sb)	mg/L	0.000055	0.000228	<0.000020	8407409	<0.000020	0.000020	8407409
Dissolved Arsenic (As)	mg/L	0.000465	0.00155	<0.000020	8407409	0.000035	0.000020	8407409
Dissolved Barium (Ba)	mg/L	0.0127	0.0660	<0.000020	8407409	0.0769	0.000020	8407409
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	8407409	<0.000010	0.000010	8407409
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	8407409	<0.0000050	0.0000050	8407409
Dissolved Boron (B)	mg/L	<0.010	<0.010	<0.010	8407409	<0.010	0.010	8407409
Dissolved Cadmium (Cd)	mg/L	<0.0000050	0.0000060	<0.0000050	8407409	0.000158	0.0000050	8407409
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	<0.00010	8407409	0.00010	0.00010	8407409
Dissolved Cobalt (Co)	mg/L	0.0000050	0.0000960	<0.0000050	8407409	0.0000070	0.0000050	8407409
Dissolved Copper (Cu)	mg/L	<0.000050	0.000088	<0.000050	8407409	0.000349	0.000050	8407409
Dissolved Iron (Fe)	mg/L	0.0011	0.0014	<0.0010	8407409	<0.0010	0.0010	8407409
Dissolved Lead (Pb)	mg/L	<0.0000050	<0.0000050	<0.0000050	8407409	0.0000090	0.0000050	8407409
Dissolved Lithium (Li)	mg/L	0.0218	0.00904	<0.00050	8407409	0.00178	0.00050	8407409
Dissolved Manganese (Mn)	mg/L	0.0260	0.0894	<0.000050	8407409	0.000248	0.000050	8407409
Dissolved Molybdenum (Mo)	mg/L	0.000249	0.000790	<0.000050	8407409	0.00306 (1)	0.000050	8407409
Dissolved Nickel (Ni)	mg/L	0.000020	0.000224	<0.000020	8407409	0.000479	0.000020	8407409
Dissolved Phosphorus (P)	mg/L	0.0090	0.0045	<0.0020	8407409	<0.0020	0.0020	8407409
Dissolved Selenium (Se)	mg/L	<0.000040	<0.000040	<0.000040	8407409	0.00265	0.000040	8407409
Dissolved Silicon (Si)	mg/L	13.0	4.91	<0.050	8407409	2.76	0.050	8407409
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	<0.0000050	8407409	<0.0000050	0.0000050	8407409
Dissolved Strontium (Sr)	mg/L	0.408	0.186	<0.000050	8407409	0.206	0.000050	8407409
Dissolved Thallium (Tl)	mg/L	<0.0000020	<0.0000020	<0.0000020	8407409	0.0000030	0.0000020	8407409
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	8407409	<0.00020	0.00020	8411672
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	<0.00050 (2)	8407409	<0.00050	0.00050	8407409
Dissolved Uranium (U)	mg/L	0.00166	0.00854	<0.0000020	8407409	0.00310	0.0000020	8407409

RDL = Reportable Detection Limit

(1) Dissolved greater than total. Reanalysis yields similar results.

(2) Matrix Spike outside acceptance criteria (10% of analytes failure allowed).

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PO3648	PO3649	PO3650		PO3651		
Sampling Date		2016/09/19 12:56	2016/09/19 13:37	2016/09/19		2016/09/16		
COC Number		08427567	08427567	08427567		08427566		
	UNITS	BH95G-146	BH95G-129	FIELD BLANK	QC Batch	DUP3	RDL	QC Batch
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	8407409	<0.00020	0.00020	8407409
Dissolved Zinc (Zn)	mg/L	0.00082	0.00348	<0.00010	8407409	0.00282	0.00010	8407409
Dissolved Zirconium (Zr)	mg/L	<0.00010	<0.00010	<0.00010	8407409	<0.00010	0.00010	8407409
Dissolved Calcium (Ca)	mg/L	118	55.0	<0.050	8405176	66.5	0.050	8405176
Dissolved Magnesium (Mg)	mg/L	23.1	13.0	<0.050	8405176	5.84	0.050	8405176
Dissolved Potassium (K)	mg/L	2.49	2.07	<0.050	8405176	1.72	0.050	8405176
Dissolved Sodium (Na)	mg/L	3.30	1.95	<0.050	8405176	1.16	0.050	8405176
Dissolved Sulphur (S)	mg/L	83.0	11.7	<3.0	8405176	6.4	3.0	8405176
RDL = Reportable Detection Limit								

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PO3652	PO3664	PO3665	PO3666	PO3667		
Sampling Date		2016/09/17 09:40	2016/09/17 10:05	2016/09/17 11:17	2016/09/17 12:03	2016/09/17 13:34		
COC Number		08427566	08427566	08427566	08427566	08427566		
	<b>UNITS</b>	<b>MW15-03D</b>	<b>MW15-03S</b>	<b>MW15-04S</b>	<b>MW15-04D</b>	<b>MW15-05D</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO3)	mg/L	201	133	115	143	175	0.50	8406413

<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000020	8409159

<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	0.00099	0.00227	0.00263	0.00115	0.00105	0.00050	8407420
Dissolved Antimony (Sb)	mg/L	0.000066	<0.000020	0.000021	0.000025	<0.000020	0.000020	8407420
Dissolved Arsenic (As)	mg/L	0.00110	0.000137	0.000195	0.00164	0.000220	0.000020	8407420
Dissolved Barium (Ba)	mg/L	0.0459	0.0406	0.0755	0.0613	0.0449	0.000020	8407420
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000010	8407420
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8407420
Dissolved Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	8407420
Dissolved Cadmium (Cd)	mg/L	<0.0000050	0.0000130	<0.0000050	0.0000190	0.0000810	0.0000050	8407420
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	0.00032	<0.00010	<0.00010	0.00010	8407420
Dissolved Cobalt (Co)	mg/L	0.0000450	0.0000300	0.0000080	0.000399	0.000127	0.0000050	8407420
Dissolved Copper (Cu)	mg/L	<0.000050	0.000207	0.000354	0.000075	0.000264	0.000050	8407420
Dissolved Iron (Fe)	mg/L	0.0034	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	8407420
Dissolved Lead (Pb)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.000215	0.0000050	8407420
Dissolved Lithium (Li)	mg/L	0.00665	0.00079	0.00070	0.00124	0.00257	0.00050	8407420
Dissolved Manganese (Mn)	mg/L	0.0560	0.00622	0.000927	0.175	0.0221	0.000050	8407420
Dissolved Molybdenum (Mo)	mg/L	0.00320	0.00133	0.00124 (1)	0.00280 (1)	0.00125 (1)	0.000050	8407420
Dissolved Nickel (Ni)	mg/L	0.000168	0.000895	0.000157	0.00142	0.000511	0.000020	8407420
Dissolved Phosphorus (P)	mg/L	<0.0020	0.0047	<0.0020	0.0025	<0.0020	0.0020	8407420
Dissolved Selenium (Se)	mg/L	<0.000040	0.000188	0.000752	0.000101	0.00169	0.000040	8407420
Dissolved Silicon (Si)	mg/L	4.15	2.44	2.79	2.49	2.26	0.050	8407420
Dissolved Silver (Ag)	mg/L	0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8407420
Dissolved Strontium (Sr)	mg/L	0.238	0.140	0.143	0.188	0.538	0.000050	8407420
Dissolved Thallium (Tl)	mg/L	<0.0000020	0.0000050	<0.0000020	0.0000030	0.0000020	0.0000020	8407420
Dissolved Tin (Sn)	mg/L	<0.00020	0.00034	<0.00020	<0.00020	<0.00020	0.00020	8407420
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	8407420
Dissolved Uranium (U)	mg/L	0.00259	0.000637	0.000611	0.00118	0.00265	0.0000020	8407420

RDL = Reportable Detection Limit  
(1) Dissolved greater than total. Reanalysis yields similar results.

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PO3652	PO3664	PO3665	PO3666	PO3667		
Sampling Date		2016/09/17 09:40	2016/09/17 10:05	2016/09/17 11:17	2016/09/17 12:03	2016/09/17 13:34		
COC Number		08427566	08427566	08427566	08427566	08427566		
	UNITS	MW15-03D	MW15-03S	MW15-04S	MW15-04D	MW15-05D	RDL	QC Batch
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8407420
Dissolved Zinc (Zn)	mg/L	0.00026	0.00021	0.00023	0.00029	0.00191	0.00010	8407420
Dissolved Zirconium (Zr)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	8407420
Dissolved Calcium (Ca)	mg/L	53.9	46.2	40.6	48.6	60.2	0.050	8405176
Dissolved Magnesium (Mg)	mg/L	16.2	4.31	3.30	5.21	5.97	0.050	8405176
Dissolved Potassium (K)	mg/L	2.44	1.05	1.26	2.24	1.79	0.050	8405176
Dissolved Sodium (Na)	mg/L	1.89	0.709	0.899	1.37	12.7	0.050	8405176
Dissolved Sulphur (S)	mg/L	7.0	3.1	<3.0	5.4	9.6	3.0	8405176
RDL = Reportable Detection Limit								

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PO3668	PO3669	PO3670	PO3671		
Sampling Date		2016/09/17 14:56	2016/09/17 15:30	2016/09/17 16:25	2016/09/17		
COC Number		08427566	08427566	08427566	08427566		
	UNITS	MW15-07S	MW15-07D	MW15-08S	TRAVEL BLANK	RDL	QC Batch

<b>Misc. Inorganics</b>							
Dissolved Hardness (CaCO3)	mg/L	190	203	196	<0.50	0.50	8406413
<b>Elements</b>							
Dissolved Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000020	8409159
<b>Dissolved Metals by ICPMS</b>							
Dissolved Aluminum (Al)	mg/L	0.00075	0.00149	0.00135	<0.00050	0.00050	8407420
Dissolved Antimony (Sb)	mg/L	<0.000020	<0.000020	0.000025	<0.000020	0.000020	8407420
Dissolved Arsenic (As)	mg/L	0.00113	0.000033	0.000252	<0.000020	0.000020	8407420
Dissolved Barium (Ba)	mg/L	0.0317	0.0414	0.0847	<0.000020	0.000020	8407420
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	0.000010	8407420
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8407420
Dissolved Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	0.010	8407420
Dissolved Cadmium (Cd)	mg/L	<0.0000050	<0.0000050	0.000103	<0.0000050	0.0000050	8407420
Dissolved Chromium (Cr)	mg/L	<0.00010	0.00014	<0.00010	<0.00010	0.00010	8407420
Dissolved Cobalt (Co)	mg/L	0.0000930	0.000130	0.0000930	<0.0000050	0.0000050	8407420
Dissolved Copper (Cu)	mg/L	0.000053	<0.000050	0.000703	<0.000050	0.000050	8407420
Dissolved Iron (Fe)	mg/L	<0.0010	0.0010	<0.0010	<0.0010	0.0010	8407420
Dissolved Lead (Pb)	mg/L	<0.0000050	<0.0000050	0.000240	<0.0000050	0.0000050	8407420
Dissolved Lithium (Li)	mg/L	0.00717	0.0118	0.00261	<0.00050	0.00050	8407420
Dissolved Manganese (Mn)	mg/L	0.145	0.0520	0.00208	<0.000050	0.000050	8407420
Dissolved Molybdenum (Mo)	mg/L	0.000230	0.000052	0.00204 (1)	<0.000050	0.000050	8407420
Dissolved Nickel (Ni)	mg/L	0.000213	0.000103	0.000664	<0.000020	0.000020	8407420
Dissolved Phosphorus (P)	mg/L	<0.0020	<0.0020	0.0034	<0.0020	0.0020	8407420
Dissolved Selenium (Se)	mg/L	<0.000040	<0.000040	0.00194	<0.000040	0.000040	8407420
Dissolved Silicon (Si)	mg/L	5.87	6.82	3.01	<0.050	0.050	8407420
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8407420
Dissolved Strontium (Sr)	mg/L	0.251	0.284	0.209	<0.000050	0.000050	8407420
Dissolved Thallium (Tl)	mg/L	<0.0000020	<0.0000020	0.0000030	<0.0000020	0.0000020	8407420
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8407420
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	8407420
Dissolved Uranium (U)	mg/L	0.00171	0.00104	0.00275	<0.0000020	0.0000020	8407420

RDL = Reportable Detection Limit

(1) Dissolved greater than total. Reanalysis yields similar results.

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PO3668	PO3669	PO3670	PO3671		
Sampling Date		2016/09/17 14:56	2016/09/17 15:30	2016/09/17 16:25	2016/09/17		
COC Number		08427566	08427566	08427566	08427566		
	UNITS	MW15-07S	MW15-07D	MW15-08S	TRAVEL BLANK	RDL	QC Batch
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8407420
Dissolved Zinc (Zn)	mg/L	0.00044	0.00043	0.00142	<0.00010	0.00010	8407420
Dissolved Zirconium (Zr)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	8407420
Dissolved Calcium (Ca)	mg/L	59.5	58.5	68.0	<0.050	0.050	8405176
Dissolved Magnesium (Mg)	mg/L	10.2	13.7	6.26	<0.050	0.050	8405176
Dissolved Potassium (K)	mg/L	1.36	1.58	1.45	<0.050	0.050	8405176
Dissolved Sodium (Na)	mg/L	3.33	3.98	1.25	<0.050	0.050	8405176
Dissolved Sulphur (S)	mg/L	10.9	9.3	8.2	<3.0	3.0	8405176
RDL = Reportable Detection Limit							



Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		PO3650		PO3671		
Sampling Date		2016/09/19		2016/09/17		
COC Number		08427567		08427566		
	UNITS	FIELD BLANK	QC Batch	TRAVEL BLANK	RDL	QC Batch
<b>Calculated Parameters</b>						
Total Hardness (CaCO3)	mg/L	<0.50	8405700	<0.50	0.50	8405700
<b>Elements</b>						
Total Mercury (Hg)	mg/L	<0.0000020	8408984	<0.0000020	0.0000020	8408991
<b>Total Metals by ICPMS</b>						
Total Aluminum (Al)	mg/L	<0.00050	8407893	<0.00050	0.00050	8407893
Total Antimony (Sb)	mg/L	<0.000020	8407893	<0.000020	0.000020	8407893
Total Arsenic (As)	mg/L	<0.000020	8407893	<0.000020	0.000020	8407893
Total Barium (Ba)	mg/L	<0.000020	8407893	<0.000020	0.000020	8407893
Total Beryllium (Be)	mg/L	<0.000010	8407893	<0.000010	0.000010	8407893
Total Bismuth (Bi)	mg/L	<0.0000050	8407893	<0.0000050	0.0000050	8407893
Total Boron (B)	mg/L	<0.010	8407893	<0.010	0.010	8407893
Total Cadmium (Cd)	mg/L	<0.0000050	8407893	<0.0000050	0.0000050	8407893
Total Chromium (Cr)	mg/L	<0.00010	8407893	<0.00010	0.00010	8407893
Total Cobalt (Co)	mg/L	<0.0000050	8407893	<0.0000050	0.0000050	8407893
Total Copper (Cu)	mg/L	<0.000050	8407893	<0.000050	0.000050	8407893
Total Iron (Fe)	mg/L	<0.0010	8407893	<0.0010	0.0010	8407893
Total Lead (Pb)	mg/L	<0.0000050	8407893	<0.0000050	0.0000050	8407893
Total Lithium (Li)	mg/L	<0.00050	8407893	<0.00050	0.00050	8407893
Total Manganese (Mn)	mg/L	<0.000050	8407893	<0.000050	0.000050	8407893
Total Molybdenum (Mo)	mg/L	<0.000050	8407893	<0.000050	0.000050	8407893
Total Nickel (Ni)	mg/L	<0.000020	8407893	<0.000020	0.000020	8407893
Total Phosphorus (P)	mg/L	<0.0020	8407893	<0.0020	0.0020	8407893
Total Selenium (Se)	mg/L	<0.000040	8407893	<0.000040	0.000040	8407893
Total Silicon (Si)	mg/L	<0.050	8407893	<0.050	0.050	8407893
Total Silver (Ag)	mg/L	<0.0000050	8407893	<0.0000050	0.0000050	8407893
Total Strontium (Sr)	mg/L	<0.000050	8407893	<0.000050	0.000050	8407893
Total Thallium (Tl)	mg/L	<0.0000020	8407893	<0.0000020	0.0000020	8407893
Total Tin (Sn)	mg/L	<0.00020	8407893	<0.00020	0.00020	8407893
Total Titanium (Ti)	mg/L	<0.00050	8407893	<0.00050	0.00050	8407893
Total Uranium (U)	mg/L	<0.0000020	8407893	<0.0000020	0.0000020	8407893
Total Vanadium (V)	mg/L	<0.00020	8407893	<0.00020	0.00020	8407893
Total Zinc (Zn)	mg/L	<0.00010	8407893	<0.00010	0.00010	8407893
RDL = Reportable Detection Limit						

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		PO3650		PO3671		
Sampling Date		2016/09/19		2016/09/17		
COC Number		08427567		08427566		
	UNITS	FIELD BLANK	QC Batch	TRAVEL BLANK	RDL	QC Batch
Total Zirconium (Zr)	mg/L	<0.00010	8407893	<0.00010	0.00010	8407893
Total Calcium (Ca)	mg/L	<0.050	8405270	<0.050	0.050	8405270
Total Magnesium (Mg)	mg/L	<0.050	8405270	<0.050	0.050	8405270
Total Potassium (K)	mg/L	<0.050	8405270	<0.050	0.050	8405270
Total Sodium (Na)	mg/L	<0.050	8405270	<0.050	0.050	8405270
Total Sulphur (S)	mg/L	<3.0	8405270	<3.0	3.0	8405270
RDL = Reportable Detection Limit						

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PO3612	PO3633	PO3634	PO3635	PO3636		
Sampling Date		2016/09/15 09:15	2016/09/15 09:40	2016/09/15 13:15	2016/09/15 15:00	2016/09/15		
COC Number		08427565	08427565	08427565	08427565	08427565		
	<b>UNITS</b>	<b>BH95G-25D</b>	<b>BH95G-25S</b>	<b>BH95G-131</b>	<b>BH95G-33D</b>	<b>DUP2</b>	<b>RDL</b>	<b>QC Batch</b>

Calculated Parameters								
Total Hardness (CaCO3)	mg/L	651	570	666	252	703	0.50	8405700
Elements								
Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	0.0000030	<0.0000020	0.0000020	8408984
Total Metals by ICPMS								
Total Aluminum (Al)	mg/L	3.48	8.21	0.384	1.49	0.404	0.0030	8407831
Total Antimony (Sb)	mg/L	0.000300	0.000182	0.0103	0.000067	0.0102	0.000020	8407831
Total Arsenic (As)	mg/L	0.00500	0.0134	0.0204	0.00513	0.0202	0.000020	8407831
Total Barium (Ba)	mg/L	0.440	0.231	0.0612	0.135	0.0659	0.000050	8407831
Total Beryllium (Be)	mg/L	0.000716	0.000847	0.000059	0.000125	0.000062	0.000010	8407831
Total Bismuth (Bi)	mg/L	0.000351	0.000567	0.000077	0.000044	0.000073	0.000010	8407831
Total Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	8407831
Total Cadmium (Cd)	mg/L	0.000331	0.000512	0.00124	0.0000630	0.00113	0.0000050	8407831
Total Chromium (Cr)	mg/L	0.00273	0.0201	0.00088	0.00173	0.00093	0.00010	8407831
Total Cobalt (Co)	mg/L	0.00515	0.00796	0.000260	0.00458	0.000291	0.000010	8407831
Total Copper (Cu)	mg/L	0.0114	0.0359	0.00318	0.00886	0.00341	0.00010	8407831
Total Iron (Fe)	mg/L	12.6	24.4	4.86	4.36	5.11	0.0050	8407831
Total Lead (Pb)	mg/L	0.0225	0.0300	0.122	0.00319	0.125	0.000020	8407831
Total Lithium (Li)	mg/L	0.0152	0.0226	0.0165	0.00208	0.0179	0.00050	8407831
Total Manganese (Mn)	mg/L	0.741	0.650	0.152	0.683	0.161	0.00010	8407831
Total Molybdenum (Mo)	mg/L	0.000331	0.00134	0.000151	0.000797	0.000163	0.000050	8407831
Total Nickel (Ni)	mg/L	0.00609	0.0193	0.00065	0.0203	0.00070	0.00010	8407831
Total Phosphorus (P)	mg/L	0.711	0.709	0.303	0.178	0.346	0.0050	8407831
Total Selenium (Se)	mg/L	0.000067	0.000062	0.000122	0.00728	0.000136	0.000040	8407831
Total Silicon (Si)	mg/L	10.1	17.2	11.6	4.56	12.2	0.050	8407831
Total Silver (Ag)	mg/L	0.000074	0.000136	0.000641	0.000143	0.000626	0.000010	8407831
Total Strontium (Sr)	mg/L	0.586	0.516	0.794	0.239	0.836	0.000050	8407831
Total Thallium (Tl)	mg/L	0.0000630	0.000143	0.000104	0.0000190	0.000113	0.0000020	8407831
Total Tin (Sn)	mg/L	<0.00020	<0.00020	0.00039	<0.00020	0.00038	0.00020	8407831
Total Titanium (Ti)	mg/L	0.0398	0.214	0.0091	0.0319	0.0109	0.0020	8407831
Total Uranium (U)	mg/L	0.0117	0.00707	0.0127	0.00525	0.0135	0.0000050	8407831
Total Vanadium (V)	mg/L	0.00638	0.0257	0.00100	0.00538	0.00099	0.00020	8407831

RDL = Reportable Detection Limit

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PO3612	PO3633	PO3634	PO3635	PO3636		
Sampling Date		2016/09/15 09:15	2016/09/15 09:40	2016/09/15 13:15	2016/09/15 15:00	2016/09/15		
COC Number		08427565	08427565	08427565	08427565	08427565		
	UNITS	BH95G-25D	BH95G-25S	BH95G-131	BH95G-33D	DUP2	RDL	QC Batch
Total Zinc (Zn)	mg/L	0.291	0.0745	0.220	0.0175	0.213	0.0010	8407831
Total Zirconium (Zr)	mg/L	0.00160	0.00062	0.0109	0.00041	0.0102	0.00010	8407831
Total Calcium (Ca)	mg/L	162	152	164	84.0	175	0.25	8405270
Total Magnesium (Mg)	mg/L	60.0	46.3	62.0	10.3	64.6	0.25	8405270
Total Potassium (K)	mg/L	5.64	9.10	3.93	1.14	4.12	0.25	8405270
Total Sodium (Na)	mg/L	2.07	2.76	2.95	0.74	3.19	0.25	8405270
Total Sulphur (S)	mg/L	87.9	66.5	80.5	21.5	83.8	3.0	8405270
RDL = Reportable Detection Limit								

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PO3637	PO3638		PO3639		
Sampling Date		2016/09/16 08:35	2016/09/16 09:45		2016/09/16 11:02		
COC Number		08427565	08427565		08427565		
	UNITS	MW15-06	MW15-09S	QC Batch	MW15-10S	RDL	QC Batch
<b>Calculated Parameters</b>							
Total Hardness (CaCO3)	mg/L	210	214	8405700	205	0.50	8411110
<b>Elements</b>							
Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	8408984	<0.0000020	0.0000020	8408984
<b>Total Metals by ICPMS</b>							
Total Aluminum (Al)	mg/L	1.73	0.544	8407831	0.554	0.0030	8414011
Total Antimony (Sb)	mg/L	0.000043	0.000219	8407831	0.000029	0.000020	8414011
Total Arsenic (As)	mg/L	0.000655	0.00123	8407831	0.00252	0.000020	8414011
Total Barium (Ba)	mg/L	0.110	0.196	8407831	0.0769	0.000050	8414011
Total Beryllium (Be)	mg/L	0.000081	0.000066	8407831	0.000030	0.000010	8414011
Total Bismuth (Bi)	mg/L	0.000044	0.000032	8407831	<0.000010	0.000010	8414011
Total Boron (B)	mg/L	<0.010	<0.010	8407831	0.012	0.010	8414011
Total Cadmium (Cd)	mg/L	0.000574	0.000235	8407831	0.000125	0.0000050	8414011
Total Chromium (Cr)	mg/L	0.00421	0.00267	8407831	0.00152	0.00010	8414011
Total Cobalt (Co)	mg/L	0.00226	0.000975	8407831	0.00146	0.000010	8414011
Total Copper (Cu)	mg/L	0.0130	0.00489	8407831	0.00378	0.00010	8414011
Total Iron (Fe)	mg/L	3.00	1.70	8407831	1.65	0.0050	8414011
Total Lead (Pb)	mg/L	0.00526	0.00350	8407831	0.00115	0.000020	8414011
Total Lithium (Li)	mg/L	0.00330	0.00339	8407831	0.00334	0.00050	8414011
Total Manganese (Mn)	mg/L	0.0690	0.131	8407831	0.142	0.00010	8414011
Total Molybdenum (Mo)	mg/L	0.00195	0.00408	8407831	0.000486	0.000050	8414011
Total Nickel (Ni)	mg/L	0.00700	0.00223	8407831	0.00321	0.00010	8414011
Total Phosphorus (P)	mg/L	0.483	0.0889	8407831	0.0172	0.0050	8414011
Total Selenium (Se)	mg/L	0.00266	0.00111	8407831	0.00162	0.000040	8414011
Total Silicon (Si)	mg/L	5.20	4.87	8407831	4.16	0.050	8414011
Total Silver (Ag)	mg/L	0.000039	0.000056	8407831	0.000015	0.000010	8414011
Total Strontium (Sr)	mg/L	0.231	0.241	8407831	0.319	0.000050	8414011
Total Thallium (Tl)	mg/L	0.0000250	0.0000130	8407831	0.0000080	0.0000020	8414011
Total Tin (Sn)	mg/L	<0.00020	<0.00020	8407831	<0.00020	0.00020	8414011
Total Titanium (Ti)	mg/L	0.103	0.0231	8407831	0.0236	0.0020	8414011
Total Uranium (U)	mg/L	0.00329	0.00389	8407831	0.00141	0.0000050	8414011
Total Vanadium (V)	mg/L	0.00675	0.00275	8407831	0.00184	0.00020	8414011
RDL = Reportable Detection Limit							

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PO3637	PO3638		PO3639		
Sampling Date		2016/09/16 08:35	2016/09/16 09:45		2016/09/16 11:02		
COC Number		08427565	08427565		08427565		
	UNITS	MW15-06	MW15-09S	QC Batch	MW15-10S	RDL	QC Batch
Total Zinc (Zn)	mg/L	0.0370	0.0113	8407831	0.0086	0.0010	8414011
Total Zirconium (Zr)	mg/L	0.00024	0.00020	8407831	0.00045	0.00010	8414011
Total Calcium (Ca)	mg/L	72.5	68.1	8405270	70.5	0.25	8411520
Total Magnesium (Mg)	mg/L	7.09	10.6	8405270	6.96	0.25	8411520
Total Potassium (K)	mg/L	2.22	1.99	8405270	1.73	0.25	8411520
Total Sodium (Na)	mg/L	1.21	2.45	8405270	5.10	0.25	8411520
Total Sulphur (S)	mg/L	7.1	5.5	8405270	7.3	3.0	8411520
RDL = Reportable Detection Limit							

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PO3640		PO3641		PO3642		
Sampling Date		2016/09/16 11:50		2016/09/16 15:07		2016/09/18 10:01		
COC Number		08427565		08427565		08427567		
	UNITS	MW15-10D	RDL	BH95G-30	RDL	MW16-17	RDL	QC Batch
<b>Calculated Parameters</b>								
Total Hardness (CaCO3)	mg/L	2110	0.50	215	0.50	570	0.50	8405700
<b>Elements</b>								
Total Mercury (Hg)	mg/L	<0.000020	0.000020	<0.000020	0.000020	<0.000020	0.000020	8408984
<b>Total Metals by ICPMS</b>								
Total Aluminum (Al)	mg/L	0.773	0.015	0.218	0.0030	24.7	0.015	8407831
Total Antimony (Sb)	mg/L	<0.00010	0.00010	0.000071	0.000020	0.00034	0.00010	8407831
Total Arsenic (As)	mg/L	0.00095	0.00010	0.000206	0.000020	0.00559	0.00010	8407831
Total Barium (Ba)	mg/L	0.439	0.00025	0.0891	0.000050	4.58	0.00025	8407831
Total Beryllium (Be)	mg/L	0.00122	0.000050	0.000038	0.000010	0.00152	0.000050	8407831
Total Bismuth (Bi)	mg/L	0.000059	0.000050	0.000017	0.000010	0.000304	0.000050	8407831
Total Boron (B)	mg/L	<0.050	0.050	<0.010	0.010	<0.050	0.050	8407831
Total Cadmium (Cd)	mg/L	0.000293	0.000025	0.000294	0.0000050	0.00108	0.000025	8407831
Total Chromium (Cr)	mg/L	0.00197	0.00050	0.00044	0.00010	0.0380	0.00050	8407831
Total Cobalt (Co)	mg/L	0.00104	0.000050	0.000859	0.000010	0.0351	0.000050	8407831
Total Copper (Cu)	mg/L	0.00287	0.00050	0.00415	0.00010	0.0945	0.00050	8407831
Total Iron (Fe)	mg/L	31.2	0.025	0.759	0.0050	111	0.025	8407831
Total Lead (Pb)	mg/L	0.00598	0.00010	0.00170	0.000020	0.0367	0.00010	8407831
Total Lithium (Li)	mg/L	0.251	0.0025	0.00159	0.00050	0.0211	0.0025	8407831
Total Manganese (Mn)	mg/L	5.40	0.00050	0.0193	0.00010	2.99	0.00050	8407831
Total Molybdenum (Mo)	mg/L	0.00035	0.00025	0.00273	0.000050	0.00222	0.00025	8407831
Total Nickel (Ni)	mg/L	0.00167	0.00050	0.00474	0.00010	0.0803	0.00050	8407831
Total Phosphorus (P)	mg/L	0.062	0.025	0.0319	0.0050	3.33	0.025	8407831
Total Selenium (Se)	mg/L	<0.00020	0.00020	0.00260	0.000040	0.00222	0.00020	8407831
Total Silicon (Si)	mg/L	39.8	0.25	3.59	0.050	32.3	0.25	8407831
Total Silver (Ag)	mg/L	0.000066	0.000050	0.000065	0.000010	0.00456	0.000050	8407831
Total Strontium (Sr)	mg/L	2.72	0.00025	0.239	0.000050	0.431	0.00025	8407831
Total Thallium (Tl)	mg/L	<0.000010	0.000010	0.0000060	0.0000020	0.000193	0.000010	8407831
Total Tin (Sn)	mg/L	<0.0010	0.0010	<0.00020	0.00020	<0.0010	0.0010	8407831
Total Titanium (Ti)	mg/L	0.027	0.010	0.0079	0.0020	0.539	0.010	8407831
Total Uranium (U)	mg/L	0.000383	0.000025	0.00342	0.0000050	0.0197	0.000025	8407831
Total Vanadium (V)	mg/L	0.0031	0.0010	0.00105	0.00020	0.0505	0.0010	8407831
RDL = Reportable Detection Limit								

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PO3640		PO3641		PO3642		
Sampling Date		2016/09/16 11:50		2016/09/16 15:07		2016/09/18 10:01		
COC Number		08427565		08427565		08427567		
	UNITS	MW15-10D	RDL	BH95G-30	RDL	MW16-17	RDL	QC Batch
Total Zinc (Zn)	mg/L	0.0070	0.0050	0.0287	0.0010	0.648	0.0050	8407831
Total Zirconium (Zr)	mg/L	0.00198	0.00050	0.00026	0.00010	0.0377	0.00050	8407831
Total Calcium (Ca)	mg/L	700	1.3	73.8	0.25	177	1.3	8405270
Total Magnesium (Mg)	mg/L	87.1	1.3	7.47	0.25	31.2	1.3	8405270
Total Potassium (K)	mg/L	9.5	1.3	1.84	0.25	8.5	1.3	8405270
Total Sodium (Na)	mg/L	23.4	1.3	1.30	0.25	2.0	1.3	8405270
Total Sulphur (S)	mg/L	<15	15	8.6	3.0	23	15	8405270
RDL = Reportable Detection Limit								



Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PO3643	PO3644		PO3645	PO3646		
Sampling Date		2016/09/18 11:10	2016/09/18 12:40		2016/09/18 13:37	2016/09/18 14:13		
COC Number		08427567	08427567		08427567	08427567		
	UNITS	MW16-16D	MW16-14D	RDL	MW16-12D	MW16-12S	RDL	QC Batch

Calculated Parameters								
Total Hardness (CaCO3)	mg/L	324	261	0.50	859	943	0.50	8405700
Elements								
Total Mercury (Hg)	mg/L	<0.000020	<0.000020	0.000020	<0.000020	<0.000020	0.000020	8408984
Total Metals by ICPMS								
Total Aluminum (Al)	mg/L	7.84	1.57	0.0030	0.904	25.0	0.015	8407831
Total Antimony (Sb)	mg/L	0.000929	0.000048	0.000020	<0.00010	0.00031	0.00010	8407831
Total Arsenic (As)	mg/L	0.00355	0.00458	0.000020	0.00010	0.0219	0.00010	8407831
Total Barium (Ba)	mg/L	0.136	0.0512	0.000050	3.10	3.86	0.00025	8407831
Total Beryllium (Be)	mg/L	0.000343	0.000145	0.000010	0.000115	0.00176	0.000050	8407831
Total Bismuth (Bi)	mg/L	0.000225	0.000039	0.000010	<0.000050	0.00113	0.000050	8407831
Total Boron (B)	mg/L	<0.010	<0.010	0.010	<0.050	<0.050	0.050	8407831
Total Cadmium (Cd)	mg/L	0.000415	0.0000900	0.000050	0.000070	0.00192	0.000025	8407831
Total Chromium (Cr)	mg/L	0.0227	0.00294	0.00010	0.00256	0.0686	0.00050	8407831
Total Cobalt (Co)	mg/L	0.0149	0.00153	0.000010	0.000415	0.122	0.000050	8407831
Total Copper (Cu)	mg/L	0.0772	0.00235	0.00010	0.00413	0.188	0.00050	8407831
Total Iron (Fe)	mg/L	20.9	3.33	0.0050	7.88	139	0.025	8407831
Total Lead (Pb)	mg/L	0.0262	0.00148	0.000020	0.00068	0.0496	0.00010	8407831
Total Lithium (Li)	mg/L	0.0114	0.00398	0.00050	0.419	0.468	0.0025	8407831
Total Manganese (Mn)	mg/L	0.414	0.392	0.00010	0.352	1.95	0.00050	8407831
Total Molybdenum (Mo)	mg/L	0.00117	0.000294	0.000050	<0.00025	0.00210	0.00025	8407831
Total Nickel (Ni)	mg/L	0.0329	0.00434	0.00010	0.00161	0.201	0.00050	8407831
Total Phosphorus (P)	mg/L	0.512	0.121	0.0050	0.189	0.848	0.025	8407831
Total Selenium (Se)	mg/L	0.000456	<0.000040	0.000040	<0.00020	0.00051	0.00020	8407831
Total Silicon (Si)	mg/L	12.5	6.08	0.050	17.5	46.1	0.25	8407831
Total Silver (Ag)	mg/L	0.000307	0.000011	0.000010	0.000292	0.000250	0.000050	8407831
Total Strontium (Sr)	mg/L	0.373	0.330	0.000050	2.04	2.29	0.00025	8407831
Total Thallium (Tl)	mg/L	0.0000840	0.0000160	0.0000020	0.000025	0.000521	0.000010	8407831
Total Tin (Sn)	mg/L	0.00144	<0.00020	0.00020	<0.0010	<0.0010	0.0010	8407831
Total Titanium (Ti)	mg/L	0.196	0.0151	0.0020	0.035	1.05	0.010	8407831
Total Uranium (U)	mg/L	0.00818	0.00447	0.0000050	0.00105	0.00599	0.000025	8407831
Total Vanadium (V)	mg/L	0.0228	0.00294	0.00020	0.0042	0.0821	0.0010	8407831

RDL = Reportable Detection Limit

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PO3643	PO3644		PO3645	PO3646		
Sampling Date		2016/09/18 11:10	2016/09/18 12:40		2016/09/18 13:37	2016/09/18 14:13		
COC Number		08427567	08427567		08427567	08427567		
	UNITS	MW16-16D	MW16-14D	RDL	MW16-12D	MW16-12S	RDL	QC Batch
Total Zinc (Zn)	mg/L	0.787	0.0069	0.0010	0.0073	0.668	0.0050	8407831
Total Zirconium (Zr)	mg/L	0.0122	0.00048	0.00010	0.0365	0.00775	0.00050	8407831
Total Calcium (Ca)	mg/L	107	92.6	0.25	184	195	1.3	8405270
Total Magnesium (Mg)	mg/L	13.6	7.20	0.25	96.9	111	1.3	8405270
Total Potassium (K)	mg/L	3.77	2.38	0.25	12.0	21.4	1.3	8405270
Total Sodium (Na)	mg/L	2.21	3.13	0.25	33.3	39.9	1.3	8405270
Total Sulphur (S)	mg/L	14.2	27.7	3.0	<15	<15	15	8405270
RDL = Reportable Detection Limit								

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PO3647	PO3648	PO3649	PO3651		
Sampling Date		2016/09/18 15:30	2016/09/19 12:56	2016/09/19 13:37	2016/09/16		
COC Number		08427567	08427567	08427567	08427566		
	UNITS	BH95G-02	BH95G-146	BH95G-129	DUP3	RDL	QC Batch
<b>Calculated Parameters</b>							
Total Hardness (CaCO3)	mg/L	319	388	200	198	0.50	8405700
<b>Elements</b>							
Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000020	8408984
<b>Total Metals by ICPMS</b>							
Total Aluminum (Al)	mg/L	0.0217	0.0532	0.0307	1.40	0.0030	8407831
Total Antimony (Sb)	mg/L	0.000029	0.000153	0.000335	0.000039	0.000020	8407831
Total Arsenic (As)	mg/L	0.000137	0.000967	0.00405	0.000506	0.000020	8407831
Total Barium (Ba)	mg/L	0.0279	0.0150	0.0704	0.102	0.000050	8407831
Total Beryllium (Be)	mg/L	<0.000010	0.000016	<0.000010	0.000067	0.000010	8407831
Total Bismuth (Bi)	mg/L	<0.000010	<0.000010	<0.000010	0.000036	0.000010	8407831
Total Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	0.010	8407831
Total Cadmium (Cd)	mg/L	0.00169	0.0000230	0.0000340	0.000479	0.0000050	8407831
Total Chromium (Cr)	mg/L	<0.00010	0.00012	0.00018	0.00337	0.00010	8407831
Total Cobalt (Co)	mg/L	0.000057	0.000025	0.000127	0.00183	0.000010	8407831
Total Copper (Cu)	mg/L	0.00098	0.00053	0.00108	0.0107	0.00010	8407831
Total Iron (Fe)	mg/L	0.0741	1.41	0.658	2.38	0.0050	8407831
Total Lead (Pb)	mg/L	0.000473	0.00129	0.000573	0.00445	0.000020	8407831
Total Lithium (Li)	mg/L	0.00151	0.0193	0.00864	0.00271	0.00050	8407831
Total Manganese (Mn)	mg/L	0.00163	0.0271	0.0918	0.0408	0.00010	8407831
Total Molybdenum (Mo)	mg/L	0.00236	0.000307	0.000819	0.00182	0.000050	8407831
Total Nickel (Ni)	mg/L	0.00065	<0.00010	0.00032	0.00549	0.00010	8407831
Total Phosphorus (P)	mg/L	0.0272	0.143	0.0212	0.250	0.0050	8407831
Total Selenium (Se)	mg/L	0.00549	<0.000040	<0.000040	0.00255	0.000040	8407831
Total Silicon (Si)	mg/L	2.42	13.7	5.38	4.78	0.050	8407831
Total Silver (Ag)	mg/L	<0.000010	<0.000010	<0.000010	0.000026	0.000010	8407831
Total Strontium (Sr)	mg/L	0.245	0.406	0.192	0.217	0.000050	8407831
Total Thallium (Tl)	mg/L	<0.0000020	0.0000050	0.0000020	0.0000160	0.0000020	8407831
Total Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8407831
Total Titanium (Ti)	mg/L	<0.0020	0.0020	<0.0020	0.0811	0.0020	8407831
Total Uranium (U)	mg/L	0.00350	0.00186	0.00891	0.00311	0.0000050	8407831
Total Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	0.00531	0.00020	8407831
RDL = Reportable Detection Limit							

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PO3647	PO3648	PO3649	PO3651		
Sampling Date		2016/09/18 15:30	2016/09/19 12:56	2016/09/19 13:37	2016/09/16		
COC Number		08427567	08427567	08427567	08427566		
	UNITS	BH95G-02	BH95G-146	BH95G-129	DUP3	RDL	QC Batch
Total Zinc (Zn)	mg/L	0.0312	0.0050	0.0084	0.0309	0.0010	8407831
Total Zirconium (Zr)	mg/L	<0.00010	0.00073	0.00039	0.00018	0.00010	8407831
Total Calcium (Ca)	mg/L	75.5	119	58.2	68.2	0.25	8405270
Total Magnesium (Mg)	mg/L	31.7	22.0	13.2	6.68	0.25	8405270
Total Potassium (K)	mg/L	0.42	2.44	2.09	2.08	0.25	8405270
Total Sodium (Na)	mg/L	0.69	3.31	1.99	1.18	0.25	8405270
Total Sulphur (S)	mg/L	14.3	87.8	12.6	7.3	3.0	8405270
RDL = Reportable Detection Limit							

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PO3652			PO3664	PO3665		
Sampling Date		2016/09/17 09:40			2016/09/17 10:05	2016/09/17 11:17		
COC Number		08427566			08427566	08427566		
	UNITS	MW15-03D	RDL	QC Batch	MW15-03S	MW15-04S	RDL	QC Batch
<b>Calculated Parameters</b>								
Total Hardness (CaCO3)	mg/L	206	0.50	8405700	268	290	0.50	8405700
<b>Elements</b>								
Total Mercury (Hg)	mg/L	<0.0000020	0.0000020	8408991	<0.0000020	<0.0000020	0.0000020	8408991
<b>Total Metals by ICPMS</b>								
Total Aluminum (Al)	mg/L	0.0511	0.0030	8407831	22.8	30.0	0.015	8409073
Total Antimony (Sb)	mg/L	0.000084	0.000020	8407831	0.00017	0.00011	0.00010	8409073
Total Arsenic (As)	mg/L	0.00211	0.000020	8407831	0.0256	0.0136	0.00010	8409073
Total Barium (Ba)	mg/L	0.0481	0.000050	8407831	0.435	0.818	0.00025	8409073
Total Beryllium (Be)	mg/L	0.000011	0.000010	8407831	0.00103	0.000902	0.000050	8409073
Total Bismuth (Bi)	mg/L	<0.000010	0.000010	8407831	0.000603	0.000420	0.000050	8409073
Total Boron (B)	mg/L	<0.010	0.010	8407831	<0.050	<0.050	0.050	8409073
Total Cadmium (Cd)	mg/L	<0.0000050	0.0000050	8407831	0.00194	0.00160	0.000025	8409073
Total Chromium (Cr)	mg/L	0.00039	0.00010	8407831	0.0721	0.0661	0.00050	8409073
Total Cobalt (Co)	mg/L	0.000106	0.000010	8407831	0.0444	0.0453	0.000050	8409073
Total Copper (Cu)	mg/L	0.00062	0.00010	8407831	0.145	0.166	0.00050	8409073
Total Iron (Fe)	mg/L	0.927	0.0050	8407831	52.1	52.2	0.025	8409073
Total Lead (Pb)	mg/L	0.000166	0.000020	8407831	0.0948	0.0636	0.00010	8409073
Total Lithium (Li)	mg/L	0.00572	0.00050	8407831	0.0284	0.0204	0.0025	8409073
Total Manganese (Mn)	mg/L	0.0602	0.00010	8407831	1.53	2.36	0.00050	8409073
Total Molybdenum (Mo)	mg/L	0.00324	0.000050	8407831	0.00172	0.00081	0.00025	8409073
Total Nickel (Ni)	mg/L	0.00028	0.00010	8407831	0.109	0.0752	0.00050	8409073
Total Phosphorus (P)	mg/L	0.0109	0.0050	8407831	2.72	3.73	0.025	8409073
Total Selenium (Se)	mg/L	<0.000040	0.000040	8407831	0.00026	0.00076	0.00020	8409073
Total Silicon (Si)	mg/L	4.58	0.050	8407831	31.2	36.9	0.25	8409073
Total Silver (Ag)	mg/L	0.000012	0.000010	8407831	0.00166	0.00255	0.000050	8409073
Total Strontium (Sr)	mg/L	0.238	0.000050	8407831	0.242	0.317	0.00025	8409073
Total Thallium (Tl)	mg/L	0.0000040	0.0000020	8407831	0.000398	0.000440	0.000010	8409073
Total Tin (Sn)	mg/L	<0.00020	0.00020	8407831	<0.0010	<0.0010	0.0010	8409073
Total Titanium (Ti)	mg/L	0.0021	0.0020	8407831	1.12	0.846	0.010	8409073
Total Uranium (U)	mg/L	0.00268	0.0000050	8407831	0.00235	0.00229	0.000025	8409073
Total Vanadium (V)	mg/L	<0.00020	0.00020	8407831	0.0774	0.104	0.0010	8409073
RDL = Reportable Detection Limit								

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PO3652			PO3664	PO3665		
Sampling Date		2016/09/17 09:40			2016/09/17 10:05	2016/09/17 11:17		
COC Number		08427566			08427566	08427566		
	UNITS	MW15-03D	RDL	QC Batch	MW15-03S	MW15-04S	RDL	QC Batch
Total Zinc (Zn)	mg/L	0.0013	0.0010	8407831	0.267	0.236	0.0050	8409073
Total Zirconium (Zr)	mg/L	0.00093	0.00010	8407831	0.00186	0.00286	0.00050	8409073
Total Calcium (Ca)	mg/L	55.5	0.25	8405270	75.2	82.9	1.3	8405270
Total Magnesium (Mg)	mg/L	16.3	0.25	8405270	19.5	20.2	1.3	8405270
Total Potassium (K)	mg/L	2.45	0.25	8405270	7.1	8.2	1.3	8405270
Total Sodium (Na)	mg/L	1.89	0.25	8405270	<1.3	<1.3	1.3	8405270
Total Sulphur (S)	mg/L	7.5	3.0	8405270	<15	<15	15	8405270
RDL = Reportable Detection Limit								

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PO3666	PO3667		PO3668	PO3669		
Sampling Date		2016/09/17 12:03	2016/09/17 13:34		2016/09/17 14:56	2016/09/17 15:30		
COC Number		08427566	08427566		08427566	08427566		
	UNITS	MW15-04D	MW15-05D	RDL	MW15-07S	MW15-07D	RDL	QC Batch

Calculated Parameters								
Total Hardness (CaCO3)	mg/L	271	430	0.50	206	221	0.50	8405700
Elements								
Total Mercury (Hg)	mg/L	<0.000020	<0.000020	0.000020	<0.000020	<0.000020	0.000020	8408991
Total Metals by ICPMS								
Total Aluminum (Al)	mg/L	6.75	15.1	0.015	0.156	0.833	0.0030	8409073
Total Antimony (Sb)	mg/L	<0.00010	<0.00010	0.00010	0.000022	0.000023	0.000020	8409073
Total Arsenic (As)	mg/L	0.0198	0.00409	0.00010	0.00171	0.000241	0.000020	8409073
Total Barium (Ba)	mg/L	0.542	0.616	0.00025	0.0364	0.0860	0.000050	8409073
Total Beryllium (Be)	mg/L	0.000371	0.00626	0.000050	0.000013	0.000031	0.000010	8409073
Total Bismuth (Bi)	mg/L	0.000106	0.00151	0.000050	<0.000010	0.000032	0.000010	8409073
Total Boron (B)	mg/L	<0.050	<0.050	0.050	<0.010	<0.010	0.010	8409073
Total Cadmium (Cd)	mg/L	0.000727	0.00390	0.000025	0.0000100	0.0000300	0.000050	8409073
Total Chromium (Cr)	mg/L	0.0623	0.00979	0.00050	0.00071	0.00256	0.00010	8409073
Total Cobalt (Co)	mg/L	0.0301	0.0216	0.000050	0.000429	0.000595	0.000010	8409073
Total Copper (Cu)	mg/L	0.0595	0.0961	0.00050	0.00326	0.00323	0.00010	8409073
Total Iron (Fe)	mg/L	16.5	16.2	0.025	0.866	3.02	0.0050	8409073
Total Lead (Pb)	mg/L	0.0255	0.384	0.00010	0.000361	0.00227	0.000020	8409073
Total Lithium (Li)	mg/L	0.0063	0.0099	0.0025	0.00687	0.0127	0.00050	8409073
Total Manganese (Mn)	mg/L	0.765	1.79	0.00050	0.163	0.113	0.00010	8409073
Total Molybdenum (Mo)	mg/L	0.00139	0.00058	0.00025	0.000246	0.000087	0.000050	8409073
Total Nickel (Ni)	mg/L	0.0616	0.0281	0.00050	0.00096	0.00117	0.00010	8409073
Total Phosphorus (P)	mg/L	0.714	0.530	0.025	0.0187	0.0639	0.0050	8409073
Total Selenium (Se)	mg/L	0.00052	0.00250	0.00020	<0.000040	0.000058	0.000040	8409073
Total Silicon (Si)	mg/L	11.7	24.8	0.25	6.83	8.53	0.050	8409073
Total Silver (Ag)	mg/L	0.000139	0.00329	0.000050	0.000020	0.000100	0.000010	8409073
Total Strontium (Sr)	mg/L	0.363	0.907	0.00025	0.255	0.308	0.000050	8409073
Total Thallium (Tl)	mg/L	0.000063	0.000261	0.000010	0.0000030	0.0000050	0.0000020	8409073
Total Tin (Sn)	mg/L	<0.0010	<0.0010	0.0010	<0.00020	<0.00020	0.00020	8409073
Total Titanium (Ti)	mg/L	0.082	0.078	0.010	0.0030	0.0215	0.0020	8409073
Total Uranium (U)	mg/L	0.00368	0.0122	0.000025	0.00187	0.00132	0.0000050	8409073
Total Vanadium (V)	mg/L	0.0112	0.0120	0.0010	0.00059	0.00252	0.00020	8409073

RDL = Reportable Detection Limit

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PO3666	PO3667		PO3668	PO3669		
Sampling Date		2016/09/17 12:03	2016/09/17 13:34		2016/09/17 14:56	2016/09/17 15:30		
COC Number		08427566	08427566		08427566	08427566		
	UNITS	MW15-04D	MW15-05D	RDL	MW15-07S	MW15-07D	RDL	QC Batch
Total Zinc (Zn)	mg/L	0.0775	0.337	0.0050	0.0032	0.0095	0.0010	8409073
Total Zirconium (Zr)	mg/L	0.00202	0.00132	0.00050	0.00024	0.00136	0.00010	8409073
Total Calcium (Ca)	mg/L	92.9	145	1.3	64.3	64.6	0.25	8405270
Total Magnesium (Mg)	mg/L	9.4	16.6	1.3	11.0	14.4	0.25	8405270
Total Potassium (K)	mg/L	3.8	4.3	1.3	1.40	1.74	0.25	8405270
Total Sodium (Na)	mg/L	1.5	13.3	1.3	3.42	4.09	0.25	8405270
Total Sulphur (S)	mg/L	<15	<15	15	10.7	10.1	3.0	8405270
RDL = Reportable Detection Limit								



Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

<b>Maxxam ID</b>		PO3670		
<b>Sampling Date</b>		2016/09/17 16:25		
<b>COC Number</b>		08427566		
	<b>UNITS</b>	<b>MW15-08S</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>				
Total Hardness (CaCO3)	mg/L	660	0.50	8405700
<b>Elements</b>				
Total Mercury (Hg)	mg/L	<0.0000020	0.0000020	8408991
<b>Total Metals by ICPMS</b>				
Total Aluminum (Al)	mg/L	22.5	0.015	8409073
Total Antimony (Sb)	mg/L	0.00015	0.00010	8409073
Total Arsenic (As)	mg/L	0.0129	0.00010	8409073
Total Barium (Ba)	mg/L	0.778	0.00025	8409073
Total Beryllium (Be)	mg/L	0.000708	0.000050	8409073
Total Bismuth (Bi)	mg/L	0.000382	0.000050	8409073
Total Boron (B)	mg/L	<0.050	0.050	8409073
Total Cadmium (Cd)	mg/L	0.00429	0.000025	8409073
Total Chromium (Cr)	mg/L	0.0477	0.00050	8409073
Total Cobalt (Co)	mg/L	0.0463	0.000050	8409073
Total Copper (Cu)	mg/L	0.195	0.00050	8409073
Total Iron (Fe)	mg/L	45.4	0.025	8409073
Total Lead (Pb)	mg/L	0.252	0.00010	8409073
Total Lithium (Li)	mg/L	0.0201	0.0025	8409073
Total Manganese (Mn)	mg/L	2.45	0.00050	8409073
Total Molybdenum (Mo)	mg/L	0.00090	0.00025	8409073
Total Nickel (Ni)	mg/L	0.0837	0.00050	8409073
Total Phosphorus (P)	mg/L	5.24	0.025	8409073
Total Selenium (Se)	mg/L	0.00227	0.00020	8409073
Total Silicon (Si)	mg/L	28.0	0.25	8409073
Total Silver (Ag)	mg/L	0.000625	0.000050	8409073
Total Strontium (Sr)	mg/L	0.681	0.00025	8409073
Total Thallium (Tl)	mg/L	0.000274	0.000010	8409073
Total Tin (Sn)	mg/L	<0.0010	0.0010	8409073
Total Titanium (Ti)	mg/L	0.931	0.010	8409073
Total Uranium (U)	mg/L	0.00467	0.000025	8409073
Total Vanadium (V)	mg/L	0.0989	0.0010	8409073
RDL = Reportable Detection Limit				

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

<b>Maxxam ID</b>		PO3670		
<b>Sampling Date</b>		2016/09/17 16:25		
<b>COC Number</b>		08427566		
	<b>UNITS</b>	<b>MW15-08S</b>	<b>RDL</b>	<b>QC Batch</b>
Total Zinc (Zn)	mg/L	0.633	0.0050	8409073
Total Zirconium (Zr)	mg/L	0.00652	0.00050	8409073
Total Calcium (Ca)	mg/L	227	1.3	8405270
Total Magnesium (Mg)	mg/L	22.4	1.3	8405270
Total Potassium (K)	mg/L	6.0	1.3	8405270
Total Sodium (Na)	mg/L	1.5	1.3	8405270
Total Sulphur (S)	mg/L	<15	15	8405270
RDL = Reportable Detection Limit				

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PO3612  
**Sample ID:** BH95G-25D  
**Matrix:** Water

**Collected:** 2016/09/15  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8407672	N/A	2016/09/22	Maria Maclean
Alkalinity - Water	AT/ALK	8407658	2016/09/22	2016/09/22	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8407782	N/A	2016/09/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8408810	N/A	2016/09/22	Isabel Choi
Conductance - water	AT/ALK	8407662	N/A	2016/09/22	Wilson Au Yueng
Fluoride	ISE/ISE	8407674	N/A	2016/09/22	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8405700	N/A	2016/09/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8406413	N/A	2016/09/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8409146	N/A	2016/09/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8408984	2016/09/23	2016/09/23	Edwin Lamigo
Ion Balance	CALC	8405944	N/A	2016/09/23	Automated Statchk
Sum of cations, anions	CALC	8405945	N/A	2016/09/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8405176	N/A	2016/09/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8407409	N/A	2016/09/23	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8407831	2016/09/22	2016/09/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8405270	N/A	2016/09/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8407017	N/A	2016/09/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8409077	N/A	2016/09/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8409079	N/A	2016/09/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8405271	N/A	2016/09/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8406949	N/A	2016/09/22	Lucy Luo
pH Water	AT/ALK	8407661	N/A	2016/09/22	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8407786	N/A	2016/09/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8407369	2016/09/22	2016/09/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8407372	N/A	2016/09/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8406940	2016/09/22	2016/09/23	Minsoo Choi

**Maxxam ID:** PO3633  
**Sample ID:** BH95G-25S  
**Matrix:** Water

**Collected:** 2016/09/15  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8407672	N/A	2016/09/22	Maria Maclean
Alkalinity - Water	AT/ALK	8407658	2016/09/22	2016/09/22	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8407782	N/A	2016/09/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8408811	N/A	2016/09/22	Isabel Choi
Conductance - water	AT/ALK	8407662	N/A	2016/09/22	Wilson Au Yueng
Fluoride	ISE/ISE	8407680	N/A	2016/09/22	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8405700	N/A	2016/09/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8406413	N/A	2016/09/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8409146	N/A	2016/09/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8408984	2016/09/23	2016/09/23	Edwin Lamigo
Ion Balance	CALC	8405944	N/A	2016/09/23	Automated Statchk
Sum of cations, anions	CALC	8405945	N/A	2016/09/23	Automated Statchk

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PO3633  
**Sample ID:** BH95G-255  
**Matrix:** Water

**Collected:** 2016/09/15  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8405176	N/A	2016/09/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8407409	N/A	2016/09/23	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8407831	2016/09/22	2016/09/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8405270	N/A	2016/09/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8407017	N/A	2016/09/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8409077	N/A	2016/09/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8409079	N/A	2016/09/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8405271	N/A	2016/09/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8406949	N/A	2016/09/22	Lucy Luo
pH Water	AT/ALK	8407661	N/A	2016/09/22	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8409350	N/A	2016/09/23	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8407369	2016/09/22	2016/09/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8407372	N/A	2016/09/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8406940	2016/09/22	2016/09/23	Minsoo Choi

**Maxxam ID:** PO3634  
**Sample ID:** BH95G-131  
**Matrix:** Water

**Collected:** 2016/09/15  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8407672	N/A	2016/09/22	Maria Maclean
Alkalinity - Water	AT/ALK	8407658	2016/09/22	2016/09/22	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8407782	N/A	2016/09/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8408812	N/A	2016/09/22	Isabel Choi
Conductance - water	AT/ALK	8407662	N/A	2016/09/22	Wilson Au Yueng
Fluoride	ISE/ISE	8407680	N/A	2016/09/22	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8405700	N/A	2016/09/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8406413	N/A	2016/09/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8409146	N/A	2016/09/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8408984	2016/09/23	2016/09/23	Edwin Lamigo
Ion Balance	CALC	8405944	N/A	2016/09/23	Automated Statchk
Sum of cations, anions	CALC	8405945	N/A	2016/09/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8405176	N/A	2016/09/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8407409	N/A	2016/09/23	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8407831	2016/09/22	2016/09/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8405270	N/A	2016/09/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8407020	N/A	2016/09/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8409077	N/A	2016/09/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8409079	N/A	2016/09/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8405271	N/A	2016/09/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8406949	N/A	2016/09/22	Lucy Luo
pH Water	AT/ALK	8407661	N/A	2016/09/22	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8407786	N/A	2016/09/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8407369	2016/09/22	2016/09/22	Isabel Choi

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**TEST SUMMARY**

**Maxxam ID:** PO3634  
**Sample ID:** BH95G-131  
**Matrix:** Water

**Collected:** 2016/09/15  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Phosphorus - unpreserved	KONE/COL	8407372	N/A	2016/09/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8406940	2016/09/22	2016/09/23	Minsoo Choi

**Maxxam ID:** PO3635  
**Sample ID:** BH95G-33D  
**Matrix:** Water

**Collected:** 2016/09/15  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8407672	N/A	2016/09/22	Maria Maclean
Alkalinity - Water	AT/ALK	8407658	2016/09/22	2016/09/22	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8407782	N/A	2016/09/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8408811	N/A	2016/09/22	Isabel Choi
Conductance - water	AT/ALK	8407662	N/A	2016/09/22	Wilson Au Yueng
Fluoride	ISE/ISE	8407674	N/A	2016/09/22	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8405700	N/A	2016/09/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8406413	N/A	2016/09/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8409146	N/A	2016/09/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8408984	2016/09/23	2016/09/23	Edwin Lamigo
Ion Balance	CALC	8405944	N/A	2016/09/23	Automated Statchk
Sum of cations, anions	CALC	8405945	N/A	2016/09/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8405176	N/A	2016/09/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8407409	N/A	2016/09/23	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8407831	2016/09/22	2016/09/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8405270	N/A	2016/09/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8407017	N/A	2016/09/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8409077	N/A	2016/09/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8409079	N/A	2016/09/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8405271	N/A	2016/09/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8406949	N/A	2016/09/22	Lucy Luo
pH Water	AT/ALK	8407661	N/A	2016/09/22	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8409350	N/A	2016/09/23	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8407369	2016/09/22	2016/09/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8407372	N/A	2016/09/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8406941	2016/09/22	2016/09/23	Minsoo Choi

**Maxxam ID:** PO3636  
**Sample ID:** DUP2  
**Matrix:** Water

**Collected:** 2016/09/15  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8407672	N/A	2016/09/22	Maria Maclean
Alkalinity - Water	AT/ALK	8407658	2016/09/22	2016/09/22	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8407782	N/A	2016/09/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8408811	N/A	2016/09/22	Isabel Choi

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PO3636  
**Sample ID:** DUP2  
**Matrix:** Water

**Collected:** 2016/09/15  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductance - water	AT/ALK	8407662	N/A	2016/09/22	Wilson Au Yueng
Fluoride	ISE/ISE	8407674	N/A	2016/09/22	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8405700	N/A	2016/09/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8406413	N/A	2016/09/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8409146	N/A	2016/09/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8408984	2016/09/23	2016/09/23	Edwin Lamigo
Ion Balance	CALC	8405944	N/A	2016/09/23	Automated Statchk
Sum of cations, anions	CALC	8405945	N/A	2016/09/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8405176	N/A	2016/09/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8407409	N/A	2016/09/23	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8407831	2016/09/22	2016/09/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8405270	N/A	2016/09/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8407017	N/A	2016/09/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8409077	N/A	2016/09/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8409079	N/A	2016/09/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8405271	N/A	2016/09/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8406949	N/A	2016/09/22	Lucy Luo
pH Water	AT/ALK	8407661	N/A	2016/09/22	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8407786	N/A	2016/09/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8407369	2016/09/22	2016/09/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8407372	N/A	2016/09/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8406941	2016/09/22	2016/09/23	Minsoo Choi

**Maxxam ID:** PO3637  
**Sample ID:** MW15-06  
**Matrix:** Water

**Collected:** 2016/09/16  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8407666	N/A	2016/09/22	Maria Maclean
Alkalinity - Water	AT/ALK	8407658	2016/09/22	2016/09/22	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8407782	N/A	2016/09/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8408812	N/A	2016/09/22	Isabel Choi
Conductance - water	AT/ALK	8407662	N/A	2016/09/22	Wilson Au Yueng
Fluoride	ISE/ISE	8407674	N/A	2016/09/22	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8405700	N/A	2016/09/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8406413	N/A	2016/09/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8409146	N/A	2016/09/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8408984	2016/09/23	2016/09/23	Edwin Lamigo
Ion Balance	CALC	8405944	N/A	2016/09/23	Automated Statchk
Sum of cations, anions	CALC	8405945	N/A	2016/09/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8405176	N/A	2016/09/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8407409	N/A	2016/09/23	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8407831	2016/09/22	2016/09/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8405270	N/A	2016/09/23	Automated Statchk

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PO3637  
**Sample ID:** MW15-06  
**Matrix:** Water

**Collected:** 2016/09/16  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Ammonia-N (Preserved)	KONE/COL	8407017	N/A	2016/09/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8409077	N/A	2016/09/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8409079	N/A	2016/09/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8405271	N/A	2016/09/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8406949	N/A	2016/09/22	Lucy Luo
pH Water	AT/ALK	8407661	N/A	2016/09/22	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8407786	N/A	2016/09/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8407369	2016/09/22	2016/09/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8407372	N/A	2016/09/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8406941	2016/09/22	2016/09/23	Minsoo Choi

**Maxxam ID:** PO3638  
**Sample ID:** MW15-09S  
**Matrix:** Water

**Collected:** 2016/09/16  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8407666	N/A	2016/09/22	Maria Maclean
Alkalinity - Water	AT/ALK	8407658	2016/09/22	2016/09/22	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8407782	N/A	2016/09/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8408811	N/A	2016/09/22	Isabel Choi
Conductance - water	AT/ALK	8407662	N/A	2016/09/22	Wilson Au Yueng
Fluoride	ISE/ISE	8407674	N/A	2016/09/22	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8405700	N/A	2016/09/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8406413	N/A	2016/09/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8409146	N/A	2016/09/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAF	CV/AF	8408984	2016/09/23	2016/09/23	Edwin Lamigo
Ion Balance	CALC	8405944	N/A	2016/09/23	Automated Statchk
Sum of cations, anions	CALC	8405945	N/A	2016/09/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8405176	N/A	2016/09/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8407409	N/A	2016/09/23	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8407831	2016/09/22	2016/09/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8405270	N/A	2016/09/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8407020	N/A	2016/09/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8409077	N/A	2016/09/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8409079	N/A	2016/09/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8405271	N/A	2016/09/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8406949	N/A	2016/09/22	Lucy Luo
pH Water	AT/ALK	8407661	N/A	2016/09/22	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8407786	N/A	2016/09/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8407369	2016/09/22	2016/09/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8407372	N/A	2016/09/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8406941	2016/09/22	2016/09/23	Minsoo Choi



Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PO3639  
**Sample ID:** MW15-10S  
**Matrix:** Water

**Collected:** 2016/09/16  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8407666	N/A	2016/09/22	Maria Maclean
Alkalinity - Water	AT/ALK	8407658	2016/09/22	2016/09/22	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8407782	N/A	2016/09/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8408811	N/A	2016/09/22	Isabel Choi
Conductance - water	AT/ALK	8407662	N/A	2016/09/22	Wilson Au Yueng
Fluoride	ISE/ISE	8407674	N/A	2016/09/22	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8411110	N/A	2016/09/28	Rob Reinert
Hardness (calculated as CaCO3)	CALC	8411002	N/A	2016/09/26	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8409146	N/A	2016/09/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8408984	2016/09/23	2016/09/23	Edwin Lamigo
Ion Balance	CALC	8411003	N/A	2016/09/27	David Huang
Sum of cations, anions	CALC	8411484	N/A	2016/09/27	David Huang
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8411412	N/A	2016/09/26	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8411672	N/A	2016/09/26	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8414011	2016/09/28	2016/09/28	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8411520	N/A	2016/09/28	Rob Reinert
Ammonia-N (Preserved)	KONE/COL	8407017	N/A	2016/09/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8409077	N/A	2016/09/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8409079	N/A	2016/09/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8405271	N/A	2016/09/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8406949	N/A	2016/09/22	Lucy Luo
pH Water	AT/ALK	8407661	N/A	2016/09/22	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8407786	N/A	2016/09/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8407369	2016/09/22	2016/09/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8407372	N/A	2016/09/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8406941	2016/09/22	2016/09/23	Minsoo Choi

**Maxxam ID:** PO3640  
**Sample ID:** MW15-10D  
**Matrix:** Water

**Collected:** 2016/09/16  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8407672	N/A	2016/09/22	Maria Maclean
Alkalinity - Water	AT/ALK	8411339	2016/09/26	2016/09/26	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8413217	N/A	2016/09/27	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8408812	N/A	2016/09/22	Isabel Choi
Conductance - water	AT/ALK	8407662	N/A	2016/09/22	Wilson Au Yueng
Fluoride	ISE/ISE	8407674	N/A	2016/09/22	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8405700	N/A	2016/09/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8411002	N/A	2016/09/26	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8409146	N/A	2016/09/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8408984	2016/09/23	2016/09/23	Edwin Lamigo
Ion Balance	CALC	8411003	N/A	2016/09/27	Automated Statchk
Sum of cations, anions	CALC	8411484	N/A	2016/09/26	Automated Statchk



Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**TEST SUMMARY**

**Maxxam ID:** PO3640  
**Sample ID:** MW15-10D  
**Matrix:** Water

**Collected:** 2016/09/16  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8411412	N/A	2016/09/26	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8407409	N/A	2016/09/23	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8407831	2016/09/22	2016/09/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8405270	N/A	2016/09/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8407017	N/A	2016/09/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8409077	N/A	2016/09/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8409079	N/A	2016/09/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8405271	N/A	2016/09/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8406949	N/A	2016/09/22	Lucy Luo
pH Water	AT/ALK	8407661	N/A	2016/09/22	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8413218	N/A	2016/09/27	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8412593	2016/09/27	2016/09/27	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8412516	N/A	2016/09/27	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8406941	2016/09/22	2016/09/23	Minsoo Choi

**Maxxam ID:** PO3640 Dup  
**Sample ID:** MW15-10D  
**Matrix:** Water

**Collected:** 2016/09/16  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8409146	N/A	2016/09/23	Edwin Lamigo

**Maxxam ID:** PO3641  
**Sample ID:** BH95G-30  
**Matrix:** Water

**Collected:** 2016/09/16  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8407666	N/A	2016/09/22	Maria Maclean
Alkalinity - Water	AT/ALK	8407658	2016/09/22	2016/09/22	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8407782	N/A	2016/09/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8408811	N/A	2016/09/22	Isabel Choi
Conductance - water	AT/ALK	8407662	N/A	2016/09/22	Wilson Au Yueng
Fluoride	ISE/ISE	8407674	N/A	2016/09/22	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8405700	N/A	2016/09/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8406413	N/A	2016/09/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8409146	N/A	2016/09/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8408984	2016/09/23	2016/09/23	Edwin Lamigo
Ion Balance	CALC	8405944	N/A	2016/09/23	Automated Statchk
Sum of cations, anions	CALC	8405945	N/A	2016/09/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8405176	N/A	2016/09/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8407409	N/A	2016/09/23	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8407831	2016/09/22	2016/09/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8405270	N/A	2016/09/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8407017	N/A	2016/09/22	Clare Kwok

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**TEST SUMMARY**

**Maxxam ID:** PO3641  
**Sample ID:** BH95G-30  
**Matrix:** Water

**Collected:** 2016/09/16  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrate+Nitrite (N) (low level)	TRAA/COL	8409077	N/A	2016/09/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8409079	N/A	2016/09/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8405271	N/A	2016/09/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8406949	N/A	2016/09/22	Lucy Luo
pH Water	AT/ALK	8407661	N/A	2016/09/22	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8407786	N/A	2016/09/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8407369	2016/09/22	2016/09/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8407372	N/A	2016/09/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8406941	2016/09/22	2016/09/23	Minsoo Choi

**Maxxam ID:** PO3642  
**Sample ID:** MW16-17  
**Matrix:** Water

**Collected:** 2016/09/18  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8407666	N/A	2016/09/22	Maria Maclean
Alkalinity - Water	AT/ALK	8407658	2016/09/22	2016/09/22	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8407782	N/A	2016/09/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8408810	N/A	2016/09/22	Isabel Choi
Conductance - water	AT/ALK	8407662	N/A	2016/09/22	Wilson Au Yueng
Fluoride	ISE/ISE	8407674	N/A	2016/09/22	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8405700	N/A	2016/09/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8406413	N/A	2016/09/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8409146	N/A	2016/09/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8408984	2016/09/23	2016/09/23	Edwin Lamigo
Ion Balance	CALC	8405944	N/A	2016/09/23	Automated Statchk
Sum of cations, anions	CALC	8405945	N/A	2016/09/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8405176	N/A	2016/09/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8407409	N/A	2016/09/23	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8407831	2016/09/22	2016/09/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8405270	N/A	2016/09/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8407017	N/A	2016/09/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8409077	N/A	2016/09/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8409079	N/A	2016/09/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8405271	N/A	2016/09/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8406949	N/A	2016/09/22	Lucy Luo
pH Water	AT/ALK	8407661	N/A	2016/09/22	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8407786	N/A	2016/09/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8407369	2016/09/22	2016/09/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8407372	N/A	2016/09/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8406941	2016/09/22	2016/09/23	Minsoo Choi

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PO3643  
**Sample ID:** MW16-16D  
**Matrix:** Water

**Collected:** 2016/09/18  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8407666	N/A	2016/09/22	Maria Maclean
Alkalinity - Water	AT/ALK	8407658	2016/09/22	2016/09/22	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8407782	N/A	2016/09/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8408810	N/A	2016/09/22	Isabel Choi
Conductance - water	AT/ALK	8407662	N/A	2016/09/22	Wilson Au Yueng
Fluoride	ISE/ISE	8407674	N/A	2016/09/22	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8405700	N/A	2016/09/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8406413	N/A	2016/09/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8409146	N/A	2016/09/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8408984	2016/09/23	2016/09/23	Edwin Lamigo
Ion Balance	CALC	8405944	N/A	2016/09/23	Automated Statchk
Sum of cations, anions	CALC	8405945	N/A	2016/09/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8405176	N/A	2016/09/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8407409	N/A	2016/09/23	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8407831	2016/09/22	2016/09/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8405270	N/A	2016/09/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8407017	N/A	2016/09/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8409077	N/A	2016/09/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8409079	N/A	2016/09/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8405271	N/A	2016/09/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8406949	N/A	2016/09/22	Lucy Luo
pH Water	AT/ALK	8407661	N/A	2016/09/22	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8407786	N/A	2016/09/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8407369	2016/09/22	2016/09/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8408630	N/A	2016/09/23	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8406941	2016/09/22	2016/09/23	Minsoo Choi

**Maxxam ID:** PO3643 Dup  
**Sample ID:** MW16-16D  
**Matrix:** Water

**Collected:** 2016/09/18  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8407666	N/A	2016/09/22	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8407782	N/A	2016/09/22	Balwinder Bassi
Fluoride	ISE/ISE	8407674	N/A	2016/09/22	Balwinder Bassi
Nitrate+Nitrite (N) (low level)	TRAA/COL	8409077	N/A	2016/09/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8409079	N/A	2016/09/22	Isaac Wang
Sulphate by Automated Colourimetry	KONE/COL	8407786	N/A	2016/09/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8407369	2016/09/22	2016/09/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8408630	N/A	2016/09/23	Diana Cruz

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PO3644  
**Sample ID:** MW16-14D  
**Matrix:** Water

**Collected:** 2016/09/18  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8407682	N/A	2016/09/23	Maria Maclean
Alkalinity - Water	AT/ALK	8407679	2016/09/22	2016/09/22	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8407788	N/A	2016/09/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8408810	N/A	2016/09/22	Isabel Choi
Conductance - water	AT/ALK	8407684	N/A	2016/09/22	Wilson Au Yueng
Fluoride	ISE/ISE	8407680	N/A	2016/09/22	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8405700	N/A	2016/09/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8406413	N/A	2016/09/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8409146	N/A	2016/09/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8408984	2016/09/23	2016/09/23	Edwin Lamigo
Ion Balance	CALC	8405944	N/A	2016/09/23	Automated Statchk
Sum of cations, anions	CALC	8405945	N/A	2016/09/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8405176	N/A	2016/09/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8407409	N/A	2016/09/23	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8407831	2016/09/22	2016/09/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8405270	N/A	2016/09/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8407017	N/A	2016/09/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8409081	N/A	2016/09/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8409082	N/A	2016/09/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8405271	N/A	2016/09/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8406949	N/A	2016/09/22	Lucy Luo
pH Water	AT/ALK	8407683	N/A	2016/09/22	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8407791	N/A	2016/09/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8407370	2016/09/22	2016/09/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8407373	N/A	2016/09/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8406941	2016/09/22	2016/09/23	Minsoo Choi

**Maxxam ID:** PO3645  
**Sample ID:** MW16-12D  
**Matrix:** Water

**Collected:** 2016/09/18  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8407682	N/A	2016/09/23	Maria Maclean
Alkalinity - Water	AT/ALK	8407679	2016/09/22	2016/09/22	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8407788	N/A	2016/09/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8408810	N/A	2016/09/22	Isabel Choi
Conductance - water	AT/ALK	8407684	N/A	2016/09/22	Wilson Au Yueng
Fluoride	ISE/ISE	8407680	N/A	2016/09/22	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8405700	N/A	2016/09/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8406413	N/A	2016/09/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8409146	N/A	2016/09/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8408984	2016/09/23	2016/09/23	Edwin Lamigo
Ion Balance	CALC	8405944	N/A	2016/09/23	Automated Statchk
Sum of cations, anions	CALC	8405945	N/A	2016/09/23	Automated Statchk

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PO3645  
**Sample ID:** MW16-12D  
**Matrix:** Water

**Collected:** 2016/09/18  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8405176	N/A	2016/09/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8407409	N/A	2016/09/23	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8407831	2016/09/22	2016/09/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8405270	N/A	2016/09/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8407017	N/A	2016/09/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8409081	N/A	2016/09/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8409082	N/A	2016/09/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8405271	N/A	2016/09/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8406949	N/A	2016/09/22	Lucy Luo
pH Water	AT/ALK	8407683	N/A	2016/09/22	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8409350	N/A	2016/09/23	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8407370	2016/09/22	2016/09/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8407373	N/A	2016/09/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8406941	2016/09/22	2016/09/23	Minsoo Choi

**Maxxam ID:** PO3646  
**Sample ID:** MW16-12S  
**Matrix:** Water

**Collected:** 2016/09/18  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8407682	N/A	2016/09/23	Maria Maclean
Alkalinity - Water	AT/ALK	8407679	2016/09/22	2016/09/22	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8407788	N/A	2016/09/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8408812	N/A	2016/09/22	Isabel Choi
Conductance - water	AT/ALK	8407684	N/A	2016/09/22	Wilson Au Yueng
Fluoride	ISE/ISE	8407680	N/A	2016/09/22	Balwinder Bassi
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8405700	N/A	2016/09/23	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8406413	N/A	2016/09/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8409146	N/A	2016/09/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8408984	2016/09/23	2016/09/23	Edwin Lamigo
Ion Balance	CALC	8405944	N/A	2016/09/23	Automated Statchk
Sum of cations, anions	CALC	8405945	N/A	2016/09/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8405176	N/A	2016/09/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8407409	N/A	2016/09/23	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8407831	2016/09/22	2016/09/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8405270	N/A	2016/09/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8407017	N/A	2016/09/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8409081	N/A	2016/09/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8409082	N/A	2016/09/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8405271	N/A	2016/09/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8406949	N/A	2016/09/22	Lucy Luo
pH Water	AT/ALK	8407683	N/A	2016/09/22	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8409350	N/A	2016/09/23	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8407370	2016/09/22	2016/09/22	Isabel Choi

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PO3646  
**Sample ID:** MW16-12S  
**Matrix:** Water

**Collected:** 2016/09/18  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Phosphorus - unpreserved	KONE/COL	8407373	N/A	2016/09/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8406941	2016/09/22	2016/09/23	Minsoo Choi

**Maxxam ID:** PO3646 Dup  
**Sample ID:** MW16-12S  
**Matrix:** Water

**Collected:** 2016/09/18  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Water	AT/ALK	8407679	2016/09/22	2016/09/22	Wilson Au Yueng
Carbon (DOC) - field filtered/preserved	TRAA/COL	8408812	N/A	2016/09/22	Isabel Choi
Conductance - water	AT/ALK	8407684	N/A	2016/09/22	Wilson Au Yueng
pH Water	AT/ALK	8407683	N/A	2016/09/22	Wilson Au Yueng

**Maxxam ID:** PO3647  
**Sample ID:** BH95G-02  
**Matrix:** Water

**Collected:** 2016/09/18  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8407682	N/A	2016/09/23	Maria Maclean
Alkalinity - Water	AT/ALK	8407679	2016/09/22	2016/09/22	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8407788	N/A	2016/09/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8408811	N/A	2016/09/22	Isabel Choi
Conductance - water	AT/ALK	8407684	N/A	2016/09/22	Wilson Au Yueng
Fluoride	ISE/ISE	8407680	N/A	2016/09/22	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8405700	N/A	2016/09/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8406413	N/A	2016/09/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8409146	N/A	2016/09/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8408984	2016/09/23	2016/09/23	Edwin Lamigo
Ion Balance	CALC	8405944	N/A	2016/09/23	Automated Statchk
Sum of cations, anions	CALC	8405945	N/A	2016/09/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8405176	N/A	2016/09/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8407409	N/A	2016/09/23	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8407831	2016/09/22	2016/09/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8405270	N/A	2016/09/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8407017	N/A	2016/09/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8409081	N/A	2016/09/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8409082	N/A	2016/09/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8406448	N/A	2016/09/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8406949	N/A	2016/09/22	Lucy Luo
pH Water	AT/ALK	8407683	N/A	2016/09/22	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8407791	N/A	2016/09/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8407370	2016/09/22	2016/09/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8407373	N/A	2016/09/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8406941	2016/09/22	2016/09/23	Minsoo Choi



Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PO3648  
**Sample ID:** BH95G-146  
**Matrix:** Water

**Collected:** 2016/09/19  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8407682	N/A	2016/09/23	Maria Maclean
Alkalinity - Water	AT/ALK	8407679	2016/09/22	2016/09/22	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8407788	N/A	2016/09/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8408811	N/A	2016/09/22	Isabel Choi
Conductance - water	AT/ALK	8407684	N/A	2016/09/22	Wilson Au Yueng
Fluoride	ISE/ISE	8407680	N/A	2016/09/22	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8405700	N/A	2016/09/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8406413	N/A	2016/09/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8409146	N/A	2016/09/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8408984	2016/09/23	2016/09/23	Edwin Lamigo
Ion Balance	CALC	8405944	N/A	2016/09/23	Automated Statchk
Sum of cations, anions	CALC	8405945	N/A	2016/09/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8405176	N/A	2016/09/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8407409	N/A	2016/09/23	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8407831	2016/09/22	2016/09/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8405270	N/A	2016/09/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8407017	N/A	2016/09/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8409081	N/A	2016/09/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8409082	N/A	2016/09/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8406448	N/A	2016/09/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8406949	N/A	2016/09/22	Lucy Luo
pH Water	AT/ALK	8407683	N/A	2016/09/22	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8407791	N/A	2016/09/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8407370	2016/09/22	2016/09/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8407373	N/A	2016/09/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8406941	2016/09/22	2016/09/23	Minsoo Choi

**Maxxam ID:** PO3649  
**Sample ID:** BH95G-129  
**Matrix:** Water

**Collected:** 2016/09/19  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8407672	N/A	2016/09/23	Maria Maclean
Alkalinity - Water	AT/ALK	8407668	2016/09/22	2016/09/22	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8407782	N/A	2016/09/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8408811	N/A	2016/09/22	Isabel Choi
Conductance - water	AT/ALK	8407676	N/A	2016/09/22	Wilson Au Yueng
Fluoride	ISE/ISE	8407680	N/A	2016/09/22	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8405700	N/A	2016/09/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8406413	N/A	2016/09/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8409146	N/A	2016/09/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8408984	2016/09/23	2016/09/23	Edwin Lamigo
Ion Balance	CALC	8405944	N/A	2016/09/23	Automated Statchk
Sum of cations, anions	CALC	8405945	N/A	2016/09/23	Automated Statchk

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PO3649  
**Sample ID:** BH95G-129  
**Matrix:** Water

**Collected:** 2016/09/19  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8405176	N/A	2016/09/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8407409	N/A	2016/09/23	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8407831	2016/09/22	2016/09/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8405270	N/A	2016/09/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8407020	N/A	2016/09/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8409077	N/A	2016/09/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8409079	N/A	2016/09/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8406448	N/A	2016/09/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8406949	N/A	2016/09/22	Lucy Luo
pH Water	AT/ALK	8407675	N/A	2016/09/22	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8407786	N/A	2016/09/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8407369	2016/09/22	2016/09/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8407372	N/A	2016/09/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8406941	2016/09/22	2016/09/23	Minsoo Choi

**Maxxam ID:** PO3650  
**Sample ID:** FIELD BLANK  
**Matrix:** Water

**Collected:** 2016/09/19  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8407672	N/A	2016/09/23	Maria Maclean
Alkalinity - Water	AT/ALK	8407668	2016/09/22	2016/09/22	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8407788	N/A	2016/09/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8408810	N/A	2016/09/22	Isabel Choi
Conductance - water	AT/ALK	8407676	N/A	2016/09/22	Wilson Au Yueng
Fluoride	ISE/ISE	8407680	N/A	2016/09/22	Balwinder Bassi
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8405700	N/A	2016/09/23	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8406413	N/A	2016/09/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8409146	N/A	2016/09/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8408984	2016/09/23	2016/09/23	Edwin Lamigo
Ion Balance	CALC	8405944	N/A	2016/09/23	Automated Statchk
Sum of cations, anions	CALC	8405945	N/A	2016/09/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8405176	N/A	2016/09/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8407409	N/A	2016/09/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8405270	N/A	2016/09/23	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8407893	N/A	2016/09/23	Andrew An
Ammonia-N (Preserved)	KONE/COL	8407017	N/A	2016/09/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8409081	N/A	2016/09/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8409082	N/A	2016/09/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8406448	N/A	2016/09/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8406949	N/A	2016/09/22	Lucy Luo
pH Water	AT/ALK	8407675	N/A	2016/09/22	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8407791	N/A	2016/09/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8407370	2016/09/22	2016/09/22	Isabel Choi



Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PO3650  
**Sample ID:** FIELD BLANK  
**Matrix:** Water

**Collected:** 2016/09/19  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Phosphorus - unpreserved	KONE/COL	8407373	N/A	2016/09/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8406941	2016/09/22	2016/09/23	Minsoo Choi

**Maxxam ID:** PO3650 Dup  
**Sample ID:** FIELD BLANK  
**Matrix:** Water

**Collected:** 2016/09/19  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (Total-LowLevel) by CVAf	CV/AF	8408984	2016/09/23	2016/09/23	Edwin Lamigo
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8407409	N/A	2016/09/23	Andrew An
Elements by ICPMS Low Level (total)	ICP/CRCM	8407893	N/A	2016/09/23	Andrew An

**Maxxam ID:** PO3651  
**Sample ID:** DUP3  
**Matrix:** Water

**Collected:** 2016/09/16  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8407672	N/A	2016/09/23	Maria Maclean
Alkalinity - Water	AT/ALK	8407668	2016/09/22	2016/09/22	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8407788	N/A	2016/09/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8408812	N/A	2016/09/22	Isabel Choi
Conductance - water	AT/ALK	8407676	N/A	2016/09/22	Wilson Au Yueng
Fluoride	ISE/ISE	8407680	N/A	2016/09/22	Balwinder Bassi
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8405700	N/A	2016/09/23	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8406413	N/A	2016/09/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8409146	N/A	2016/09/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8408984	2016/09/23	2016/09/23	Edwin Lamigo
Ion Balance	CALC	8405944	N/A	2016/09/23	Automated Statchk
Sum of cations, anions	CALC	8405945	N/A	2016/09/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8405176	N/A	2016/09/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8407409	N/A	2016/09/23	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8407831	2016/09/22	2016/09/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8405270	N/A	2016/09/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8407020	N/A	2016/09/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8409081	N/A	2016/09/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8409082	N/A	2016/09/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8406448	N/A	2016/09/23	Automated Statchk
Filter and HNO <sub>3</sub> Preserve for Metals	ICP	8406949	N/A	2016/09/22	Lucy Luo
pH Water	AT/ALK	8407675	N/A	2016/09/22	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8407791	N/A	2016/09/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8407369	2016/09/22	2016/09/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8407372	N/A	2016/09/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8406941	2016/09/22	2016/09/23	Minsoo Choi

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**TEST SUMMARY**

**Maxxam ID:** PO3651 Dup  
**Sample ID:** DUP3  
**Matrix:** Water

**Collected:** 2016/09/16  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Fluoride	ISE/ISE	8407680	N/A	2016/09/22	Balwinder Bassi

**Maxxam ID:** PO3652  
**Sample ID:** MW15-03D  
**Matrix:** Water

**Collected:** 2016/09/17  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8407672	N/A	2016/09/22	Maria Maclean
Alkalinity - Water	AT/ALK	8407668	2016/09/22	2016/09/22	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8407782	N/A	2016/09/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8408811	N/A	2016/09/22	Isabel Choi
Conductance - water	AT/ALK	8407676	N/A	2016/09/22	Wilson Au Yueng
Fluoride	ISE/ISE	8407680	N/A	2016/09/22	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8405700	N/A	2016/09/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8406413	N/A	2016/09/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8409159	N/A	2016/09/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8408991	2016/09/23	2016/09/23	Edwin Lamigo
Ion Balance	CALC	8405944	N/A	2016/09/23	Automated Statchk
Sum of cations, anions	CALC	8405945	N/A	2016/09/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8405176	N/A	2016/09/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8407420	N/A	2016/09/23	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8407831	2016/09/22	2016/09/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8405270	N/A	2016/09/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8407020	N/A	2016/09/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8409077	N/A	2016/09/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8409079	N/A	2016/09/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8406448	N/A	2016/09/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8406949	N/A	2016/09/22	Lucy Luo
pH Water	AT/ALK	8407675	N/A	2016/09/22	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8407786	N/A	2016/09/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8407369	2016/09/22	2016/09/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8407372	N/A	2016/09/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8406941	2016/09/22	2016/09/23	Minsoo Choi

**Maxxam ID:** PO3664  
**Sample ID:** MW15-03S  
**Matrix:** Water

**Collected:** 2016/09/17  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8407672	N/A	2016/09/22	Maria Maclean
Alkalinity - Water	AT/ALK	8407668	2016/09/22	2016/09/22	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8407782	N/A	2016/09/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8408812	N/A	2016/09/22	Isabel Choi
Conductance - water	AT/ALK	8407676	N/A	2016/09/22	Wilson Au Yueng

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PO3664  
**Sample ID:** MW15-03S  
**Matrix:** Water

**Collected:** 2016/09/17  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Fluoride	ISE/ISE	8407680	N/A	2016/09/22	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8405700	N/A	2016/09/24	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8406413	N/A	2016/09/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8409159	N/A	2016/09/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8408991	2016/09/23	2016/09/23	Edwin Lamigo
Ion Balance	CALC	8405944	N/A	2016/09/23	Automated Statchk
Sum of cations, anions	CALC	8405945	N/A	2016/09/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8405176	N/A	2016/09/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8407420	N/A	2016/09/23	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8409073	2016/09/23	2016/09/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8405270	N/A	2016/09/24	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8407020	N/A	2016/09/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8409077	N/A	2016/09/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8409079	N/A	2016/09/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8406448	N/A	2016/09/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8406949	N/A	2016/09/22	Lucy Luo
pH Water	AT/ALK	8407675	N/A	2016/09/22	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8407786	N/A	2016/09/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8407369	2016/09/22	2016/09/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8407372	N/A	2016/09/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8406941	2016/09/22	2016/09/23	Minsoo Choi

**Maxxam ID:** PO3665  
**Sample ID:** MW15-04S  
**Matrix:** Water

**Collected:** 2016/09/17  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8407672	N/A	2016/09/22	Maria Maclean
Alkalinity - Water	AT/ALK	8407668	2016/09/22	2016/09/22	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8407782	N/A	2016/09/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8408812	N/A	2016/09/22	Isabel Choi
Conductance - water	AT/ALK	8407676	N/A	2016/09/22	Wilson Au Yueng
Fluoride	ISE/ISE	8407680	N/A	2016/09/22	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8405700	N/A	2016/09/24	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8406413	N/A	2016/09/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8409159	N/A	2016/09/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8408991	2016/09/23	2016/09/23	Edwin Lamigo
Ion Balance	CALC	8405944	N/A	2016/09/23	Automated Statchk
Sum of cations, anions	CALC	8405945	N/A	2016/09/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8405176	N/A	2016/09/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8407420	N/A	2016/09/23	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8409073	2016/09/23	2016/09/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8405270	N/A	2016/09/24	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8407020	N/A	2016/09/22	Clare Kwok

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PO3665  
**Sample ID:** MW15-04S  
**Matrix:** Water

**Collected:** 2016/09/17  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrate+Nitrite (N) (low level)	TRAA/COL	8409077	N/A	2016/09/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8409079	N/A	2016/09/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8406448	N/A	2016/09/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8406949	N/A	2016/09/22	Lucy Luo
pH Water	AT/ALK	8407675	N/A	2016/09/22	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8407786	N/A	2016/09/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8407369	2016/09/22	2016/09/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8407372	N/A	2016/09/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8406941	2016/09/22	2016/09/23	Minsoo Choi

**Maxxam ID:** PO3666  
**Sample ID:** MW15-04D  
**Matrix:** Water

**Collected:** 2016/09/17  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8407672	N/A	2016/09/22	Maria Maclean
Alkalinity - Water	AT/ALK	8407668	2016/09/22	2016/09/22	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8407782	N/A	2016/09/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8408812	N/A	2016/09/22	Isabel Choi
Conductance - water	AT/ALK	8407676	N/A	2016/09/22	Wilson Au Yueng
Fluoride	ISE/ISE	8407680	N/A	2016/09/22	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8405700	N/A	2016/09/24	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8406413	N/A	2016/09/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8409159	N/A	2016/09/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8408991	2016/09/23	2016/09/23	Edwin Lamigo
Ion Balance	CALC	8405944	N/A	2016/09/23	Automated Statchk
Sum of cations, anions	CALC	8405945	N/A	2016/09/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8405176	N/A	2016/09/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8407420	N/A	2016/09/23	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8409073	2016/09/23	2016/09/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8405270	N/A	2016/09/24	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8407017	N/A	2016/09/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8409077	N/A	2016/09/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8409079	N/A	2016/09/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8406448	N/A	2016/09/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8406949	N/A	2016/09/22	Lucy Luo
pH Water	AT/ALK	8407675	N/A	2016/09/22	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8407786	N/A	2016/09/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8407369	2016/09/22	2016/09/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8407372	N/A	2016/09/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8406947	2016/09/22	2016/09/23	Minsoo Choi

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PO3667  
**Sample ID:** MW15-05D  
**Matrix:** Water

**Collected:** 2016/09/17  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8407672	N/A	2016/09/22	Maria Maclean
Alkalinity - Water	AT/ALK	8407668	2016/09/22	2016/09/22	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8407782	N/A	2016/09/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8408812	N/A	2016/09/22	Isabel Choi
Conductance - water	AT/ALK	8407676	N/A	2016/09/22	Wilson Au Yueng
Fluoride	ISE/ISE	8407680	N/A	2016/09/22	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8405700	N/A	2016/09/24	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8406413	N/A	2016/09/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8409159	N/A	2016/09/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8408991	2016/09/23	2016/09/23	Edwin Lamigo
Ion Balance	CALC	8405944	N/A	2016/09/23	Automated Statchk
Sum of cations, anions	CALC	8405945	N/A	2016/09/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8405176	N/A	2016/09/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8407420	N/A	2016/09/23	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8409073	2016/09/23	2016/09/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8405270	N/A	2016/09/24	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8407020	N/A	2016/09/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8409077	N/A	2016/09/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8409079	N/A	2016/09/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8406448	N/A	2016/09/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8406949	N/A	2016/09/22	Lucy Luo
pH Water	AT/ALK	8407675	N/A	2016/09/22	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8407786	N/A	2016/09/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8407369	2016/09/22	2016/09/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8407372	N/A	2016/09/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8406947	2016/09/22	2016/09/23	Minsoo Choi

**Maxxam ID:** PO3668  
**Sample ID:** MW15-07S  
**Matrix:** Water

**Collected:** 2016/09/17  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8407672	N/A	2016/09/23	Maria Maclean
Alkalinity - Water	AT/ALK	8407679	2016/09/22	2016/09/22	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8407788	N/A	2016/09/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8408811	N/A	2016/09/22	Isabel Choi
Conductance - water	AT/ALK	8407684	N/A	2016/09/22	Wilson Au Yueng
Fluoride	ISE/ISE	8407680	N/A	2016/09/22	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8405700	N/A	2016/09/24	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8406413	N/A	2016/09/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8409159	N/A	2016/09/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8408991	2016/09/23	2016/09/23	Edwin Lamigo
Ion Balance	CALC	8405944	N/A	2016/09/23	Automated Statchk
Sum of cations, anions	CALC	8405945	N/A	2016/09/23	Automated Statchk

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PO3668  
**Sample ID:** MW15-07S  
**Matrix:** Water

**Collected:** 2016/09/17  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8405176	N/A	2016/09/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8407420	N/A	2016/09/23	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8409073	2016/09/23	2016/09/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8405270	N/A	2016/09/24	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8407017	N/A	2016/09/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8409081	N/A	2016/09/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8409082	N/A	2016/09/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8406448	N/A	2016/09/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8406949	N/A	2016/09/22	Lucy Luo
pH Water	AT/ALK	8407683	N/A	2016/09/22	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8407791	N/A	2016/09/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8407370	2016/09/22	2016/09/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8407373	N/A	2016/09/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8406947	2016/09/22	2016/09/23	Minsoo Choi

**Maxxam ID:** PO3668 Dup  
**Sample ID:** MW15-07S  
**Matrix:** Water

**Collected:** 2016/09/17  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Ammonia-N (Preserved)	KONE/COL	8407017	N/A	2016/09/22	Clare Kwok

**Maxxam ID:** PO3669  
**Sample ID:** MW15-07D  
**Matrix:** Water

**Collected:** 2016/09/17  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8407672	N/A	2016/09/22	Maria Maclean
Alkalinity - Water	AT/ALK	8407668	2016/09/22	2016/09/22	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8407782	N/A	2016/09/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8408812	N/A	2016/09/22	Isabel Choi
Conductance - water	AT/ALK	8407676	N/A	2016/09/22	Wilson Au Yueng
Fluoride	ISE/ISE	8407680	N/A	2016/09/22	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8405700	N/A	2016/09/24	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8406413	N/A	2016/09/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8409159	N/A	2016/09/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8408991	2016/09/23	2016/09/23	Edwin Lamigo
Ion Balance	CALC	8405944	N/A	2016/09/23	Automated Statchk
Sum of cations, anions	CALC	8405945	N/A	2016/09/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8405176	N/A	2016/09/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8407420	N/A	2016/09/23	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8409073	2016/09/23	2016/09/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8405270	N/A	2016/09/24	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8407017	N/A	2016/09/22	Clare Kwok



Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**TEST SUMMARY**

**Maxxam ID:** PO3669  
**Sample ID:** MW15-07D  
**Matrix:** Water

**Collected:** 2016/09/17  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrate+Nitrite (N) (low level)	TRAA/COL	8409077	N/A	2016/09/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8409079	N/A	2016/09/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8406448	N/A	2016/09/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8406949	N/A	2016/09/22	Lucy Luo
pH Water	AT/ALK	8407675	N/A	2016/09/22	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8407786	N/A	2016/09/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8407369	2016/09/22	2016/09/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8407372	N/A	2016/09/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8406947	2016/09/22	2016/09/23	Minsoo Choi

**Maxxam ID:** PO3669 Dup  
**Sample ID:** MW15-07D  
**Matrix:** Water

**Collected:** 2016/09/17  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8407672	N/A	2016/09/23	Maria Maclean

**Maxxam ID:** PO3670  
**Sample ID:** MW15-08S  
**Matrix:** Water

**Collected:** 2016/09/17  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8407672	N/A	2016/09/23	Maria Maclean
Alkalinity - Water	AT/ALK	8407668	2016/09/22	2016/09/22	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8407788	N/A	2016/09/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8408810	N/A	2016/09/22	Isabel Choi
Conductance - water	AT/ALK	8407676	N/A	2016/09/22	Wilson Au Yueng
Fluoride	ISE/ISE	8407680	N/A	2016/09/22	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8405700	N/A	2016/09/24	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8406413	N/A	2016/09/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8409159	N/A	2016/09/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAF	CV/AF	8408991	2016/09/23	2016/09/23	Edwin Lamigo
Ion Balance	CALC	8405944	N/A	2016/09/23	Automated Statchk
Sum of cations, anions	CALC	8405945	N/A	2016/09/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8405176	N/A	2016/09/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8407420	N/A	2016/09/23	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8409073	2016/09/23	2016/09/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8405270	N/A	2016/09/24	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8407017	N/A	2016/09/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8409081	N/A	2016/09/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8409082	N/A	2016/09/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8406448	N/A	2016/09/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8406949	N/A	2016/09/22	Lucy Luo
pH Water	AT/ALK	8407675	N/A	2016/09/22	Wilson Au Yueng

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PO3670  
**Sample ID:** MW15-08S  
**Matrix:** Water

**Collected:** 2016/09/17  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Sulphate by Automated Colourimetry	KONE/COL	8407791	N/A	2016/09/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8407370	2016/09/22	2016/09/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8407373	N/A	2016/09/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8406947	2016/09/22	2016/09/23	Minsoo Choi

**Maxxam ID:** PO3670 Dup  
**Sample ID:** MW15-08S  
**Matrix:** Water

**Collected:** 2016/09/17  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chloride by Automated Colourimetry	KONE/COL	8407788	N/A	2016/09/22	Balwinder Bassi
Nitrate+Nitrite (N) (low level)	TRAA/COL	8409081	N/A	2016/09/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8409082	N/A	2016/09/22	Isaac Wang
Sulphate by Automated Colourimetry	KONE/COL	8407791	N/A	2016/09/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8407370	2016/09/22	2016/09/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8407373	N/A	2016/09/22	Isabel Choi

**Maxxam ID:** PO3671  
**Sample ID:** TRAVEL BLANK  
**Matrix:** Water

**Collected:** 2016/09/17  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8409249	N/A	2016/09/23	Maria Maclean
Alkalinity - Water	AT/ALK	8407879	2016/09/22	2016/09/22	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8407875	N/A	2016/09/22	Balwinder Bassi
Carbon (DOC) - unfiltered/unpreserved	TRAA/COL	8409487	N/A	2016/09/23	Isabel Choi
Conductance - water	AT/ALK	8407882	N/A	2016/09/22	Wilson Au Yueng
Fluoride	ISE/ISE	8409659	N/A	2016/09/23	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8405700	N/A	2016/09/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8406413	N/A	2016/09/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8409159	N/A	2016/09/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8408991	2016/09/23	2016/09/23	Edwin Lamigo
Ion Balance	CALC	8405944	N/A	2016/09/23	Automated Statchk
Sum of cations, anions	CALC	8405945	N/A	2016/09/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8405176	N/A	2016/09/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8407420	N/A	2016/09/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8405270	N/A	2016/09/23	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8407893	N/A	2016/09/23	Andrew An
Ammonia-N (Unpreserved)	KONE/COL	8407021	N/A	2016/09/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8409630	N/A	2016/09/23	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8409632	N/A	2016/09/23	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8406448	N/A	2016/09/23	Automated Statchk
pH Water	AT/ALK	8407881	N/A	2016/09/22	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8407877	N/A	2016/09/22	Balwinder Bassi



Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**TEST SUMMARY**

**Maxxam ID:** PO3671  
**Sample ID:** TRAVEL BLANK  
**Matrix:** Water

**Collected:** 2016/09/17  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8408622	2016/09/23	2016/09/23	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8408630	N/A	2016/09/23	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8406947	2016/09/22	2016/09/23	Minsoo Choi

**Maxxam ID:** PO3671 Dup  
**Sample ID:** TRAVEL BLANK  
**Matrix:** Water

**Collected:** 2016/09/17  
**Shipped:**  
**Received:** 2016/09/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8409159	N/A	2016/09/23	Edwin Lamigo

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	1.3°C
Package 2	1.7°C
Package 3	2.0°C
Package 4	3.3°C
Package 5	3.7°C
Package 6	2.3°C
Package 7	4.0°C

Samples were received at the analytical laboratory either on the day hold time expiry or already past the recommended hold time for Nitrite, Nitrate + Nitrite, Dissolved Phosphorus and Total Phosphorus; all samples were analyzed for these parameters past recommended hold time.

Sample PO3612-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PO3633-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PO3634-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PO3635-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PO3636-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PO3637-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PO3638-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PO3639-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PO3640-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PO3641-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PO3642-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PO3643-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PO3644-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PO3645-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### GENERAL COMMENTS

for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PO3646-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PO3647-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PO3648-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PO3649-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PO3651-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PO3652-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PO3664-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PO3665-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PO3666-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PO3667-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PO3668-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PO3669-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PO3670-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

#### **LOW LEVEL DISSOLVED METALS WITH CV HG (WATER) Comments**

Sample PO3640-04 Elements by ICPMS Low Level (dissolved): RDL raised due to sample matrix interference.

#### **LL TOTAL METALS (DIGESTED) WITH CV HG Comments**

Sample PO3640-03 Elements by ICPMS Digested LL (total): RDL raised due to sample matrix interference.

Sample PO3642-03 Elements by ICPMS Digested LL (total): RDL raised due to sample matrix interference.

Sample PO3645-03 Elements by ICPMS Digested LL (total): RDL raised due to sample matrix interference.

Sample PO3646-03 Elements by ICPMS Digested LL (total): RDL raised due to sample matrix interference.

Sample PO3664-03 Elements by ICPMS Digested LL (total): RDL raised due to sample matrix interference.

Sample PO3665-03 Elements by ICPMS Digested LL (total): RDL raised due to sample matrix interference.

Sample PO3666-03 Elements by ICPMS Digested LL (total): RDL raised due to sample matrix interference.

Sample PO3667-03 Elements by ICPMS Digested LL (total): RDL raised due to sample matrix interference.

Sample PO3670-03 Elements by ICPMS Digested LL (total): RDL raised due to sample matrix interference.

Sample PO3651, Elements by ICPMS Low Level (dissolved): Test repeated.

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### GENERAL COMMENTS

Results relate only to the items tested.

Maxxam Job #: B682252  
Report Date: 2016/09/28

**QUALITY ASSURANCE REPORT**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8406940	Total Suspended Solids	2016/09/23			102	80 - 120	<1.0	mg/L		
8406941	Total Suspended Solids	2016/09/23			102	80 - 120	<1.0	mg/L		
8406947	Total Suspended Solids	2016/09/23			100	80 - 120	<1.0	mg/L		
8407017	Total Ammonia (N)	2016/09/22	106	80 - 120	104	80 - 120	<0.0050	mg/L	5.9	20
8407020	Total Ammonia (N)	2016/09/22	107	80 - 120	100	80 - 120	<0.0050	mg/L	NC	20
8407021	Total Ammonia (N)	2016/09/22	103	80 - 120	105	80 - 120	<0.0050	mg/L	NC	20
8407369	Dissolved Phosphorus (P)	2016/09/22	17 (1)	80 - 120	98	80 - 120	<0.0020	mg/L	0.24	20
8407370	Dissolved Phosphorus (P)	2016/09/22	NC	80 - 120	118	80 - 120	<0.0020	mg/L	0.74	20
8407372	Total Phosphorus (P)	2016/09/22			105	80 - 120	<0.0020	mg/L		
8407373	Total Phosphorus (P)	2016/09/22	NC	80 - 120	93	80 - 120	<0.0020	mg/L	0.89	20
8407409	Dissolved Aluminum (Al)	2016/09/23	100	80 - 120	100	80 - 120	<0.00050	mg/L	NC	20
8407409	Dissolved Antimony (Sb)	2016/09/23	95	80 - 120	99	80 - 120	<0.000020	mg/L	NC	20
8407409	Dissolved Arsenic (As)	2016/09/23	91	80 - 120	95	80 - 120	<0.000020	mg/L	NC	20
8407409	Dissolved Barium (Ba)	2016/09/23	97	80 - 120	101	80 - 120	<0.000020	mg/L	NC	20
8407409	Dissolved Beryllium (Be)	2016/09/23	102	80 - 120	99	80 - 120	<0.000010	mg/L	NC	20
8407409	Dissolved Bismuth (Bi)	2016/09/23	93	80 - 120	97	80 - 120	<0.0000050	mg/L	NC	20
8407409	Dissolved Boron (B)	2016/09/23	102	80 - 120	98	80 - 120	<0.010	mg/L	NC	20
8407409	Dissolved Cadmium (Cd)	2016/09/23	93	80 - 120	95	80 - 120	<0.0000050	mg/L	NC	20
8407409	Dissolved Chromium (Cr)	2016/09/23	93	80 - 120	97	80 - 120	<0.00010	mg/L	NC	20
8407409	Dissolved Cobalt (Co)	2016/09/23	93	80 - 120	96	80 - 120	<0.0000050	mg/L	NC	20
8407409	Dissolved Copper (Cu)	2016/09/23	95	80 - 120	99	80 - 120	<0.000050	mg/L	NC	20
8407409	Dissolved Iron (Fe)	2016/09/23	90	80 - 120	95	80 - 120	<0.0010	mg/L	NC	20
8407409	Dissolved Lead (Pb)	2016/09/23	94	80 - 120	97	80 - 120	<0.0000050	mg/L	NC	20
8407409	Dissolved Lithium (Li)	2016/09/23	100	80 - 120	93	80 - 120	0.00060, RDL=0.00050	mg/L	NC	20
8407409	Dissolved Manganese (Mn)	2016/09/23	91	80 - 120	94	80 - 120	<0.000050	mg/L	NC	20
8407409	Dissolved Molybdenum (Mo)	2016/09/23	93	80 - 120	98	80 - 120	<0.000050	mg/L	NC	20
8407409	Dissolved Nickel (Ni)	2016/09/23	95	80 - 120	98	80 - 120	<0.000020	mg/L	NC	20
8407409	Dissolved Phosphorus (P)	2016/09/23					<0.0020	mg/L	NC	20
8407409	Dissolved Selenium (Se)	2016/09/23	100	80 - 120	99	80 - 120	<0.000040	mg/L	NC	20
8407409	Dissolved Silicon (Si)	2016/09/23					<0.050	mg/L	NC	20

Maxxam Job #: B682252  
Report Date: 2016/09/28

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8407409	Dissolved Silver (Ag)	2016/09/23	98	80 - 120	97	80 - 120	<0.0000050	mg/L	NC	20
8407409	Dissolved Strontium (Sr)	2016/09/23	83	80 - 120	89	80 - 120	<0.000050	mg/L	NC	20
8407409	Dissolved Thallium (Tl)	2016/09/23	90	80 - 120	96	80 - 120	<0.0000020	mg/L	NC	20
8407409	Dissolved Tin (Sn)	2016/09/23	95	80 - 120	102	80 - 120	<0.00020	mg/L	NC	20
8407409	Dissolved Titanium (Ti)	2016/09/23	79 (1)	80 - 120	102	80 - 120	<0.00050	mg/L	NC	20
8407409	Dissolved Uranium (U)	2016/09/23	92	80 - 120	95	80 - 120	<0.0000020	mg/L	NC	20
8407409	Dissolved Vanadium (V)	2016/09/23	90	80 - 120	96	80 - 120	<0.00020	mg/L	NC	20
8407409	Dissolved Zinc (Zn)	2016/09/23	98	80 - 120	98	80 - 120	<0.00010	mg/L	NC	20
8407409	Dissolved Zirconium (Zr)	2016/09/23					<0.00010	mg/L	NC	20
8407420	Dissolved Aluminum (Al)	2016/09/23	105	80 - 120	99	80 - 120	<0.00050	mg/L	NC	20
8407420	Dissolved Antimony (Sb)	2016/09/23	101	80 - 120	97	80 - 120	<0.000020	mg/L	NC	20
8407420	Dissolved Arsenic (As)	2016/09/23	101	80 - 120	95	80 - 120	<0.000020	mg/L	NC	20
8407420	Dissolved Barium (Ba)	2016/09/23	103	80 - 120	99	80 - 120	<0.000020	mg/L	NC	20
8407420	Dissolved Beryllium (Be)	2016/09/23	105	80 - 120	101	80 - 120	<0.000010	mg/L	NC	20
8407420	Dissolved Bismuth (Bi)	2016/09/23	104	80 - 120	96	80 - 120	<0.0000050	mg/L	NC	20
8407420	Dissolved Boron (B)	2016/09/23	111	80 - 120	103	80 - 120	<0.010	mg/L	NC	20
8407420	Dissolved Cadmium (Cd)	2016/09/23	99	80 - 120	96	80 - 120	<0.0000050	mg/L	NC	20
8407420	Dissolved Chromium (Cr)	2016/09/23	104	80 - 120	97	80 - 120	<0.00010	mg/L	NC	20
8407420	Dissolved Cobalt (Co)	2016/09/23	100	80 - 120	98	80 - 120	<0.0000050	mg/L	NC	20
8407420	Dissolved Copper (Cu)	2016/09/23	102	80 - 120	98	80 - 120	<0.000050	mg/L	NC	20
8407420	Dissolved Iron (Fe)	2016/09/23	97	80 - 120	94	80 - 120	<0.0010	mg/L	NC	20
8407420	Dissolved Lead (Pb)	2016/09/23	104	80 - 120	97	80 - 120	<0.0000050	mg/L	NC	20
8407420	Dissolved Lithium (Li)	2016/09/23	99	80 - 120	99	80 - 120	<0.00050	mg/L	NC	20
8407420	Dissolved Manganese (Mn)	2016/09/23	96	80 - 120	98	80 - 120	0.000053, RDL=0.000050	mg/L	NC	20
8407420	Dissolved Molybdenum (Mo)	2016/09/23	106	80 - 120	95	80 - 120	<0.000050	mg/L	NC	20
8407420	Dissolved Nickel (Ni)	2016/09/23	102	80 - 120	98	80 - 120	<0.000020	mg/L	NC	20
8407420	Dissolved Phosphorus (P)	2016/09/23					<0.0020	mg/L		
8407420	Dissolved Selenium (Se)	2016/09/23	101	80 - 120	98	80 - 120	<0.000040	mg/L	NC	20
8407420	Dissolved Silicon (Si)	2016/09/23					<0.050	mg/L	NC	20
8407420	Dissolved Silver (Ag)	2016/09/23	104	80 - 120	92	80 - 120	<0.0000050	mg/L	NC	20

Maxxam Job #: B682252  
Report Date: 2016/09/28

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8407420	Dissolved Strontium (Sr)	2016/09/23	91	80 - 120	92	80 - 120	<0.000050	mg/L	NC	20
8407420	Dissolved Thallium (Tl)	2016/09/23	101	80 - 120	95	80 - 120	<0.0000020	mg/L	NC	20
8407420	Dissolved Tin (Sn)	2016/09/23	100	80 - 120	97	80 - 120	<0.00020	mg/L	NC	20
8407420	Dissolved Titanium (Ti)	2016/09/23	87	80 - 120	87	80 - 120	<0.00050	mg/L	NC	20
8407420	Dissolved Uranium (U)	2016/09/23	102	80 - 120	97	80 - 120	<0.0000020	mg/L	NC	20
8407420	Dissolved Vanadium (V)	2016/09/23	102	80 - 120	94	80 - 120	<0.00020	mg/L	NC	20
8407420	Dissolved Zinc (Zn)	2016/09/23	115	80 - 120	99	80 - 120	0.00011, RDL=0.00010	mg/L	NC	20
8407420	Dissolved Zirconium (Zr)	2016/09/23					<0.00010	mg/L	NC	20
8407658	Alkalinity (PP as CaCO3)	2016/09/22					<0.50	mg/L	NC	20
8407658	Alkalinity (Total as CaCO3)	2016/09/22	NC	80 - 120	98	80 - 120	<0.50	mg/L	4.7	20
8407658	Bicarbonate (HCO3)	2016/09/22					<0.50	mg/L	4.7	20
8407658	Carbonate (CO3)	2016/09/22					<0.50	mg/L	NC	20
8407658	Hydroxide (OH)	2016/09/22					<0.50	mg/L	NC	20
8407661	pH	2016/09/22			102	97 - 103			0.43	N/A
8407662	Conductivity	2016/09/22			98	80 - 120	<1.0	uS/cm	0.38	20
8407666	Acidity (pH 4.5)	2016/09/22					<0.50	mg/L	NC	20
8407666	Acidity (pH 8.3)	2016/09/22			97	80 - 120	<0.50	mg/L	6.8	20
8407668	Alkalinity (PP as CaCO3)	2016/09/22					<0.50	mg/L	NC	20
8407668	Alkalinity (Total as CaCO3)	2016/09/22	NC	80 - 120	95	80 - 120	<0.50	mg/L	0.098	20
8407668	Bicarbonate (HCO3)	2016/09/22					<0.50	mg/L	0.098	20
8407668	Carbonate (CO3)	2016/09/22					<0.50	mg/L	NC	20
8407668	Hydroxide (OH)	2016/09/22					<0.50	mg/L	NC	20
8407672	Acidity (pH 4.5)	2016/09/23					<0.50	mg/L	NC	20
8407672	Acidity (pH 8.3)	2016/09/23			100	80 - 120	<0.50	mg/L	NC	20
8407674	Fluoride (F)	2016/09/22	100	80 - 120	96	80 - 120	0.015, RDL=0.010	mg/L	0	20
8407675	pH	2016/09/22			102	97 - 103				
8407676	Conductivity	2016/09/22			100	80 - 120	<1.0	uS/cm		
8407679	Alkalinity (PP as CaCO3)	2016/09/22					<0.50	mg/L	NC	20
8407679	Alkalinity (Total as CaCO3)	2016/09/22	NC	80 - 120	98	80 - 120	<0.50	mg/L	1.6	20

Maxxam Job #: B682252  
Report Date: 2016/09/28

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8407679	Bicarbonate (HCO3)	2016/09/22					<0.50	mg/L	1.6	20
8407679	Carbonate (CO3)	2016/09/22					<0.50	mg/L	NC	20
8407679	Hydroxide (OH)	2016/09/22					<0.50	mg/L	NC	20
8407680	Fluoride (F)	2016/09/22	99	80 - 120	98	80 - 120	0.015, RDL=0.010	mg/L	0	20
8407682	Acidity (pH 4.5)	2016/09/23					<0.50	mg/L		
8407682	Acidity (pH 8.3)	2016/09/23			101	80 - 120	<0.50	mg/L		
8407683	pH	2016/09/22			101	97 - 103			0.43	N/A
8407684	Conductivity	2016/09/22			99	80 - 120	<1.0	uS/cm	1.3	20
8407782	Dissolved Chloride (Cl)	2016/09/22	99	80 - 120	98	80 - 120	<0.50	mg/L	NC	20
8407786	Dissolved Sulphate (SO4)	2016/09/22	NC	80 - 120	95	80 - 120	<0.50	mg/L	2.3	20
8407788	Dissolved Chloride (Cl)	2016/09/22	105	80 - 120	95	80 - 120	<0.50	mg/L	NC	20
8407791	Dissolved Sulphate (SO4)	2016/09/22	NC	80 - 120	93	80 - 120	0.60, RDL=0.50	mg/L	0.46	20
8407831	Total Aluminum (Al)	2016/09/23	NC	80 - 120	107	80 - 120	<0.0030	mg/L		
8407831	Total Antimony (Sb)	2016/09/23	103	80 - 120	100	80 - 120	<0.000020	mg/L		
8407831	Total Arsenic (As)	2016/09/23	103	80 - 120	101	80 - 120	<0.000020	mg/L		
8407831	Total Barium (Ba)	2016/09/23	NC	80 - 120	102	80 - 120	<0.000050	mg/L		
8407831	Total Beryllium (Be)	2016/09/23	104	80 - 120	103	80 - 120	<0.000010	mg/L		
8407831	Total Bismuth (Bi)	2016/09/23	100	80 - 120	104	80 - 120	<0.000010	mg/L		
8407831	Total Boron (B)	2016/09/23	104	80 - 120	104	80 - 120	<0.010	mg/L		
8407831	Total Cadmium (Cd)	2016/09/23	100	80 - 120	102	80 - 120	<0.0000050	mg/L		
8407831	Total Chromium (Cr)	2016/09/23	99	80 - 120	98	80 - 120	<0.00010	mg/L		
8407831	Total Cobalt (Co)	2016/09/23	98	80 - 120	100	80 - 120	<0.000010	mg/L		
8407831	Total Copper (Cu)	2016/09/23	97	80 - 120	102	80 - 120	<0.00010	mg/L		
8407831	Total Iron (Fe)	2016/09/23	NC	80 - 120	101	80 - 120	<0.0050	mg/L		
8407831	Total Lead (Pb)	2016/09/23	102	80 - 120	103	80 - 120	<0.000020	mg/L		
8407831	Total Lithium (Li)	2016/09/23	93	80 - 120	94	80 - 120	<0.00050	mg/L		
8407831	Total Manganese (Mn)	2016/09/23	NC	80 - 120	100	80 - 120	<0.00010	mg/L		
8407831	Total Molybdenum (Mo)	2016/09/23	96	80 - 120	99	80 - 120	<0.000050	mg/L		
8407831	Total Nickel (Ni)	2016/09/23	95	80 - 120	100	80 - 120	<0.00010	mg/L		
8407831	Total Phosphorus (P)	2016/09/23					<0.0050	mg/L		



Maxxam Job #: B682252  
Report Date: 2016/09/28

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8407831	Total Selenium (Se)	2016/09/23	102	80 - 120	106	80 - 120	<0.000040	mg/L		
8407831	Total Silicon (Si)	2016/09/23					<0.050	mg/L		
8407831	Total Silver (Ag)	2016/09/23	110	80 - 120	107	80 - 120	<0.000010	mg/L		
8407831	Total Strontium (Sr)	2016/09/23	NC	80 - 120	95	80 - 120	<0.000050	mg/L		
8407831	Total Thallium (Tl)	2016/09/23	93	80 - 120	90	80 - 120	<0.0000020	mg/L		
8407831	Total Tin (Sn)	2016/09/23	90	80 - 120	103	80 - 120	<0.00020	mg/L		
8407831	Total Titanium (Ti)	2016/09/23	91	80 - 120	100	80 - 120	<0.0020	mg/L		
8407831	Total Uranium (U)	2016/09/23	107	80 - 120	105	80 - 120	<0.0000050	mg/L		
8407831	Total Vanadium (V)	2016/09/23	101	80 - 120	98	80 - 120	<0.00020	mg/L		
8407831	Total Zinc (Zn)	2016/09/23	NC	80 - 120	109	80 - 120	<0.0010	mg/L		
8407831	Total Zirconium (Zr)	2016/09/23					<0.00010	mg/L		
8407875	Dissolved Chloride (Cl)	2016/09/22			94	80 - 120	<0.50	mg/L		
8407877	Dissolved Sulphate (SO4)	2016/09/22	NC	80 - 120	92	80 - 120	0.57, RDL=0.50	mg/L	3.3	20
8407879	Alkalinity (PP as CaCO3)	2016/09/22					<0.50	mg/L		
8407879	Alkalinity (Total as CaCO3)	2016/09/22			96	80 - 120	<0.50	mg/L		
8407879	Bicarbonate (HCO3)	2016/09/22					<0.50	mg/L		
8407879	Carbonate (CO3)	2016/09/22					<0.50	mg/L		
8407879	Hydroxide (OH)	2016/09/22					<0.50	mg/L		
8407881	pH	2016/09/22			102	97 - 103				
8407882	Conductivity	2016/09/22			101	80 - 120	<1.0	uS/cm		
8407893	Total Aluminum (Al)	2016/09/23	101	80 - 120	103	80 - 120	<0.00050	mg/L	NC	20
8407893	Total Antimony (Sb)	2016/09/23	95	80 - 120	97	80 - 120	<0.000020	mg/L	NC	20
8407893	Total Arsenic (As)	2016/09/23	97	80 - 120	98	80 - 120	<0.000020	mg/L	NC	20
8407893	Total Barium (Ba)	2016/09/23	98	80 - 120	101	80 - 120	<0.000020	mg/L	NC	20
8407893	Total Beryllium (Be)	2016/09/23	103	80 - 120	100	80 - 120	<0.000010	mg/L	NC	20
8407893	Total Bismuth (Bi)	2016/09/23	97	80 - 120	97	80 - 120	<0.0000050	mg/L	NC	20
8407893	Total Boron (B)	2016/09/23	102	80 - 120	106	80 - 120	<0.010	mg/L	NC	20
8407893	Total Cadmium (Cd)	2016/09/23	99	80 - 120	93	80 - 120	<0.0000050	mg/L	NC	20
8407893	Total Chromium (Cr)	2016/09/23	95	80 - 120	97	80 - 120	<0.00010	mg/L	NC	20
8407893	Total Cobalt (Co)	2016/09/23	95	80 - 120	95	80 - 120	<0.0000050	mg/L	NC	20
8407893	Total Copper (Cu)	2016/09/23	96	80 - 120	97	80 - 120	<0.000050	mg/L	NC	20

Maxxam Job #: B682252  
Report Date: 2016/09/28

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8407893	Total Iron (Fe)	2016/09/23	93	80 - 120	93	80 - 120	<0.0010	mg/L	NC	20
8407893	Total Lead (Pb)	2016/09/23	97	80 - 120	99	80 - 120	<0.0000050	mg/L	NC	20
8407893	Total Lithium (Li)	2016/09/23	98	80 - 120	95	80 - 120	<0.00050	mg/L	NC	20
8407893	Total Manganese (Mn)	2016/09/23	97	80 - 120	94	80 - 120	<0.000050	mg/L	NC	20
8407893	Total Molybdenum (Mo)	2016/09/23	95	80 - 120	99	80 - 120	<0.000050	mg/L	NC	20
8407893	Total Nickel (Ni)	2016/09/23	97	80 - 120	96	80 - 120	<0.000020	mg/L	NC	20
8407893	Total Phosphorus (P)	2016/09/23					<0.0020	mg/L	NC	20
8407893	Total Selenium (Se)	2016/09/23	100	80 - 120	100	80 - 120	<0.000040	mg/L	NC	20
8407893	Total Silicon (Si)	2016/09/23					<0.050	mg/L	NC	20
8407893	Total Silver (Ag)	2016/09/23	99	80 - 120	97	80 - 120	<0.0000050	mg/L	NC	20
8407893	Total Strontium (Sr)	2016/09/23	87	80 - 120	89	80 - 120	<0.000050	mg/L	NC	20
8407893	Total Thallium (Tl)	2016/09/23	94	80 - 120	98	80 - 120	<0.0000020	mg/L	NC	20
8407893	Total Tin (Sn)	2016/09/23	96	80 - 120	100	80 - 120	<0.00020	mg/L	NC	20
8407893	Total Titanium (Ti)	2016/09/23	91	80 - 120	97	80 - 120	<0.00050	mg/L	NC	20
8407893	Total Uranium (U)	2016/09/23	95	80 - 120	98	80 - 120	<0.0000020	mg/L	NC	20
8407893	Total Vanadium (V)	2016/09/23	94	80 - 120	95	80 - 120	<0.00020	mg/L	NC	20
8407893	Total Zinc (Zn)	2016/09/23	99	80 - 120	98	80 - 120	<0.00010	mg/L	NC	20
8407893	Total Zirconium (Zr)	2016/09/23					<0.00010	mg/L	NC	20
8408622	Dissolved Phosphorus (P)	2016/09/23			109	80 - 120	<0.0020	mg/L		
8408630	Total Phosphorus (P)	2016/09/23	NC	80 - 120	109	80 - 120	<0.0020	mg/L	7.5	20
8408810	Dissolved Organic Carbon (C)	2016/09/22	NC	80 - 120	101	80 - 120	<0.50	mg/L	0.69	20
8408811	Dissolved Organic Carbon (C)	2016/09/22	101	80 - 120	106	80 - 120	<0.50	mg/L	NC	20
8408812	Dissolved Organic Carbon (C)	2016/09/22	NC	80 - 120	108	80 - 120	<0.50	mg/L	0.28	20
8408984	Total Mercury (Hg)	2016/09/23	99	80 - 120	95	80 - 120	<0.0000020	mg/L	NC	20
8408991	Total Mercury (Hg)	2016/09/23	93	80 - 120	94	80 - 120	<0.0000020	mg/L	NC	20
8409073	Total Aluminum (Al)	2016/09/23	NC	80 - 120	109	80 - 120	<0.0030	mg/L		
8409073	Total Antimony (Sb)	2016/09/23	NC	80 - 120	104	80 - 120	<0.000020	mg/L		
8409073	Total Arsenic (As)	2016/09/23	103	80 - 120	104	80 - 120	<0.000020	mg/L		
8409073	Total Barium (Ba)	2016/09/23	NC	80 - 120	106	80 - 120	<0.000050	mg/L		
8409073	Total Beryllium (Be)	2016/09/23	108	80 - 120	104	80 - 120	<0.000010	mg/L		
8409073	Total Bismuth (Bi)	2016/09/23	96	80 - 120	109	80 - 120	<0.000010	mg/L	NC	20

Maxxam Job #: B682252  
Report Date: 2016/09/28

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8409073	Total Boron (B)	2016/09/23	NC	80 - 120	100	80 - 120	<0.010	mg/L		
8409073	Total Cadmium (Cd)	2016/09/23	97	80 - 120	102	80 - 120	<0.0000050	mg/L		
8409073	Total Chromium (Cr)	2016/09/23	NC	80 - 120	103	80 - 120	<0.00010	mg/L		
8409073	Total Cobalt (Co)	2016/09/23	102	80 - 120	104	80 - 120	<0.000010	mg/L		
8409073	Total Copper (Cu)	2016/09/23	97	80 - 120	107	80 - 120	<0.00010	mg/L		
8409073	Total Iron (Fe)	2016/09/23	NC	80 - 120	105	80 - 120	<0.0050	mg/L		
8409073	Total Lead (Pb)	2016/09/23	103	80 - 120	108	80 - 120	<0.000020	mg/L		
8409073	Total Lithium (Li)	2016/09/23	NC	80 - 120	98	80 - 120	<0.00050	mg/L		
8409073	Total Manganese (Mn)	2016/09/23	NC	80 - 120	105	80 - 120	<0.00010	mg/L		
8409073	Total Molybdenum (Mo)	2016/09/23	NC	80 - 120	104	80 - 120	<0.000050	mg/L		
8409073	Total Nickel (Ni)	2016/09/23	NC	80 - 120	104	80 - 120	<0.00010	mg/L		
8409073	Total Phosphorus (P)	2016/09/23					<0.0050	mg/L		
8409073	Total Selenium (Se)	2016/09/23	NC	80 - 120	104	80 - 120	<0.000040	mg/L		
8409073	Total Silicon (Si)	2016/09/23					<0.050	mg/L		
8409073	Total Silver (Ag)	2016/09/23	80	80 - 120	86	80 - 120	<0.000010	mg/L		
8409073	Total Strontium (Sr)	2016/09/23	NC	80 - 120	96	80 - 120	<0.000050	mg/L		
8409073	Total Thallium (Tl)	2016/09/23	71 (1)	80 - 120	89	80 - 120	<0.0000020	mg/L		
8409073	Total Tin (Sn)	2016/09/23	94	80 - 120	106	80 - 120	<0.00020	mg/L		
8409073	Total Titanium (Ti)	2016/09/23	NC	80 - 120	106	80 - 120	<0.0020	mg/L		
8409073	Total Uranium (U)	2016/09/23	NC	80 - 120	109	80 - 120	<0.0000050	mg/L		
8409073	Total Vanadium (V)	2016/09/23	NC	80 - 120	102	80 - 120	<0.00020	mg/L		
8409073	Total Zinc (Zn)	2016/09/23	104	80 - 120	112	80 - 120	<0.0010	mg/L		
8409073	Total Zirconium (Zr)	2016/09/23					<0.00010	mg/L		
8409077	Nitrate plus Nitrite (N)	2016/09/22	106	80 - 120	110	80 - 120	<0.0020	mg/L	NC	25
8409079	Nitrite (N)	2016/09/22	98	80 - 120	101	80 - 120	<0.0020	mg/L	NC	25
8409081	Nitrate plus Nitrite (N)	2016/09/22	NC	80 - 120	106	80 - 120	<0.0020	mg/L	0.74	25
8409082	Nitrite (N)	2016/09/22	96	80 - 120	97	80 - 120	<0.0020	mg/L	NC	25
8409146	Dissolved Mercury (Hg)	2016/09/23	91	80 - 120	94	80 - 120	<0.0000020	mg/L	NC	20
8409159	Dissolved Mercury (Hg)	2016/09/23	100	80 - 120	95	80 - 120	<0.0000020	mg/L	NC	20
8409249	Acidity (pH 4.5)	2016/09/23					<0.50	mg/L		
8409249	Acidity (pH 8.3)	2016/09/23			98	80 - 120	<0.50	mg/L		

Maxxam Job #: B682252  
Report Date: 2016/09/28

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8409350	Dissolved Sulphate (SO4)	2016/09/23			96	80 - 120	0.52, RDL=0.50	mg/L		
8409487	Dissolved Organic Carbon (C)	2016/09/23	114	80 - 120	112	80 - 120	<0.50	mg/L	NC	20
8409630	Nitrate plus Nitrite (N)	2016/09/23			104	80 - 120	<0.0020	mg/L		
8409632	Nitrite (N)	2016/09/23			95	80 - 120	<0.0020	mg/L		
8409659	Fluoride (F)	2016/09/23			104	80 - 120	0.011, RDL=0.010	mg/L		
8411339	Alkalinity (PP as CaCO3)	2016/09/26					<0.50	mg/L	NC	20
8411339	Alkalinity (Total as CaCO3)	2016/09/26	95	80 - 120	92	80 - 120	0.52, RDL=0.50	mg/L	0.56	20
8411339	Bicarbonate (HCO3)	2016/09/26					0.63, RDL=0.50	mg/L	0.56	20
8411339	Carbonate (CO3)	2016/09/26					<0.50	mg/L	NC	20
8411339	Hydroxide (OH)	2016/09/26					<0.50	mg/L	NC	20
8411672	Dissolved Aluminum (Al)	2016/09/26			102	80 - 120	<0.00050	mg/L		
8411672	Dissolved Antimony (Sb)	2016/09/26			97	80 - 120	<0.000020	mg/L		
8411672	Dissolved Arsenic (As)	2016/09/26			99	80 - 120	<0.000020	mg/L		
8411672	Dissolved Barium (Ba)	2016/09/26			95	80 - 120	<0.000020	mg/L		
8411672	Dissolved Beryllium (Be)	2016/09/26			89	80 - 120	<0.000010	mg/L		
8411672	Dissolved Bismuth (Bi)	2016/09/26			94	80 - 120	<0.0000050	mg/L		
8411672	Dissolved Boron (B)	2016/09/26			93	80 - 120	<0.010	mg/L		
8411672	Dissolved Cadmium (Cd)	2016/09/26			100	80 - 120	<0.0000050	mg/L		
8411672	Dissolved Chromium (Cr)	2016/09/26			103	80 - 120	<0.00010	mg/L		
8411672	Dissolved Cobalt (Co)	2016/09/26			102	80 - 120	<0.0000050	mg/L		
8411672	Dissolved Copper (Cu)	2016/09/26			104	80 - 120	<0.000050	mg/L		
8411672	Dissolved Iron (Fe)	2016/09/26			106	80 - 120	<0.0010	mg/L		
8411672	Dissolved Lead (Pb)	2016/09/26			96	80 - 120	<0.0000050	mg/L		
8411672	Dissolved Lithium (Li)	2016/09/26			85	80 - 120	<0.00050	mg/L		
8411672	Dissolved Manganese (Mn)	2016/09/26			99	80 - 120	<0.000050	mg/L		
8411672	Dissolved Molybdenum (Mo)	2016/09/26			96	80 - 120	<0.000050	mg/L		
8411672	Dissolved Nickel (Ni)	2016/09/26			104	80 - 120	<0.000020	mg/L		
8411672	Dissolved Phosphorus (P)	2016/09/26					<0.0020	mg/L		
8411672	Dissolved Selenium (Se)	2016/09/26			100	80 - 120	<0.000040	mg/L		
8411672	Dissolved Silicon (Si)	2016/09/26					<0.050	mg/L		

Maxxam Job #: B682252  
Report Date: 2016/09/28

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8411672	Dissolved Silver (Ag)	2016/09/26			82	80 - 120	<0.0000050	mg/L		
8411672	Dissolved Strontium (Sr)	2016/09/26			93	80 - 120	<0.000050	mg/L		
8411672	Dissolved Thallium (Tl)	2016/09/26			92	80 - 120	<0.0000020	mg/L		
8411672	Dissolved Tin (Sn)	2016/09/26			101	80 - 120	<0.00020	mg/L		
8411672	Dissolved Titanium (Ti)	2016/09/26			98	80 - 120	<0.00050	mg/L		
8411672	Dissolved Uranium (U)	2016/09/26			98	80 - 120	<0.0000020	mg/L		
8411672	Dissolved Vanadium (V)	2016/09/26			101	80 - 120	<0.00020	mg/L		
8411672	Dissolved Zinc (Zn)	2016/09/26			104	80 - 120	<0.00010	mg/L		
8411672	Dissolved Zirconium (Zr)	2016/09/26					<0.00010	mg/L		
8412516	Total Phosphorus (P)	2016/09/27	96	80 - 120	95	80 - 120	<0.0020	mg/L	NC	20
8412593	Dissolved Phosphorus (P)	2016/09/27	96	80 - 120	94	80 - 120	0.0021, RDL=0.0020	mg/L	NC	20
8413217	Dissolved Chloride (Cl)	2016/09/27	NC	80 - 120	100	80 - 120	0.56, RDL=0.50	mg/L	0.87	20
8413218	Dissolved Sulphate (SO4)	2016/09/27	98	80 - 120	96	80 - 120	<0.50	mg/L	NC	20
8414011	Total Aluminum (Al)	2016/09/28	100	80 - 120	103	80 - 120	<0.0030	mg/L	NC	20
8414011	Total Antimony (Sb)	2016/09/28	99	80 - 120	96	80 - 120	<0.000020	mg/L	NC	20
8414011	Total Arsenic (As)	2016/09/28	107	80 - 120	102	80 - 120	<0.000020	mg/L	2.9	20
8414011	Total Barium (Ba)	2016/09/28	NC	80 - 120	99	80 - 120	<0.000050	mg/L	0.59	20
8414011	Total Beryllium (Be)	2016/09/28	98	80 - 120	94	80 - 120	<0.000010	mg/L	NC	20
8414011	Total Bismuth (Bi)	2016/09/28	95	80 - 120	100	80 - 120	<0.000010	mg/L	NC	20
8414011	Total Boron (B)	2016/09/28	NC	80 - 120	92	80 - 120	<0.010	mg/L	0.029	20
8414011	Total Cadmium (Cd)	2016/09/28	100	80 - 120	101	80 - 120	<0.0000050	mg/L	NC	20
8414011	Total Chromium (Cr)	2016/09/28	97	80 - 120	97	80 - 120	<0.00010	mg/L	NC	20
8414011	Total Cobalt (Co)	2016/09/28	94	80 - 120	97	80 - 120	<0.000010	mg/L	9.0	20
8414011	Total Copper (Cu)	2016/09/28	91	80 - 120	100	80 - 120	<0.00010	mg/L	NC	20
8414011	Total Iron (Fe)	2016/09/28	NC	80 - 120	103	80 - 120	<0.0050	mg/L	0.81	20
8414011	Total Lead (Pb)	2016/09/28	99	80 - 120	100	80 - 120	<0.000020	mg/L	NC	20
8414011	Total Lithium (Li)	2016/09/28	NC	80 - 120	87	80 - 120	<0.00050	mg/L	0.61	20
8414011	Total Manganese (Mn)	2016/09/28	NC	80 - 120	100	80 - 120	<0.00010	mg/L	0.84	20
8414011	Total Molybdenum (Mo)	2016/09/28	NC	80 - 120	101	80 - 120	<0.000050	mg/L	2.8	20
8414011	Total Nickel (Ni)	2016/09/28	92	80 - 120	97	80 - 120	<0.00010	mg/L	0.20	20

Maxxam Job #: B682252  
Report Date: 2016/09/28

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8414011	Total Phosphorus (P)	2016/09/28					<0.0050	mg/L		
8414011	Total Selenium (Se)	2016/09/28	106	80 - 120	104	80 - 120	<0.000040	mg/L	NC	20
8414011	Total Silicon (Si)	2016/09/28					<0.050	mg/L	3.4	20
8414011	Total Silver (Ag)	2016/09/28	105	80 - 120	99	80 - 120	<0.000010	mg/L	NC	20
8414011	Total Strontium (Sr)	2016/09/28	NC	80 - 120	103	80 - 120	<0.000050	mg/L	0.59	20
8414011	Total Thallium (Tl)	2016/09/28	92	80 - 120	87	80 - 120	<0.0000020	mg/L	NC	20
8414011	Total Tin (Sn)	2016/09/28	95	80 - 120	97	80 - 120	<0.00020	mg/L	NC	20
8414011	Total Titanium (Ti)	2016/09/28	102	80 - 120	102	80 - 120	<0.0020	mg/L	NC	20
8414011	Total Uranium (U)	2016/09/28	102	80 - 120	100	80 - 120	<0.0000050	mg/L	2.0	20
8414011	Total Vanadium (V)	2016/09/28	98	80 - 120	95	80 - 120	<0.00020	mg/L	NC	20
8414011	Total Zinc (Zn)	2016/09/28	101	80 - 120	110	80 - 120	<0.0010	mg/L	NC	20
8414011	Total Zirconium (Zr)	2016/09/28					<0.00010	mg/L	NC	20

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

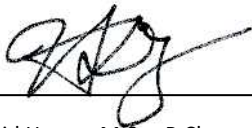
(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Maxxam Job #: B682252  
Report Date: 2016/09/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



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David Huang, M.Sc., P.Chem., QP, Scientific Services Manager



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Rob Reinert, B.Sc., Scientific Specialist

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Invoice Information	Report Information (if differs from invoice)	Project Information (where appropriate)	Turnaround Time (TAT) Required
Company Name: <b>BMC MINERALS LTD.</b>	Company Name: <b>ALEXCO ENVIRONMENTAL</b>	Quotation #: <b>B60751</b>	<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses)
Contact Name:	Contact Name: <b>KAI WOLOSHYN</b>	P.O. #/ AFE#:	<b>PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECT</b>
Address: <b>530-1130 WEST PENDER ST</b>	Address: <b>UNIT 3 151 INDUSTRIAL RD</b>	Project #: <b>BMC-16-01</b>	<b>Rush TAT (Surcharges will be applied)</b>
<b>Vancouver, BC PC: V6E 4A4</b>	<b>Whitehorse, YK PC: V1A 2V3</b>	Site Location: <b>Kudz Ze Kayah</b>	<input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days
Phone:	Phone: <b>(867) 668-6463</b>	Site #:	<input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days
Email:	Email: <b>kwoloshyn@alexcoresource.com</b>	Sampled By: <b>Andrea Badger</b>	Date Required:

Regulatory Criteria	Special Instructions	Analysis Requested	Rush Confirmation #:																												
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> BC CSR Water <input type="checkbox"/> CCME (Specify) <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC Water Quality	<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify) <b>Also send report to:</b> <b>lfougere@accessconsulting.ca</b> <b>lfougere@accessconsulting.ca</b>	TOTAL LOW LEVEL METALS INCL. MERCURY DISSOLVED LOW LEVEL METALS INCL. MERCURY LOW LEVEL TSS ANIONS (Cl, F, SO4, NO2, NO3) AMMONIA CONDUCTIVITY PH ALKALINITY & ACIDITY DOC TOTAL PHOSPHORUS - LOW LEVEL DISSOLVED PHOSPHORUS - LOW LEVEL # OF CONTAINERS SUBMITTED	<b>LABORATORY USE ONLY</b> <table border="1"> <tr> <th colspan="2">CUSTODY SEAL</th> <th colspan="2">COOLER TEMPERATURES</th> </tr> <tr> <td>Y <input checked="" type="checkbox"/></td> <td>N <input type="checkbox"/></td> <td>Present</td> <td>Intact</td> </tr> <tr> <td></td> <td></td> <td></td> <td>7.45/4.35</td> </tr> <tr> <td></td> <td></td> <td></td> <td>7.34/4.54</td> </tr> <tr> <td></td> <td></td> <td></td> <td>3.43/4.45</td> </tr> <tr> <td></td> <td></td> <td></td> <td>4.14</td> </tr> <tr> <td colspan="2">COOLING MEDIA PRESENT</td> <td colspan="2"><input checked="" type="checkbox"/> Y / <input type="checkbox"/> N</td> </tr> </table>	CUSTODY SEAL		COOLER TEMPERATURES		Y <input checked="" type="checkbox"/>	N <input type="checkbox"/>	Present	Intact				7.45/4.35				7.34/4.54				3.43/4.45				4.14	COOLING MEDIA PRESENT		<input checked="" type="checkbox"/> Y / <input type="checkbox"/> N	
CUSTODY SEAL		COOLER TEMPERATURES																													
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			3.43/4.45																												
			4.14																												
COOLING MEDIA PRESENT		<input checked="" type="checkbox"/> Y / <input type="checkbox"/> N																													

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	TOTAL LOW LEVEL METALS INCL. MERCURY	DISSOLVED LOW LEVEL METALS INCL. MERCURY	LOW LEVEL TSS	ANIONS (Cl, F, SO4, NO2, NO3)	AMMONIA	CONDUCTIVITY	PH	ALKALINITY & ACIDITY	DOC	TOTAL PHOSPHORUS - LOW LEVEL	DISSOLVED PHOSPHORUS - LOW LEVEL	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	COMMENTS
1	BH95G-25D	15-Sep-16	9:15	Water	X	X	X	X	X	X	X	X	X	X	X	10		
2	BH95G-25S	15-Sep-16	9:40	Water	X	X	X	X	X	X	X	X	X	X	X	10		
3	BH95G-131	15-Sep-16	13:15	Water	X	X	X	X	X	X	X	X	X	X	X	10		
4	BH95G-33D	15-Sep-16	15:00	Water	X	X	X	X	X	X	X	X	X	X	X	10		
5	DUP2	15-Sep-16		Water	X	X	X	X	X	X	X	X	X	X	X	10		
6	MW15-06	16-Sep-16	8:35	Water	X	X	X	X	X	X	X	X	X	X	X	10		
7	MW15-09S	16-Sep-16	9:45	Water	X	X	X	X	X	X	X	X	X	X	X	10		
8	MW15-10S	16-Sep-16	11:02	Water	X	X	X	X	X	X	X	X	X	X	X	10		
9	MW15-10D	16-Sep-16	11:50	Water	X	X	X	X	X	X	X	X	X	X	X	10		
10	BH95G-30	16-Sep-16	15:07	Water	X	X	X	X	X	X	X	X	X	X	X	10		

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)
<i>Andrea Badger</i>	20-SEP-16		<i>Graham Rudkin</i>	2016/09/21	15:00



B682252\_COC





CHAIN OF CUSTODY

Barcode: 08427567

BBY FCD-00077/05

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5. Toll Free (800) 565-8566

COC

Page 2 of 3

Invoice Information		Report Information (if differs from invoice)				Project Information (where applicable)										Turnaround Time (TAT) Required	
Company Name: <b>BMC MINERALS LTD.</b>		Company Name: <b>ALEXCO ENVIRONMENTAL</b>				Quotation #: <b>B60751</b>										<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyzes)	
Contact Name:		Contact Name: <b>KAI WOLOSHYN</b>				P.O. #/ AFE#:										PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS	
Address: <b>530-1130 WEST PENDER ST</b> <b>Vancouver, BC PC: V6E 4A4</b>		Address: <b>UNIT 3 151 INDUSTRIAL RD</b> <b>Whitehorse, YK PC: V1A 2V5</b>				Project #: <b>BMC-16-01</b>										Rush TAT (Surcharges will be applied)	
Phone:		Phone: <b>(867) 668-6463</b>				Site Location: <b>Kudz Ze Kayah</b>										<input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days	
Email:		Email: <b>kwoleshyn@alexcoresource.com</b>				Site #:										<input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days	
Sampled By: <b>Andrea Badger</b>		Date Required:															
Regulatory Criteria		Special Instructions				Analysis Requested										Rush Confirmation #:	
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> BC CSR Water <input type="checkbox"/> CCME (Specify) <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC Water Quality		<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify) <b>Also send report to: Ifugere@accessconsulting.ca or nreiss@accessconsulting.ca</b>				Analysis Requested: TOTAL LOW LEVEL METALS INCL. MERCURY, DISSOLVED LOW LEVEL METALS INCL. MERCURY, LOW LEVEL TS, ANIONS (Cl, F, SO4, NO2, NO3), AMMONIA, CONDUCTIVITY, pH, ALKALINITY & ACIDITY, DOC, TOTAL PHOSPHORUS - LOW LEVEL, DISSOLVED PHOSPHORUS - LOW LEVEL, # OF CONTAINERS SUBMITTED, HOLD - DO NOT ANALYZE										LABORATORY USE ONLY CUSTODY SEAL Y/N: <input checked="" type="checkbox"/> COOLER TEMPERATURES: Present/Intact: 7.4, 5/4.3, 5 7.3, 4/4.5, 4 3.4, 3/4.4, 5 4.1, 4 COOLING MEDIA PRESENT: <input checked="" type="checkbox"/> / <input type="checkbox"/> N COMMENTS:	
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM																	
Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	TOTAL LOW LEVEL METALS INCL. MERCURY	DISSOLVED LOW LEVEL METALS INCL. MERCURY	LOW LEVEL TS	ANIONS (Cl, F, SO4, NO2, NO3)	AMMONIA	CONDUCTIVITY	pH	ALKALINITY & ACIDITY	DOC	TOTAL PHOSPHORUS - LOW LEVEL	DISSOLVED PHOSPHORUS - LOW LEVEL	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE
1	MW16-17	18-Sep-16	10:01	Water	X	X	X	X	X	X	X	X	X	X	X	X	10
2	MW16-16D	18-Sep-16	11:10	Water	X	X	X	X	X	X	X	X	X	X	X	X	10
3	MW16-14D	18-Sep-16	12:40	Water	X	X	X	X	X	X	X	X	X	X	X	X	10
4	MW16-12D	18-Sep-16	13:37	Water	X	X	X	X	X	X	X	X	X	X	X	X	10
5	MW16-12S	18-Sep-16	14:13	Water	X	X	X	X	X	X	X	X	X	X	X	X	10
6	BH95G-02	18-Sep-16	15:30	Water	X	X	X	X	X	X	X	X	X	X	X	X	10
7	BH95G-146	19-Sep-16	12:56	Water	X	X	X	X	X	X	X	X	X	X	X	X	10
8	BH95G-129	19-Sep-16	13:37	Water	X	X	X	X	X	X	X	X	X	X	X	X	10
9	FIELD BLANK	19-Sep-16		Water	X	X	X	X	X	X	X	X	X	X	X	X	10
10																	
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)		TIME: (HH:MM)		RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)		TIME: (HH:MM)							
ANDREA BADGER		20-SEP-16				GRAHAM RUDKIN		2016/09/21		15:00							
ABadger																	

coolant#  
 4 → 3/3/4  
 5 → 5/3/3  
 6 → 2/2/3  
 7 → 5/2/5

2016-09-20  
 cooler  
 1 → 1/2/1  
 2 → 2/1/1  
 3 → 3/1/1  
 TEMP:

RECEIVED IN WHITEHORSE

BY: *[Signature]*





CHAIN OF CUSTODY



BBY FCD-00077/05  
Page \_\_\_ of

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CO

Invoice Information		Report Information (if differs from invoice)				Project Information (where applicable)										Turnaround Time (TAT) Required	
Company Name: <b>BMC MINERALS LTD.</b>		Company Name: <b>ALEXCO ENVIRONMENTAL</b>				Quotation #: <b>B60751</b>										<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses)	
Contact Name:		Contact Name: <b>KAI WOLOSHYN</b>				P.O. #/ AFE#:										PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS	
Address: <b>530-1130 WEST PENDER ST Vancouver, BC PC: V6E 4A4</b>		Address: <b>UNIT 3 151 INDUSTRIAL RD Whitehorse, YK PC: V1A 2V3</b>				Project #: <b>BMC-16-01</b>										Rush TAT (Surcharges will be applied)	
Phone:		Phone: <b>(867) 668-6463</b>				Site Location: <b>Kudz Ze Kayah</b>										<input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days	
Email:		Email: <b>kwoleshyn@alexcoresource.com</b>				Site #: _____										<input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days	
Sampled By: _____		Date Required: _____															
Regulatory Criteria		Special Instructions				Analysis Requested										Rush Confirmation #:	
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> BC CSR Water <input type="checkbox"/> CCME (Specify) <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC Water Quality		<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify) <b>Also send report to:</b> ffougere@accessconsulting.ca nspelss@accessconsulting.ca				TOTAL LOW LEVEL METALS INCL. MERCURY DISSOLVED LOW LEVEL METALS INCL. MERCURY LOW LEVEL TSS ANIONS (CL, F, SO4, NO2, NO3) AMMONIA CONDUCTIVITY pH ALKALINITY & ACIDITY DOC TOTAL PHOSPHORUS - LOW LEVEL DISSOLVED PHOSPHORUS - LOW LEVEL # OF CONTAINERS SUBMITTED HOLD - DO NOT ANALYZE										LABORATORY USE ONLY CUSTODY SEAL Y <input checked="" type="checkbox"/> N COOLER TEMPERATURES Present Intact 7.45/4.35 7.34/4.54 3.43/4.45 4.14 COOLING MEDIA PRESENT <input checked="" type="checkbox"/> Y / N COMMENTS	
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM																	
Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	TOTAL LOW LEVEL METALS INCL. MERCURY	DISSOLVED LOW LEVEL METALS INCL. MERCURY	LOW LEVEL TSS	ANIONS (CL, F, SO4, NO2, NO3)	AMMONIA	CONDUCTIVITY	pH	ALKALINITY & ACIDITY	DOC	TOTAL PHOSPHORUS - LOW LEVEL	DISSOLVED PHOSPHORUS - LOW LEVEL		
1	DUP3	16-Sep-16		Water	X	X	X	X	X	X	X	X	X	X	X		
2	MW15-03D	17-Sep-16	9:40	Water	X	X	X	X	X	X	X	X	X	X	X		
3	MW15-03S	17-Sep-16	10:05	Water	X	X	X	X	X	X	X	X	X	X	X		
4	MW15-04S	17-Sep-16	11:17	Water	X	X	X	X	X	X	X	X	X	X	X		
5	MW15-04D	17-Sep-16	12:03	Water	X	X	X	X	X	X	X	X	X	X	X		
6	MW15-05D	17-Sep-16	13:34	Water	X	X	X	X	X	X	X	X	X	X	X		
7	MW15-07S	17-Sep-16	14:56	Water	X	X	X	X	X	X	X	X	X	X	X		
8	MW15-07D	17-Sep-16	15:30	Water	X	X	X	X	X	X	X	X	X	X	X		
9	MW15-08S	17-Sep-16	16:25	Water	X	X	X	X	X	X	X	X	X	X	X		
10	TRAVEL BLANK	17-Sep-16		Water													
REQUISITIONED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)										
ANDREA BAGGER		20-SEP-16		GRAHAM RUDKIN		20/16/09/21	15:00										
<i>ABagger</i>																	



B682252\_COC

Your Project #: BMC-16-01  
 Site Location: KUDZ ZE KAYAH  
 Your C.O.C. #: 08427461

**Attention:KAI WOLOSHYN**

ALEXCO ENVIRONMENTAL GROUP INC.  
 Unit 3 Calcite Business Centre  
 151 Industrial Road  
 WHITEHORSE, YT  
 Canada Y1A 2V3

**Report Date: 2016/09/26**  
 Report #: R2268638  
 Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B681195**

**Received: 2016/09/16, 15:40**

Sample Matrix: Water  
 # Samples Received: 12

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	12	N/A	2016/09/20	BBY6SOP-00037	SM 22 2310 B m
Alkalinity - Water	12	2016/09/20	2016/09/20	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry	12	N/A	2016/09/20	BBY6SOP-00011	SM 22 4500-Cl- E m
Carbon (DOC) - field filtered/preserved (1)	12	N/A	2016/09/20	BBY6SOP-00003	SM 22 5310 C m
Conductance - water	12	N/A	2016/09/20	BBY6SOP-00026	SM 22 2510 B m
Fluoride	12	N/A	2016/09/20	BBY6SOP-00048	SM 22 4500-F C m
Hardness Total (calculated as CaCO <sub>3</sub> )	12	N/A	2016/09/22	BBY WI-00033	Auto Calc
Hardness (calculated as CaCO <sub>3</sub> )	12	N/A	2016/09/22	BBY WI-00033	Auto Calc
Mercury (Dissolved-LowLevel) by CVAf	12	N/A	2016/09/21	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total-LowLevel) by CVAf	12	2016/09/21	2016/09/21	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Ion Balance	12	N/A	2016/09/22	BBY WI-00033	Auto Calc
Sum of cations, anions	12	N/A	2016/09/22	Calc	
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	12	N/A	2016/09/22	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Low Level (dissolved)	12	N/A	2016/09/21	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Digested LL (total)	12	2016/09/21	2016/09/22	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Na, K, Ca, Mg, S by CRC ICPMS (total)	12	N/A	2016/09/22	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Ammonia-N (Preserved)	12	N/A	2016/09/20	BBY6SOP-00009	SM 22 4500-NH3- G m
Nitrate+Nitrite (N) (low level)	12	N/A	2016/09/20	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) (low level)	12	N/A	2016/09/20	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N)	12	N/A	2016/09/21	BBY6SOP-00010	SM 22 4500-NO3- I m
Filter and HNO <sub>3</sub> Preserve for Metals	12	N/A	2016/09/20	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (2)	12	N/A	2016/09/20	BBY6SOP-00026	SM 22 4500-H+ B m
Sulphate by Automated Colourimetry	12	N/A	2016/09/20	BBY6SOP-00017	SM 22 4500-SO42- E m
Phosphorus-P (LL Tot, dissolved) - UF/UP	10	2016/09/20	2016/09/20	BBY6SOP-00013	SM 22 4500-P E m
Phosphorus-P (LL Tot, dissolved) - UF/UP	2	2016/09/23	2016/09/23	BBY6SOP-00013	SM 22 4500-P E m
Total Phosphorus - unpreserved	10	N/A	2016/09/20	BBY6SOP-00013	SM 22 4500-P E m
Total Phosphorus - unpreserved	2	N/A	2016/09/23	BBY6SOP-00013	SM 22 4500-P E m
Total Suspended Solids-Low Level	12	2016/09/20	2016/09/21	BBY6SOP-00034	SM 22 2540 D

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

Your Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Your C.O.C. #: 08427461

**Attention:KAI WOLOSHYN**

ALEXCO ENVIRONMENTAL GROUP INC.  
Unit 3 Calcite Business Centre  
151 Industrial Road  
WHITEHORSE, YT  
Canada Y1A 2V3

**Report Date: 2016/09/26**  
Report #: R2268638  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B681195**

**Received: 2016/09/16, 15:40**

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) DOC present in the sample should be considered as non-purgeable DOC.

(2) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

**Encryption Key**

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Megan Smith, Project Manager

Email: msmith@maxxam.ca

Phone# (604) 734 7276

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B681195  
Report Date: 2016/09/26

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PN8373		PN8374			PN8375		
Sampling Date		2016/09/13 13:40		2016/09/13 14:20			2016/09/13 15:05		
COC Number		08427461		08427461			08427461		
	UNITS	BH95G-29	RDL	MW16-15S	RDL	QC Batch	MW16-15D	RDL	QC Batch
<b>Calculated Parameters</b>									
Anion Sum	meq/L	4.8	N/A	2.7	N/A	8403438	4.1	N/A	8403438
Cation Sum	meq/L	4.9	N/A	2.6	N/A	8403438	4.1	N/A	8403438
Filter and HNO3 Preservation	N/A	LAB	N/A	LAB	N/A	8404138	LAB	N/A	8404138
Ion Balance	N/A	1.0	0.010	0.99	0.010	8403437	1.0	0.010	8403437
Nitrate (N)	mg/L	0.0021	0.0020	0.424	0.0020	8403439	<0.0020	0.0020	8403439
<b>Misc. Inorganics</b>									
Fluoride (F)	mg/L	0.110	0.010	0.057	0.010	8405649	0.110	0.010	8405649
Dissolved Organic Carbon (C)	mg/L	1.49	0.50	1.53	0.50	8404524	1.27	0.50	8404525
Acidity (pH 4.5)	mg/L	<0.50	0.50	<0.50	0.50	8403626	<0.50	0.50	8403626
Alkalinity (Total as CaCO3)	mg/L	184	0.50	88.6	0.50	8404269	128	0.50	8404269
Acidity (pH 8.3)	mg/L	4.52	0.50	10.3	0.50	8403626	2.19	0.50	8403626
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	<0.50	0.50	8404269	<0.50	0.50	8404269
Bicarbonate (HCO3)	mg/L	224	0.50	108	0.50	8404269	156	0.50	8404269
Carbonate (CO3)	mg/L	<0.50	0.50	<0.50	0.50	8404269	<0.50	0.50	8404269
Hydroxide (OH)	mg/L	<0.50	0.50	<0.50	0.50	8404269	<0.50	0.50	8404269
<b>Anions</b>									
Dissolved Sulphate (SO4)	mg/L	49.9	0.50	40.5	0.50	8405323	69.4	0.50	8405323
Dissolved Chloride (Cl)	mg/L	1.5	0.50	0.60	0.50	8405319	1.6	0.50	8405319
<b>Nutrients</b>									
Dissolved Phosphorus (P)	mg/L	0.520 (1)	0.020	0.178 (2)	0.0020	8404766	0.0449 (2)	0.0020	8404766
Total Ammonia (N)	mg/L	0.071	0.0050	0.061	0.0050	8404294	0.051	0.0050	8404294
Nitrate plus Nitrite (N)	mg/L	0.0021 (2)	0.0020	0.428 (2)	0.0020	8406382	<0.0020 (2)	0.0020	8406382
Nitrite (N)	mg/L	<0.0020 (2)	0.0020	0.0036 (2)	0.0020	8406390	<0.0020 (2)	0.0020	8406390
Total Phosphorus (P)	mg/L	3.35 (1)	0.020	1.25 (1)	0.020	8404768	0.471 (2)	0.0020	8404768
<b>Physical Properties</b>									
Conductivity	uS/cm	440	1.0	257	1.0	8404274	375	1.0	8404274
pH	pH	7.98		7.38		8404273	7.97		8404273
RDL = Reportable Detection Limit N/A = Not Applicable (1) Detection limits raised due to dilution to bring analyte within the calibrated range. Sample analysed past recommended hold time. (2) Sample analysed past recommended hold time.									

Maxxam Job #: B681195  
Report Date: 2016/09/26

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		PN8373		PN8374			PN8375		
<b>Sampling Date</b>		2016/09/13 13:40		2016/09/13 14:20			2016/09/13 15:05		
<b>COC Number</b>		08427461		08427461			08427461		
	<b>UNITS</b>	<b>BH95G-29</b>	<b>RDL</b>	<b>MW16-15S</b>	<b>RDL</b>	<b>QC Batch</b>	<b>MW16-15D</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Physical Properties</b>									
Total Suspended Solids	mg/L	3270 (1)	20	4050 (1)	20	8403976	844 (1)	20	8403976
RDL = Reportable Detection Limit									
(1) RDL raised due to high concentration of solids in the sample.									

Maxxam Job #: B681195  
Report Date: 2016/09/26

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PN8376			PN8377			PN8378		
Sampling Date		2016/09/13 15:36			2016/09/13 16:30			2016/09/14 08:55		
COC Number		08427461			08427461			08427461		
	UNITS	BH95G-21	RDL	QC Batch	BH95G-22	RDL	QC Batch	MW15-11S	RDL	QC Batch
<b>Calculated Parameters</b>										
Anion Sum	meq/L	4.4	N/A	8403438	3.3	N/A	8403438	6.3	N/A	8403438
Cation Sum	meq/L	4.3	N/A	8403438	3.3	N/A	8403438	6.3	N/A	8403438
Filter and HNO3 Preservation	N/A	LAB	N/A	8404138	LAB	N/A	8404138	LAB	N/A	8404138
Ion Balance	N/A	0.97	0.010	8403437	1.0	0.010	8403437	1.0	0.010	8403437
Nitrate (N)	mg/L	0.0034	0.0020	8403439	0.557	0.0020	8403439	0.0022	0.0020	8403439
<b>Misc. Inorganics</b>										
Fluoride (F)	mg/L	0.095	0.010	8405649	0.056	0.010	8405649	0.150	0.010	8405649
Dissolved Organic Carbon (C)	mg/L	1.89	0.50	8404525	1.25	0.50	8404524	2.59	0.50	8404525
Acidity (pH 4.5)	mg/L	<0.50	0.50	8403626	<0.50	0.50	8404451	<0.50	0.50	8403626
Alkalinity (Total as CaCO3)	mg/L	167	0.50	8404269	126	0.50	8404269	235	0.50	8404269
Acidity (pH 8.3)	mg/L	3.55	0.50	8403626	7.06	0.50	8404451	5.46	0.50	8403626
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8404269	<0.50	0.50	8404269	<0.50	0.50	8404269
Bicarbonate (HCO3)	mg/L	204	0.50	8404269	153	0.50	8404269	286	0.50	8404269
Carbonate (CO3)	mg/L	<0.50	0.50	8404269	<0.50	0.50	8404269	<0.50	0.50	8404269
Hydroxide (OH)	mg/L	<0.50	0.50	8404269	<0.50	0.50	8404269	<0.50	0.50	8404269
<b>Anions</b>										
Dissolved Sulphate (SO4)	mg/L	48.6	0.50	8405323	35.1	0.50	8405323	73.7	0.50	8405323
Dissolved Chloride (Cl)	mg/L	1.9	0.50	8405319	0.88	0.50	8405319	1.1	0.50	8405319
<b>Nutrients</b>										
Dissolved Phosphorus (P)	mg/L	0.114 (1)	0.0020	8404766	0.221 (1)	0.0020	8404766	0.0118 (1)	0.0020	8404766
Total Ammonia (N)	mg/L	0.026	0.0050	8404289	0.019	0.0050	8404294	0.061	0.0050	8404294
Nitrate plus Nitrite (N)	mg/L	0.0034 (1)	0.0020	8406382	0.560 (1)	0.0020	8406391	0.0057 (1)	0.0020	8406382
Nitrite (N)	mg/L	<0.0020 (1)	0.0020	8406390	0.0023 (1)	0.0020	8406392	0.0035 (1)	0.0020	8406390
Total Phosphorus (P)	mg/L	0.713 (2)	0.020	8404768	0.476 (1)	0.0020	8404768	0.122 (1)	0.0020	8404768
<b>Physical Properties</b>										
Conductivity	uS/cm	400	1.0	8404274	315	1.0	8404274	568	1.0	8404274
pH	pH	7.98		8404273	7.66		8404273	7.85		8404273
RDL = Reportable Detection Limit N/A = Not Applicable (1) Sample analysed past recommended hold time. (2) Detection limits raised due to dilution to bring analyte within the calibrated range. Sample analysed past recommended hold time.										

Maxxam Job #: B681195  
Report Date: 2016/09/26

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		PN8376			PN8377			PN8378		
<b>Sampling Date</b>		2016/09/13 15:36			2016/09/13 16:30			2016/09/14 08:55		
<b>COC Number</b>		08427461			08427461			08427461		
	<b>UNITS</b>	<b>BH95G-21</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH95G-22</b>	<b>RDL</b>	<b>QC Batch</b>	<b>MW15-11S</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Physical Properties</b>										
Total Suspended Solids	mg/L	944 (1)	20	8403976	1250 (1)	20	8403976	198	1.0	8404157
RDL = Reportable Detection Limit										
(1) RDL raised due to high concentration of solids in the sample.										



Maxxam Job #: B681195  
Report Date: 2016/09/26

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		PN8379		PN8380		PN8381		PN8382		
Sampling Date		2016/09/14 09:28		2016/09/14 10:35		2016/09/14 11:45		2016/09/14 12:30		
COC Number		08427461		08427461		08427461		08427461		
	UNITS	MW15-11D	QC Batch	MW15-01	QC Batch	MW15-02	RDL	BH95G-32	RDL	QC Batch
<b>Calculated Parameters</b>										
Anion Sum	meq/L	6.2	8403438	3.6	8403438	4.9	N/A	4.2	N/A	8403438
Cation Sum	meq/L	6.2	8403438	3.6	8403438	5.0	N/A	4.2	N/A	8403438
Filter and HNO3 Preservation	N/A	LAB	8404138	LAB	8404138	LAB	N/A	LAB	N/A	8404138
Ion Balance	N/A	1.0	8403437	1.0	8403437	1.0	0.010	1.0	0.010	8403437
Nitrate (N)	mg/L	<0.0020	8403439	0.464	8403439	0.218	0.0020	0.0450	0.0020	8403439
<b>Misc. Inorganics</b>										
Fluoride (F)	mg/L	0.150	8405649	0.086	8405649	0.089	0.010	0.039	0.010	8405649
Dissolved Organic Carbon (C)	mg/L	2.64	8404524	2.21	8404525	0.65	0.50	1.65	0.50	8404525
Acidity (pH 4.5)	mg/L	<0.50	8404451	<0.50	8403626	<0.50	0.50	<0.50	0.50	8403626
Alkalinity (Total as CaCO3)	mg/L	232	8404269	140	8404269	180	0.50	175	0.50	8404269
Acidity (pH 8.3)	mg/L	4.71	8404451	1.77	8403626	1.79	0.50	4.48	0.50	8403626
Alkalinity (PP as CaCO3)	mg/L	<0.50	8404269	<0.50	8404269	<0.50	0.50	<0.50	0.50	8404269
Bicarbonate (HCO3)	mg/L	283	8404269	171	8404269	220	0.50	213	0.50	8404269
Carbonate (CO3)	mg/L	<0.50	8404269	<0.50	8404269	<0.50	0.50	<0.50	0.50	8404269
Hydroxide (OH)	mg/L	<0.50	8404269	<0.50	8404269	<0.50	0.50	<0.50	0.50	8404269
<b>Anions</b>										
Dissolved Sulphate (SO4)	mg/L	74.5	8405323	36.2	8405323	58.4	0.50	34.4	0.50	8405323
Dissolved Chloride (Cl)	mg/L	1.2	8405319	0.83	8405319	0.72	0.50	0.85	0.50	8405319
<b>Nutrients</b>										
Dissolved Phosphorus (P)	mg/L	0.0041 (1)	8404766	0.0776 (1)	8408622	<0.0020 (1)	0.0020	0.0235 (1)	0.0020	8404766
Total Ammonia (N)	mg/L	0.071	8404294	0.0068	8404294	0.0097	0.0050	0.015	0.0050	8404294
Nitrate plus Nitrite (N)	mg/L	<0.0020 (1)	8406382	0.469 (1)	8406382	0.218 (1)	0.0020	0.0450 (1)	0.0020	8406382
Nitrite (N)	mg/L	<0.0020 (1)	8406390	0.0046 (1)	8406390	<0.0020 (1)	0.0020	<0.0020 (1)	0.0020	8406390
Total Phosphorus (P)	mg/L	0.0361 (1)	8404768	0.0817 (1)	8408630	<0.0020 (1)	0.0020	0.271 (1)	0.0020	8404768
<b>Physical Properties</b>										
Conductivity	uS/cm	566	8404274	338	8404274	457	1.0	401	1.0	8404274
pH	pH	7.87	8404273	8.03	8404273	8.01		7.96		8404273
<b>Physical Properties</b>										
Total Suspended Solids	mg/L	95.0	8404157	54.1	8404157	<1.0	1.0	223 (2)	2.5	8404157
RDL = Reportable Detection Limit N/A = Not Applicable (1) Sample analysed past recommended hold time. (2) RDL raised due to high concentration of solids in the sample.										

Maxxam Job #: B681195  
Report Date: 2016/09/26

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PN8383			PN8384		
Sampling Date		2016/09/14 13:40			2016/09/14		
COC Number		08427461			08427461		
	UNITS	BH95G-31	RDL	QC Batch	DUP1	RDL	QC Batch
<b>Calculated Parameters</b>							
Anion Sum	meq/L	3.1	N/A	8403438	3.6	N/A	8403438
Cation Sum	meq/L	3.2	N/A	8403438	3.6	N/A	8403438
Filter and HNO3 Preservation	N/A	LAB	N/A	8404138	LAB	N/A	8404138
Ion Balance	N/A	1.0	0.010	8403437	1.0	0.010	8403437
Nitrate (N)	mg/L	0.211	0.0020	8403439	0.480	0.0020	8403439
<b>Misc. Inorganics</b>							
Fluoride (F)	mg/L	0.095	0.010	8405649	0.087	0.010	8405649
Dissolved Organic Carbon (C)	mg/L	1.27	0.50	8404524	2.17	0.50	8404524
Acidity (pH 4.5)	mg/L	<0.50	0.50	8403626	<0.50	0.50	8403626
Alkalinity (Total as CaCO3)	mg/L	130	0.50	8404269	139	0.50	8404269
Acidity (pH 8.3)	mg/L	2.04	0.50	8403626	1.70	0.50	8403626
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8404269	<0.50	0.50	8404269
Bicarbonate (HCO3)	mg/L	158	0.50	8404269	170	0.50	8404269
Carbonate (CO3)	mg/L	<0.50	0.50	8404269	<0.50	0.50	8404269
Hydroxide (OH)	mg/L	<0.50	0.50	8404269	<0.50	0.50	8404269
<b>Anions</b>							
Dissolved Sulphate (SO4)	mg/L	22.2	0.50	8405323	35.9	0.50	8405323
Dissolved Chloride (Cl)	mg/L	0.71	0.50	8405319	0.86	0.50	8405319
<b>Nutrients</b>							
Dissolved Phosphorus (P)	mg/L	0.0197 (1)	0.0020	8404766	0.132 (1)	0.0020	8408622
Total Ammonia (N)	mg/L	0.041	0.0050	8404294	0.012	0.0050	8404294
Nitrate plus Nitrite (N)	mg/L	0.213 (1)	0.0020	8406382	0.486 (1)	0.0020	8406382
Nitrite (N)	mg/L	0.0024 (1)	0.0020	8406390	0.0062 (1)	0.0020	8406390
Total Phosphorus (P)	mg/L	0.0221 (1)	0.0020	8404768	0.144 (1)	0.0020	8408630
<b>Physical Properties</b>							
Conductivity	uS/cm	294	1.0	8404274	338	1.0	8404274
pH	pH	8.00		8404273	8.03		8404273
RDL = Reportable Detection Limit N/A = Not Applicable (1) Sample analysed past recommended hold time.							

Maxxam Job #: B681195  
Report Date: 2016/09/26

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		PN8383			PN8384		
<b>Sampling Date</b>		2016/09/14 13:40			2016/09/14		
<b>COC Number</b>		08427461			08427461		
	<b>UNITS</b>	<b>BH95G-31</b>	<b>RDL</b>	<b>QC Batch</b>	<b>DUP1</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Physical Properties</b>							
Total Suspended Solids	mg/L	110 (1)	2.0	8404157	56.4 (2)	4.0	8404157
RDL = Reportable Detection Limit							
(1) RDL raised due to high concentration of solids in the sample.							
(2) RDL raised due to sample matrix interference.							

Maxxam Job #: B681195  
Report Date: 2016/09/26

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PN8373	PN8374	PN8375	PN8376	PN8377		
Sampling Date		2016/09/13 13:40	2016/09/13 14:20	2016/09/13 15:05	2016/09/13 15:36	2016/09/13 16:30		
COC Number		08427461	08427461	08427461	08427461	08427461		
	<b>UNITS</b>	<b>BH95G-29</b>	<b>MW16-15S</b>	<b>MW16-15D</b>	<b>BH95G-21</b>	<b>BH95G-22</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO3)	mg/L	240	127	198	210	164	0.50	8402836

<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	<0.0000020	0.0000039	<0.0000020	<0.0000020	0.0000022	0.0000020	8405708

<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	0.00128	0.00443	0.0127	0.00081	0.00087	0.00050	8404749
Dissolved Antimony (Sb)	mg/L	0.000630	0.000124	0.000468	0.000136	0.000066	0.000020	8404749
Dissolved Arsenic (As)	mg/L	0.00419	0.000280	0.0155	0.000818	0.000150	0.000020	8404749
Dissolved Barium (Ba)	mg/L	0.0698	0.0708	0.0370	0.0470	0.0977	0.000020	8404749
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000010	8404749
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8404749
Dissolved Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	8404749
Dissolved Cadmium (Cd)	mg/L	0.0000110	0.00185	0.0000960	0.0000050	0.0000740	0.0000050	8404749
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	8404749
Dissolved Cobalt (Co)	mg/L	0.000225	0.000508	0.000104	0.0000240	0.0000070	0.0000050	8404749
Dissolved Copper (Cu)	mg/L	0.000127	0.00546	0.000097	0.000189	0.000598	0.000050	8404749
Dissolved Iron (Fe)	mg/L	<0.0010	0.0023	<0.0010	<0.0010	0.0053	0.0010	8404749
Dissolved Lead (Pb)	mg/L	0.000105	0.000159	0.0000320	<0.0000050	0.0000130	0.0000050	8404749
Dissolved Lithium (Li)	mg/L	0.00495	0.00162	0.00337	0.00561	0.00163	0.00050	8404749
Dissolved Manganese (Mn)	mg/L	0.178	0.0757	0.138	0.0455	0.000336	0.000050	8404749
Dissolved Molybdenum (Mo)	mg/L	0.00131	0.000589	0.000887	0.000345	0.000156	0.000050	8404749
Dissolved Nickel (Ni)	mg/L	0.000547	0.00326	0.000241	0.000104	0.000198	0.000020	8404749
Dissolved Phosphorus (P)	mg/L	0.0230	0.0045	0.0025	0.0039	0.0067	0.0020	8404749
Dissolved Selenium (Se)	mg/L	0.000109	0.00256	0.000090	0.000060	0.000879	0.000040	8404749
Dissolved Silicon (Si)	mg/L	3.09	3.08	3.02	3.25	2.94	0.050	8404749
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8404749
Dissolved Strontium (Sr)	mg/L	0.258	0.118	0.202	0.203	0.155	0.000050	8404749
Dissolved Thallium (Tl)	mg/L	0.0000020	0.0000110	0.0000070	0.0000020	<0.0000020	0.0000020	8404749
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8404749
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	8404749
Dissolved Uranium (U)	mg/L	0.00417	0.00176	0.00688	0.00516	0.00117	0.0000020	8404749
Dissolved Vanadium (V)	mg/L	0.00039	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8404749

RDL = Reportable Detection Limit

Maxxam Job #: B681195  
Report Date: 2016/09/26

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PN8373	PN8374	PN8375	PN8376	PN8377		
Sampling Date		2016/09/13 13:40	2016/09/13 14:20	2016/09/13 15:05	2016/09/13 15:36	2016/09/13 16:30		
COC Number		08427461	08427461	08427461	08427461	08427461		
	UNITS	BH95G-29	MW16-15S	MW16-15D	BH95G-21	BH95G-22	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	0.00457	0.103	0.00168	<0.00010	0.00452	0.00010	8404749
Dissolved Zirconium (Zr)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	8404749
Dissolved Calcium (Ca)	mg/L	80.4	42.0	64.9	64.9	52.8	0.050	8403160
Dissolved Magnesium (Mg)	mg/L	9.44	5.37	8.71	11.7	7.76	0.050	8403160
Dissolved Potassium (K)	mg/L	2.97	2.40	3.41	1.41	1.39	0.050	8403160
Dissolved Sodium (Na)	mg/L	0.943	0.759	1.93	0.922	0.831	0.050	8403160
Dissolved Sulphur (S)	mg/L	15.0	12.7	21.3	15.3	10.8	3.0	8403160
RDL = Reportable Detection Limit								

Maxxam Job #: B681195  
Report Date: 2016/09/26

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PN8378	PN8379	PN8380	PN8381	PN8382		
Sampling Date		2016/09/14 08:55	2016/09/14 09:28	2016/09/14 10:35	2016/09/14 11:45	2016/09/14 12:30		
COC Number		08427461	08427461	08427461	08427461	08427461		
	<b>UNITS</b>	<b>MW15-11S</b>	<b>MW15-11D</b>	<b>MW15-01</b>	<b>MW15-02</b>	<b>BH95G-32</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO3)	mg/L	304	300	178	244	205	0.50	8402836
<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000020	8405708
<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	0.00112	0.00085	0.00424	0.00069	0.00184	0.00050	8404749
Dissolved Antimony (Sb)	mg/L	0.000098	0.000099	0.000022	<0.000020	0.000045	0.000020	8404749
Dissolved Arsenic (As)	mg/L	0.000749	0.000282	0.000163	0.000891	0.000184	0.000020	8404749
Dissolved Barium (Ba)	mg/L	0.0416	0.0342	0.0166	0.0956	0.179	0.000020	8404749
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000010	8404749
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8404749
Dissolved Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	8404749
Dissolved Cadmium (Cd)	mg/L	<0.0000050	<0.0000050	0.0000070	<0.0000050	0.0000680	0.0000050	8404749
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	8404749
Dissolved Cobalt (Co)	mg/L	0.000682	0.000117	0.0000270	0.0000330	0.000140	0.0000050	8404749
Dissolved Copper (Cu)	mg/L	<0.000050	<0.000050	0.000580	0.000067	0.000214	0.000050	8404749
Dissolved Iron (Fe)	mg/L	0.0077	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	8404749
Dissolved Lead (Pb)	mg/L	<0.0000050	0.0000610	<0.0000050	<0.0000050	0.0000070	0.0000050	8404749
Dissolved Lithium (Li)	mg/L	0.0103	0.0108	0.00094	0.00122	0.00102	0.00050	8404749
Dissolved Manganese (Mn)	mg/L	0.381	0.160	0.000260	0.000076	0.0344	0.000050	8404749
Dissolved Molybdenum (Mo)	mg/L	0.00201	0.000633	0.000716	0.000786	0.000685	0.000050	8404749
Dissolved Nickel (Ni)	mg/L	0.00143	0.000282	0.000201	0.000153	0.00150	0.000020	8404749
Dissolved Phosphorus (P)	mg/L	<0.0020	0.0034	0.0025	<0.0020	0.0047	0.0020	8404749
Dissolved Selenium (Se)	mg/L	<0.000040	<0.000040	0.000260	0.00171	0.000696	0.000040	8404749
Dissolved Silicon (Si)	mg/L	3.98	3.98	1.69	2.10	2.19	0.050	8404749
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8404749
Dissolved Strontium (Sr)	mg/L	0.513	0.499	0.154	0.295	0.272	0.000050	8404749
Dissolved Thallium (Tl)	mg/L	0.0000030	0.0000030	<0.0000020	<0.0000020	0.0000080	0.0000020	8404749
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8404749
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	8404749
Dissolved Uranium (U)	mg/L	0.0114	0.0115	0.00158	0.00326	0.00110	0.0000020	8404749
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8404749

RDL = Reportable Detection Limit

Maxxam Job #: B681195  
Report Date: 2016/09/26

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PN8378	PN8379	PN8380	PN8381	PN8382		
Sampling Date		2016/09/14 08:55	2016/09/14 09:28	2016/09/14 10:35	2016/09/14 11:45	2016/09/14 12:30		
COC Number		08427461	08427461	08427461	08427461	08427461		
	UNITS	MW15-11S	MW15-11D	MW15-01	MW15-02	BH95G-32	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	0.00049	0.00105	0.00053	0.00024	0.00075	0.00010	8404749
Dissolved Zirconium (Zr)	mg/L	<0.00010	0.00017	<0.00010	<0.00010	<0.00010	0.00010	8404749
Dissolved Calcium (Ca)	mg/L	82.3	80.7	59.1	78.9	75.4	0.050	8403160
Dissolved Magnesium (Mg)	mg/L	23.9	23.8	7.28	11.4	4.02	0.050	8403160
Dissolved Potassium (K)	mg/L	4.12	4.05	0.473	2.43	4.59	0.050	8403160
Dissolved Sodium (Na)	mg/L	2.82	3.00	0.963	0.714	0.657	0.050	8403160
Dissolved Sulphur (S)	mg/L	22.4	22.2	12.0	17.7	11.0	3.0	8403160
RDL = Reportable Detection Limit								

Maxxam Job #: B681195  
Report Date: 2016/09/26

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PN8383	PN8384		
Sampling Date		2016/09/14 13:40	2016/09/14		
COC Number		08427461	08427461		
	UNITS	BH95G-31	DUP1	RDL	QC Batch
<b>Misc. Inorganics</b>					
Dissolved Hardness (CaCO3)	mg/L	154	179	0.50	8402836
<b>Elements</b>					
Dissolved Mercury (Hg)	mg/L	<0.0000020	<0.0000020	0.0000020	8405708
<b>Dissolved Metals by ICPMS</b>					
Dissolved Aluminum (Al)	mg/L	0.00182	0.00480	0.00050	8404749
Dissolved Antimony (Sb)	mg/L	<0.000020	0.000022	0.000020	8404749
Dissolved Arsenic (As)	mg/L	0.000100	0.000158	0.000020	8404749
Dissolved Barium (Ba)	mg/L	0.124	0.0166	0.000020	8404749
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	0.000010	8404749
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	0.0000050	8404749
Dissolved Boron (B)	mg/L	<0.010	<0.010	0.010	8404749
Dissolved Cadmium (Cd)	mg/L	0.0000220	0.0000070	0.0000050	8404749
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	0.00010	8404749
Dissolved Cobalt (Co)	mg/L	0.000215	0.0000260	0.0000050	8404749
Dissolved Copper (Cu)	mg/L	0.000433	0.000562	0.000050	8404749
Dissolved Iron (Fe)	mg/L	0.0015	<0.0010	0.0010	8404749
Dissolved Lead (Pb)	mg/L	0.0000120	<0.0000050	0.0000050	8404749
Dissolved Lithium (Li)	mg/L	0.00080	0.00073	0.00050	8404749
Dissolved Manganese (Mn)	mg/L	0.00532	0.000222	0.000050	8404749
Dissolved Molybdenum (Mo)	mg/L	0.00165	0.000723	0.000050	8404749
Dissolved Nickel (Ni)	mg/L	0.000491	0.000206	0.000020	8404749
Dissolved Phosphorus (P)	mg/L	0.0026	0.0036	0.0020	8404749
Dissolved Selenium (Se)	mg/L	0.00154	0.000260	0.000040	8404749
Dissolved Silicon (Si)	mg/L	2.68	1.65	0.050	8404749
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	0.0000050	8404749
Dissolved Strontium (Sr)	mg/L	0.183	0.155	0.000050	8404749
Dissolved Thallium (Tl)	mg/L	0.0000020	<0.0000020	0.0000020	8404749
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	0.00020	8404749
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	0.00050	8404749
Dissolved Uranium (U)	mg/L	0.000944	0.00167	0.0000020	8404749
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	0.00020	8404749
RDL = Reportable Detection Limit					



Maxxam Job #: B681195  
Report Date: 2016/09/26

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PN8383	PN8384		
Sampling Date		2016/09/14 13:40	2016/09/14		
COC Number		08427461	08427461		
	UNITS	BH95G-31	DUP1	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	0.00065	0.00048	0.00010	8404749
Dissolved Zirconium (Zr)	mg/L	<0.00010	<0.00010	0.00010	8404749
Dissolved Calcium (Ca)	mg/L	57.2	59.4	0.050	8403160
Dissolved Magnesium (Mg)	mg/L	2.78	7.36	0.050	8403160
Dissolved Potassium (K)	mg/L	2.87	0.488	0.050	8403160
Dissolved Sodium (Na)	mg/L	0.930	0.996	0.050	8403160
Dissolved Sulphur (S)	mg/L	7.1	11.3	3.0	8403160
RDL = Reportable Detection Limit					

Maxxam Job #: B681195  
Report Date: 2016/09/26

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PN8373	PN8374	PN8375	PN8376	PN8377		
Sampling Date		2016/09/13 13:40	2016/09/13 14:20	2016/09/13 15:05	2016/09/13 15:36	2016/09/13 16:30		
COC Number		08427461	08427461	08427461	08427461	08427461		
	UNITS	BH95G-29	MW16-15S	MW16-15D	BH95G-21	BH95G-22	RDL	QC Batch
<b>Calculated Parameters</b>								
Total Hardness (CaCO3)	mg/L	305	244	254	265	201	0.50	8402931
<b>Elements</b>								
Total Mercury (Hg)	mg/L	<0.0000020	0.0000404	<0.0000020	<0.0000020	0.0000039	0.0000020	8405683
<b>Total Metals by ICPMS</b>								
Total Aluminum (Al)	mg/L	12.6	34.9	9.00	8.99	9.54	0.015	8405832
Total Antimony (Sb)	mg/L	0.00102	0.0147	0.00138	0.00047	0.00102	0.00010	8405832
Total Arsenic (As)	mg/L	0.0291	0.609	0.0332	0.0105	0.0185	0.00010	8405832
Total Barium (Ba)	mg/L	0.440	1.10	0.180	2.49	0.531	0.00025	8405832
Total Beryllium (Be)	mg/L	0.00125	0.00202	0.000572	0.000656	0.000723	0.000050	8405832
Total Bismuth (Bi)	mg/L	0.000951	0.00775	0.000945	0.000935	0.00159	0.000050	8405832
Total Boron (B)	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	8405832
Total Cadmium (Cd)	mg/L	0.00356	0.0303	0.0160	0.000427	0.00650	0.000025	8405832
Total Chromium (Cr)	mg/L	0.0226	0.0856	0.0121	0.0132	0.0131	0.00050	8405832
Total Cobalt (Co)	mg/L	0.0115	0.0616	0.00680	0.00725	0.0269	0.000050	8405832
Total Copper (Cu)	mg/L	0.110	1.30	0.0698	0.0844	0.215	0.00050	8405832
Total Iron (Fe)	mg/L	25.0	107	25.6	25.2	58.7	0.025	8405832
Total Lead (Pb)	mg/L	0.200	4.13	0.0725	0.0416	0.258	0.00010	8405832
Total Lithium (Li)	mg/L	0.0213	0.0519	0.0139	0.0134	0.0115	0.0025	8405832
Total Manganese (Mn)	mg/L	1.04	3.94	0.965	0.287	1.86	0.00050	8405832
Total Molybdenum (Mo)	mg/L	0.00113	0.00370	0.00084	<0.00025	0.00045	0.00025	8405832
Total Nickel (Ni)	mg/L	0.0322	0.109	0.00999	0.0151	0.0405	0.00050	8405832
Total Phosphorus (P)	mg/L	2.63	2.00	0.557	0.621	0.800	0.025	8405832
Total Selenium (Se)	mg/L	0.00049	0.00391	0.00035	0.00037	0.00135	0.00020	8405832
Total Silicon (Si)	mg/L	21.8	40.7	15.2	15.8	15.8	0.25	8405832
Total Silver (Ag)	mg/L	0.000329	0.0313	0.00127	0.000359	0.00187	0.000050	8405832
Total Strontium (Sr)	mg/L	0.407	0.203	0.248	0.313	0.203	0.00025	8405832
Total Thallium (Tl)	mg/L	0.000228	0.00145	0.000268	0.000116	0.000178	0.000010	8405832
Total Tin (Sn)	mg/L	0.0011	0.0025	<0.0010	<0.0010	<0.0010	0.0010	8405832
Total Titanium (Ti)	mg/L	0.189	1.30	0.383	0.193	0.210	0.010	8405832
Total Uranium (U)	mg/L	0.0111	0.0580	0.0110	0.00865	0.00556	0.000025	8405832
Total Vanadium (V)	mg/L	0.0287	0.0869	0.0173	0.0218	0.0216	0.0010	8405832
RDL = Reportable Detection Limit								

Maxxam Job #: B681195  
Report Date: 2016/09/26

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PN8373	PN8374	PN8375	PN8376	PN8377		
Sampling Date		2016/09/13 13:40	2016/09/13 14:20	2016/09/13 15:05	2016/09/13 15:36	2016/09/13 16:30		
COC Number		08427461	08427461	08427461	08427461	08427461		
	UNITS	BH95G-29	MW16-15S	MW16-15D	BH95G-21	BH95G-22	RDL	QC Batch
Total Zinc (Zn)	mg/L	0.595	4.27	2.62	0.196	0.787	0.0050	8405832
Total Zirconium (Zr)	mg/L	0.00159	0.00571	0.0329	0.0101	0.00274	0.00050	8405832
Total Calcium (Ca)	mg/L	94.6	57.7	76.1	77.2	60.7	1.3	8402954
Total Magnesium (Mg)	mg/L	16.6	24.1	15.6	17.6	12.1	1.3	8402954
Total Potassium (K)	mg/L	6.1	11.7	7.6	4.0	3.3	1.3	8402954
Total Sodium (Na)	mg/L	<1.3	<1.3	2.3	<1.3	<1.3	1.3	8402954
Total Sulphur (S)	mg/L	16	<15	25	18	<15	15	8402954
RDL = Reportable Detection Limit								

Maxxam Job #: B681195  
Report Date: 2016/09/26

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

<b>Maxxam ID</b>		PN8378	PN8379	PN8380	PN8381	PN8382		
<b>Sampling Date</b>		2016/09/14 08:55	2016/09/14 09:28	2016/09/14 10:35	2016/09/14 11:45	2016/09/14 12:30		
<b>COC Number</b>		08427461	08427461	08427461	08427461	08427461		
	<b>UNITS</b>	<b>MW15-11S</b>	<b>MW15-11D</b>	<b>MW15-01</b>	<b>MW15-02</b>	<b>BH95G-32</b>	<b>RDL</b>	<b>QC Batch</b>

**Calculated Parameters**

Total Hardness (CaCO3)	mg/L	307	308	182	241	216	0.50	8402931
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**Elements**

Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000020	8405683
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**Total Metals by ICPMS**

Total Aluminum (Al)	mg/L	0.957	0.351	0.602	<0.0030	4.22	0.0030	8405832
Total Antimony (Sb)	mg/L	0.000267	0.000309	0.000048	0.000037	0.000245	0.000020	8405832
Total Arsenic (As)	mg/L	0.00226	0.00246	0.000588	0.000920	0.00492	0.000020	8405832
Total Barium (Ba)	mg/L	0.0955	0.0804	0.0208	0.0961	0.354	0.000050	8405832
Total Beryllium (Be)	mg/L	0.000069	0.000074	0.000014	<0.000010	0.000345	0.000010	8405832
Total Bismuth (Bi)	mg/L	0.000044	0.000042	<0.000010	<0.000010	0.000163	0.000010	8405832
Total Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	8405832
Total Cadmium (Cd)	mg/L	0.000278	0.000234	0.0000330	<0.0000050	0.000542	0.0000050	8405832
Total Chromium (Cr)	mg/L	0.00269	0.00090	0.00096	<0.00010	0.0112	0.00010	8405832
Total Cobalt (Co)	mg/L	0.00245	0.000502	0.000531	0.000033	0.00634	0.000010	8405832
Total Copper (Cu)	mg/L	0.00845	0.00234	0.00279	0.00026	0.0267	0.00010	8405832
Total Iron (Fe)	mg/L	5.29	2.05	1.64	<0.0050	12.1	0.0050	8405832
Total Lead (Pb)	mg/L	0.00442	0.0245	0.000658	<0.000020	0.0232	0.000020	8405832
Total Lithium (Li)	mg/L	0.0108	0.0109	0.00124	0.00171	0.00328	0.00050	8405832
Total Manganese (Mn)	mg/L	0.623	0.186	0.0307	<0.00010	0.659	0.00010	8405832
Total Molybdenum (Mo)	mg/L	0.00296	0.000741	0.000728	0.000802	0.000879	0.000050	8405832
Total Nickel (Ni)	mg/L	0.00352	0.00072	0.00105	0.00015	0.0118	0.00010	8405832
Total Phosphorus (P)	mg/L	0.158	0.0438	0.0624	<0.0050	0.215	0.0050	8405832
Total Selenium (Se)	mg/L	0.000050	0.000053	0.000269	0.00194	0.00152	0.000040	8405832
Total Silicon (Si)	mg/L	5.32	4.62	2.34	2.21	7.74	0.050	8405832
Total Silver (Ag)	mg/L	0.00376	0.000438	0.000287	0.000017	0.000303	0.000010	8405832
Total Strontium (Sr)	mg/L	0.509	0.519	0.161	0.301	0.289	0.000050	8405832
Total Thallium (Tl)	mg/L	0.0000400	0.0000190	0.0000070	0.0000020	0.0000370	0.0000020	8405832
Total Tin (Sn)	mg/L	<0.00020	0.00027	<0.00020	<0.00020	0.00034	0.00020	8405832
Total Titanium (Ti)	mg/L	0.0754	0.0151	0.0397	<0.0020	0.462	0.0020	8405832
Total Uranium (U)	mg/L	0.0129	0.0119	0.00178	0.00336	0.00165	0.0000050	8405832
Total Vanadium (V)	mg/L	0.00353	0.00111	0.00313	<0.00020	0.0303	0.00020	8405832

RDL = Reportable Detection Limit

Maxxam Job #: B681195  
Report Date: 2016/09/26

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PN8378	PN8379	PN8380	PN8381	PN8382		
Sampling Date		2016/09/14 08:55	2016/09/14 09:28	2016/09/14 10:35	2016/09/14 11:45	2016/09/14 12:30		
COC Number		08427461	08427461	08427461	08427461	08427461		
	UNITS	MW15-11S	MW15-11D	MW15-01	MW15-02	BH95G-32	RDL	QC Batch
Total Zinc (Zn)	mg/L	0.0217	0.0529	0.0088	<0.0010	0.0526	0.0010	8405832
Total Zirconium (Zr)	mg/L	0.00198	0.00176	0.00023	<0.00010	0.00100	0.00010	8405832
Total Calcium (Ca)	mg/L	83.6	83.1	60.3	77.1	76.6	0.25	8402954
Total Magnesium (Mg)	mg/L	23.8	24.5	7.58	11.7	6.07	0.25	8402954
Total Potassium (K)	mg/L	4.53	4.13	0.53	2.39	5.29	0.25	8402954
Total Sodium (Na)	mg/L	2.77	3.09	1.00	0.73	0.76	0.25	8402954
Total Sulphur (S)	mg/L	23.7	23.7	12.4	19.5	11.5	3.0	8402954
RDL = Reportable Detection Limit								

Maxxam Job #: B681195  
Report Date: 2016/09/26

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PN8383	PN8384		
Sampling Date		2016/09/14 13:40	2016/09/14		
COC Number		08427461	08427461		
	<b>UNITS</b>	<b>BH95G-31</b>	<b>DUP1</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>					
Total Hardness (CaCO3)	mg/L	151	182	0.50	8402931
<b>Elements</b>					
Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	0.0000020	8405701
<b>Total Metals by ICPMS</b>					
Total Aluminum (Al)	mg/L	0.542	0.697	0.0030	8405832
Total Antimony (Sb)	mg/L	0.000076	0.000067	0.000020	8405832
Total Arsenic (As)	mg/L	0.00195	0.000606	0.000020	8405832
Total Barium (Ba)	mg/L	0.154	0.0229	0.000050	8405832
Total Beryllium (Be)	mg/L	0.000019	0.000016	0.000010	8405832
Total Bismuth (Bi)	mg/L	0.000034	<0.000010	0.000010	8405832
Total Boron (B)	mg/L	<0.010	<0.010	0.010	8405832
Total Cadmium (Cd)	mg/L	0.000119	0.0000340	0.0000050	8405832
Total Chromium (Cr)	mg/L	0.00155	0.00108	0.00010	8405832
Total Cobalt (Co)	mg/L	0.00229	0.000585	0.000010	8405832
Total Copper (Cu)	mg/L	0.0213	0.00292	0.00010	8405832
Total Iron (Fe)	mg/L	3.01	1.82	0.0050	8405832
Total Lead (Pb)	mg/L	0.00959	0.000688	0.000020	8405832
Total Lithium (Li)	mg/L	0.00156	0.00171	0.00050	8405832
Total Manganese (Mn)	mg/L	0.0399	0.0329	0.00010	8405832
Total Molybdenum (Mo)	mg/L	0.00161	0.000739	0.000050	8405832
Total Nickel (Ni)	mg/L	0.00535	0.00119	0.00010	8405832
Total Phosphorus (P)	mg/L	0.0358	0.0784	0.0050	8405832
Total Selenium (Se)	mg/L	0.00166	0.000279	0.000040	8405832
Total Silicon (Si)	mg/L	3.58	2.40	0.050	8405832
Total Silver (Ag)	mg/L	0.000137	0.000315	0.000010	8405832
Total Strontium (Sr)	mg/L	0.190	0.166	0.000050	8405832
Total Thallium (Tl)	mg/L	0.0000090	0.0000060	0.0000020	8405832
Total Tin (Sn)	mg/L	<0.00020	<0.00020	0.00020	8405832
Total Titanium (Ti)	mg/L	0.0420	0.0460	0.0020	8405832
Total Uranium (U)	mg/L	0.00105	0.00176	0.0000050	8405832
Total Vanadium (V)	mg/L	0.00411	0.00339	0.00020	8405832
RDL = Reportable Detection Limit					

Maxxam Job #: B681195  
Report Date: 2016/09/26

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PN8383	PN8384		
Sampling Date		2016/09/14 13:40	2016/09/14		
COC Number		08427461	08427461		
	UNITS	BH95G-31	DUP1	RDL	QC Batch
Total Zinc (Zn)	mg/L	0.0107	0.0088	0.0010	8405832
Total Zirconium (Zr)	mg/L	0.00026	0.00031	0.00010	8405832
Total Calcium (Ca)	mg/L	55.5	60.1	0.25	8402954
Total Magnesium (Mg)	mg/L	3.02	7.68	0.25	8402954
Total Potassium (K)	mg/L	2.90	0.55	0.25	8402954
Total Sodium (Na)	mg/L	0.95	1.01	0.25	8402954
Total Sulphur (S)	mg/L	7.1	12.3	3.0	8402954
RDL = Reportable Detection Limit					

Maxxam Job #: B681195  
Report Date: 2016/09/26

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PN8373  
**Sample ID:** BH95G-29  
**Matrix:** Water

**Collected:** 2016/09/13  
**Shipped:**  
**Received:** 2016/09/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8403626	N/A	2016/09/20	Maria Maclean
Alkalinity - Water	AT/ALK	8404269	2016/09/20	2016/09/20	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8405319	N/A	2016/09/20	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8404524	N/A	2016/09/20	Isabel Choi
Conductance - water	AT/ALK	8404274	N/A	2016/09/20	Wilson Au Yueng
Fluoride	ISE/ISE	8405649	N/A	2016/09/20	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8402931	N/A	2016/09/22	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8402836	N/A	2016/09/22	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8405708	N/A	2016/09/21	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8405683	2016/09/21	2016/09/21	Edwin Lamigo
Ion Balance	CALC	8403437	N/A	2016/09/22	Automated Statchk
Sum of cations, anions	CALC	8403438	N/A	2016/09/22	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8403160	N/A	2016/09/22	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8404749	N/A	2016/09/21	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8405832	2016/09/21	2016/09/22	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8402954	N/A	2016/09/22	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8404294	N/A	2016/09/20	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8406382	N/A	2016/09/20	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8406390	N/A	2016/09/20	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8403439	N/A	2016/09/21	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8404138	N/A	2016/09/20	Lucy Luo
pH Water	AT/ALK	8404273	N/A	2016/09/20	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8405323	N/A	2016/09/20	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8404766	2016/09/20	2016/09/20	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8404768	N/A	2016/09/20	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8403976	2016/09/20	2016/09/21	Wendy Fong

**Maxxam ID:** PN8373 Dup  
**Sample ID:** BH95G-29  
**Matrix:** Water

**Collected:** 2016/09/13  
**Shipped:**  
**Received:** 2016/09/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8405708	N/A	2016/09/21	Edwin Lamigo

**Maxxam ID:** PN8374  
**Sample ID:** MW16-15S  
**Matrix:** Water

**Collected:** 2016/09/13  
**Shipped:**  
**Received:** 2016/09/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8403626	N/A	2016/09/20	Maria Maclean
Alkalinity - Water	AT/ALK	8404269	2016/09/20	2016/09/20	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8405319	N/A	2016/09/20	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8404524	N/A	2016/09/20	Isabel Choi
Conductance - water	AT/ALK	8404274	N/A	2016/09/20	Wilson Au Yueng



Maxxam Job #: B681195  
Report Date: 2016/09/26

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PN8374  
**Sample ID:** MW16-15S  
**Matrix:** Water

**Collected:** 2016/09/13  
**Shipped:**  
**Received:** 2016/09/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Fluoride	ISE/ISE	8405649	N/A	2016/09/20	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8402931	N/A	2016/09/22	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8402836	N/A	2016/09/22	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8405708	N/A	2016/09/21	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8405683	2016/09/21	2016/09/21	Edwin Lamigo
Ion Balance	CALC	8403437	N/A	2016/09/22	Automated Statchk
Sum of cations, anions	CALC	8403438	N/A	2016/09/22	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8403160	N/A	2016/09/22	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8404749	N/A	2016/09/21	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8405832	2016/09/21	2016/09/22	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8402954	N/A	2016/09/22	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8404294	N/A	2016/09/20	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8406382	N/A	2016/09/20	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8406390	N/A	2016/09/20	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8403439	N/A	2016/09/21	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8404138	N/A	2016/09/20	Lucy Luo
pH Water	AT/ALK	8404273	N/A	2016/09/20	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8405323	N/A	2016/09/20	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8404766	2016/09/20	2016/09/20	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8404768	N/A	2016/09/20	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8403976	2016/09/20	2016/09/21	Wendy Fong

**Maxxam ID:** PN8375  
**Sample ID:** MW16-15D  
**Matrix:** Water

**Collected:** 2016/09/13  
**Shipped:**  
**Received:** 2016/09/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8403626	N/A	2016/09/20	Maria Maclean
Alkalinity - Water	AT/ALK	8404269	2016/09/20	2016/09/20	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8405319	N/A	2016/09/20	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8404525	N/A	2016/09/20	Isabel Choi
Conductance - water	AT/ALK	8404274	N/A	2016/09/20	Wilson Au Yueng
Fluoride	ISE/ISE	8405649	N/A	2016/09/20	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8402931	N/A	2016/09/22	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8402836	N/A	2016/09/22	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8405708	N/A	2016/09/21	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8405683	2016/09/21	2016/09/21	Edwin Lamigo
Ion Balance	CALC	8403437	N/A	2016/09/22	Automated Statchk
Sum of cations, anions	CALC	8403438	N/A	2016/09/22	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8403160	N/A	2016/09/22	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8404749	N/A	2016/09/21	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8405832	2016/09/21	2016/09/22	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8402954	N/A	2016/09/22	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8404294	N/A	2016/09/20	Clare Kwok

Maxxam Job #: B681195  
Report Date: 2016/09/26

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PN8375  
**Sample ID:** MW16-15D  
**Matrix:** Water

**Collected:** 2016/09/13  
**Shipped:**  
**Received:** 2016/09/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrate+Nitrite (N) (low level)	TRAA/COL	8406382	N/A	2016/09/20	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8406390	N/A	2016/09/20	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8403439	N/A	2016/09/21	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8404138	N/A	2016/09/20	Lucy Luo
pH Water	AT/ALK	8404273	N/A	2016/09/20	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8405323	N/A	2016/09/20	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8404766	2016/09/20	2016/09/20	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8404768	N/A	2016/09/20	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8403976	2016/09/20	2016/09/21	Wendy Fong

**Maxxam ID:** PN8375 Dup  
**Sample ID:** MW16-15D  
**Matrix:** Water

**Collected:** 2016/09/13  
**Shipped:**  
**Received:** 2016/09/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Water	AT/ALK	8404269	2016/09/20	2016/09/20	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8405319	N/A	2016/09/20	Balwinder Bassi
Conductance - water	AT/ALK	8404274	N/A	2016/09/20	Wilson Au Yueng
Fluoride	ISE/ISE	8405649	N/A	2016/09/20	Balwinder Bassi
Nitrate+Nitrite (N) (low level)	TRAA/COL	8406382	N/A	2016/09/20	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8406390	N/A	2016/09/20	Isaac Wang
pH Water	AT/ALK	8404273	N/A	2016/09/20	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8405323	N/A	2016/09/20	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8404766	2016/09/20	2016/09/20	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8404768	N/A	2016/09/20	Isabel Choi

**Maxxam ID:** PN8376  
**Sample ID:** BH95G-21  
**Matrix:** Water

**Collected:** 2016/09/13  
**Shipped:**  
**Received:** 2016/09/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8403626	N/A	2016/09/20	Maria Maclean
Alkalinity - Water	AT/ALK	8404269	2016/09/20	2016/09/20	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8405319	N/A	2016/09/20	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8404525	N/A	2016/09/20	Isabel Choi
Conductance - water	AT/ALK	8404274	N/A	2016/09/20	Wilson Au Yueng
Fluoride	ISE/ISE	8405649	N/A	2016/09/20	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8402931	N/A	2016/09/22	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8402836	N/A	2016/09/22	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8405708	N/A	2016/09/21	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8405683	2016/09/21	2016/09/21	Edwin Lamigo
Ion Balance	CALC	8403437	N/A	2016/09/22	Automated Statchk
Sum of cations, anions	CALC	8403438	N/A	2016/09/22	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8403160	N/A	2016/09/22	Automated Statchk

Maxxam Job #: B681195  
Report Date: 2016/09/26

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PN8376  
**Sample ID:** BH95G-21  
**Matrix:** Water

**Collected:** 2016/09/13  
**Shipped:**  
**Received:** 2016/09/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8404749	N/A	2016/09/21	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8405832	2016/09/21	2016/09/22	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8402954	N/A	2016/09/22	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8404289	N/A	2016/09/20	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8406382	N/A	2016/09/20	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8406390	N/A	2016/09/20	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8403439	N/A	2016/09/21	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8404138	N/A	2016/09/20	Lucy Luo
pH Water	AT/ALK	8404273	N/A	2016/09/20	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8405323	N/A	2016/09/20	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8404766	2016/09/20	2016/09/20	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8404768	N/A	2016/09/20	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8403976	2016/09/20	2016/09/21	Wendy Fong

**Maxxam ID:** PN8377  
**Sample ID:** BH95G-22  
**Matrix:** Water

**Collected:** 2016/09/13  
**Shipped:**  
**Received:** 2016/09/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8404451	N/A	2016/09/20	Maria Maclean
Alkalinity - Water	AT/ALK	8404269	2016/09/20	2016/09/20	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8405319	N/A	2016/09/20	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8404524	N/A	2016/09/20	Isabel Choi
Conductance - water	AT/ALK	8404274	N/A	2016/09/20	Wilson Au Yueng
Fluoride	ISE/ISE	8405649	N/A	2016/09/20	Balwinder Bassi
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8402931	N/A	2016/09/22	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8402836	N/A	2016/09/22	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8405708	N/A	2016/09/21	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8405683	2016/09/21	2016/09/21	Edwin Lamigo
Ion Balance	CALC	8403437	N/A	2016/09/22	Automated Statchk
Sum of cations, anions	CALC	8403438	N/A	2016/09/22	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8403160	N/A	2016/09/22	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8404749	N/A	2016/09/21	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8405832	2016/09/21	2016/09/22	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8402954	N/A	2016/09/22	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8404294	N/A	2016/09/20	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8406391	N/A	2016/09/20	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8406392	N/A	2016/09/20	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8403439	N/A	2016/09/21	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8404138	N/A	2016/09/20	Lucy Luo
pH Water	AT/ALK	8404273	N/A	2016/09/20	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8405323	N/A	2016/09/20	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8404766	2016/09/20	2016/09/20	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8404768	N/A	2016/09/20	Isabel Choi

Maxxam Job #: B681195  
Report Date: 2016/09/26

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PN8377  
**Sample ID:** BH95G-22  
**Matrix:** Water

**Collected:** 2016/09/13  
**Shipped:**  
**Received:** 2016/09/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Suspended Solids-Low Level	BAL/BAL	8403976	2016/09/20	2016/09/21	Wendy Fong

**Maxxam ID:** PN8378  
**Sample ID:** MW15-11S  
**Matrix:** Water

**Collected:** 2016/09/14  
**Shipped:**  
**Received:** 2016/09/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8403626	N/A	2016/09/20	Maria Maclean
Alkalinity - Water	AT/ALK	8404269	2016/09/20	2016/09/20	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8405319	N/A	2016/09/20	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8404525	N/A	2016/09/20	Isabel Choi
Conductance - water	AT/ALK	8404274	N/A	2016/09/20	Wilson Au Yueng
Fluoride	ISE/ISE	8405649	N/A	2016/09/20	Balwinder Bassi
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8402931	N/A	2016/09/22	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8402836	N/A	2016/09/22	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8405708	N/A	2016/09/21	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8405683	2016/09/21	2016/09/21	Edwin Lamigo
Ion Balance	CALC	8403437	N/A	2016/09/22	Automated Statchk
Sum of cations, anions	CALC	8403438	N/A	2016/09/22	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8403160	N/A	2016/09/22	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8404749	N/A	2016/09/21	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8405832	2016/09/21	2016/09/22	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8402954	N/A	2016/09/22	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8404294	N/A	2016/09/20	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8406382	N/A	2016/09/20	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8406390	N/A	2016/09/20	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8403439	N/A	2016/09/21	Automated Statchk
Filter and HNO <sub>3</sub> Preserve for Metals	ICP	8404138	N/A	2016/09/20	Lucy Luo
pH Water	AT/ALK	8404273	N/A	2016/09/20	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8405323	N/A	2016/09/20	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8404766	2016/09/20	2016/09/20	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8404768	N/A	2016/09/20	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8404157	2016/09/20	2016/09/21	Wendy Fong

**Maxxam ID:** PN8379  
**Sample ID:** MW15-11D  
**Matrix:** Water

**Collected:** 2016/09/14  
**Shipped:**  
**Received:** 2016/09/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8404451	N/A	2016/09/20	Maria Maclean
Alkalinity - Water	AT/ALK	8404269	2016/09/20	2016/09/20	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8405319	N/A	2016/09/20	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8404524	N/A	2016/09/20	Isabel Choi
Conductance - water	AT/ALK	8404274	N/A	2016/09/20	Wilson Au Yueng

Maxxam Job #: B681195  
Report Date: 2016/09/26

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PN8379  
**Sample ID:** MW15-11D  
**Matrix:** Water

**Collected:** 2016/09/14  
**Shipped:**  
**Received:** 2016/09/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Fluoride	ISE/ISE	8405649	N/A	2016/09/20	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8402931	N/A	2016/09/22	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8402836	N/A	2016/09/22	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8405708	N/A	2016/09/21	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8405683	2016/09/21	2016/09/21	Edwin Lamigo
Ion Balance	CALC	8403437	N/A	2016/09/22	Automated Statchk
Sum of cations, anions	CALC	8403438	N/A	2016/09/22	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8403160	N/A	2016/09/22	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8404749	N/A	2016/09/21	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8405832	2016/09/21	2016/09/22	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8402954	N/A	2016/09/22	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8404294	N/A	2016/09/20	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8406382	N/A	2016/09/20	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8406390	N/A	2016/09/20	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8403439	N/A	2016/09/21	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8404138	N/A	2016/09/20	Lucy Luo
pH Water	AT/ALK	8404273	N/A	2016/09/20	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8405323	N/A	2016/09/20	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8404766	2016/09/20	2016/09/20	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8404768	N/A	2016/09/20	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8404157	2016/09/20	2016/09/21	Wendy Fong

**Maxxam ID:** PN8380  
**Sample ID:** MW15-01  
**Matrix:** Water

**Collected:** 2016/09/14  
**Shipped:**  
**Received:** 2016/09/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8403626	N/A	2016/09/20	Maria Maclean
Alkalinity - Water	AT/ALK	8404269	2016/09/20	2016/09/20	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8405319	N/A	2016/09/20	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8404525	N/A	2016/09/20	Isabel Choi
Conductance - water	AT/ALK	8404274	N/A	2016/09/20	Wilson Au Yueng
Fluoride	ISE/ISE	8405649	N/A	2016/09/20	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8402931	N/A	2016/09/22	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8402836	N/A	2016/09/22	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8405708	N/A	2016/09/21	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8405683	2016/09/21	2016/09/21	Edwin Lamigo
Ion Balance	CALC	8403437	N/A	2016/09/22	Automated Statchk
Sum of cations, anions	CALC	8403438	N/A	2016/09/22	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8403160	N/A	2016/09/22	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8404749	N/A	2016/09/21	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8405832	2016/09/21	2016/09/22	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8402954	N/A	2016/09/22	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8404294	N/A	2016/09/20	Clare Kwok

Maxxam Job #: B681195  
Report Date: 2016/09/26

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PN8380  
**Sample ID:** MW15-01  
**Matrix:** Water

**Collected:** 2016/09/14  
**Shipped:**  
**Received:** 2016/09/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrate+Nitrite (N) (low level)	TRAA/COL	8406382	N/A	2016/09/20	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8406390	N/A	2016/09/20	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8403439	N/A	2016/09/21	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8404138	N/A	2016/09/20	Lucy Luo
pH Water	AT/ALK	8404273	N/A	2016/09/20	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8405323	N/A	2016/09/20	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8408622	2016/09/23	2016/09/23	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8408630	N/A	2016/09/23	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8404157	2016/09/20	2016/09/21	Wendy Fong

**Maxxam ID:** PN8381  
**Sample ID:** MW15-02  
**Matrix:** Water

**Collected:** 2016/09/14  
**Shipped:**  
**Received:** 2016/09/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8403626	N/A	2016/09/20	Maria Maclean
Alkalinity - Water	AT/ALK	8404269	2016/09/20	2016/09/20	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8405319	N/A	2016/09/20	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8404525	N/A	2016/09/20	Isabel Choi
Conductance - water	AT/ALK	8404274	N/A	2016/09/20	Wilson Au Yueng
Fluoride	ISE/ISE	8405649	N/A	2016/09/20	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8402931	N/A	2016/09/22	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8402836	N/A	2016/09/22	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8405708	N/A	2016/09/21	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8405683	2016/09/21	2016/09/21	Edwin Lamigo
Ion Balance	CALC	8403437	N/A	2016/09/22	Automated Statchk
Sum of cations, anions	CALC	8403438	N/A	2016/09/22	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8403160	N/A	2016/09/22	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8404749	N/A	2016/09/21	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8405832	2016/09/21	2016/09/22	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8402954	N/A	2016/09/22	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8404294	N/A	2016/09/20	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8406382	N/A	2016/09/20	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8406390	N/A	2016/09/20	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8403439	N/A	2016/09/21	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8404138	N/A	2016/09/20	Lucy Luo
pH Water	AT/ALK	8404273	N/A	2016/09/20	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8405323	N/A	2016/09/20	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8404766	2016/09/20	2016/09/20	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8404768	N/A	2016/09/20	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8404157	2016/09/20	2016/09/21	Wendy Fong



Maxxam Job #: B681195  
Report Date: 2016/09/26

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PN8381 Dup  
**Sample ID:** MW15-02  
**Matrix:** Water

**Collected:** 2016/09/14  
**Shipped:**  
**Received:** 2016/09/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbon (DOC) - field filtered/preserved	TRAA/COL	8404525	N/A	2016/09/20	Isabel Choi

**Maxxam ID:** PN8382  
**Sample ID:** BH95G-32  
**Matrix:** Water

**Collected:** 2016/09/14  
**Shipped:**  
**Received:** 2016/09/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8403626	N/A	2016/09/20	Maria Maclean
Alkalinity - Water	AT/ALK	8404269	2016/09/20	2016/09/20	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8405319	N/A	2016/09/20	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8404525	N/A	2016/09/20	Isabel Choi
Conductance - water	AT/ALK	8404274	N/A	2016/09/20	Wilson Au Yueng
Fluoride	ISE/ISE	8405649	N/A	2016/09/20	Balwinder Bassi
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8402931	N/A	2016/09/22	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8402836	N/A	2016/09/22	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8405708	N/A	2016/09/21	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8405683	2016/09/21	2016/09/21	Edwin Lamigo
Ion Balance	CALC	8403437	N/A	2016/09/22	Automated Statchk
Sum of cations, anions	CALC	8403438	N/A	2016/09/22	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8403160	N/A	2016/09/22	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8404749	N/A	2016/09/21	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8405832	2016/09/21	2016/09/22	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8402954	N/A	2016/09/22	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8404294	N/A	2016/09/20	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8406382	N/A	2016/09/20	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8406390	N/A	2016/09/20	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8403439	N/A	2016/09/21	Automated Statchk
Filter and HNO <sub>3</sub> Preserve for Metals	ICP	8404138	N/A	2016/09/20	Lucy Luo
pH Water	AT/ALK	8404273	N/A	2016/09/20	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8405323	N/A	2016/09/20	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8404766	2016/09/20	2016/09/20	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8404768	N/A	2016/09/20	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8404157	2016/09/20	2016/09/21	Wendy Fong

**Maxxam ID:** PN8383  
**Sample ID:** BH95G-31  
**Matrix:** Water

**Collected:** 2016/09/14  
**Shipped:**  
**Received:** 2016/09/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8403626	N/A	2016/09/20	Maria Maclean
Alkalinity - Water	AT/ALK	8404269	2016/09/20	2016/09/20	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8405319	N/A	2016/09/20	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8404524	N/A	2016/09/20	Isabel Choi
Conductance - water	AT/ALK	8404274	N/A	2016/09/20	Wilson Au Yueng

Maxxam Job #: B681195  
Report Date: 2016/09/26

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PN8383  
**Sample ID:** BH95G-31  
**Matrix:** Water

**Collected:** 2016/09/14  
**Shipped:**  
**Received:** 2016/09/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Fluoride	ISE/ISE	8405649	N/A	2016/09/20	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8402931	N/A	2016/09/22	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8402836	N/A	2016/09/22	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8405708	N/A	2016/09/21	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8405701	2016/09/21	2016/09/21	Edwin Lamigo
Ion Balance	CALC	8403437	N/A	2016/09/22	Automated Statchk
Sum of cations, anions	CALC	8403438	N/A	2016/09/22	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8403160	N/A	2016/09/22	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8404749	N/A	2016/09/21	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8405832	2016/09/21	2016/09/22	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8402954	N/A	2016/09/22	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8404294	N/A	2016/09/20	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8406382	N/A	2016/09/20	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8406390	N/A	2016/09/20	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8403439	N/A	2016/09/21	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8404138	N/A	2016/09/20	Lucy Luo
pH Water	AT/ALK	8404273	N/A	2016/09/20	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8405323	N/A	2016/09/20	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8404766	2016/09/20	2016/09/20	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8404768	N/A	2016/09/20	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8404157	2016/09/20	2016/09/21	Wendy Fong

**Maxxam ID:** PN8384  
**Sample ID:** DUP1  
**Matrix:** Water

**Collected:** 2016/09/14  
**Shipped:**  
**Received:** 2016/09/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8403626	N/A	2016/09/20	Maria Maclean
Alkalinity - Water	AT/ALK	8404269	2016/09/20	2016/09/20	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8405319	N/A	2016/09/20	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8404524	N/A	2016/09/20	Isabel Choi
Conductance - water	AT/ALK	8404274	N/A	2016/09/20	Wilson Au Yueng
Fluoride	ISE/ISE	8405649	N/A	2016/09/20	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8402931	N/A	2016/09/22	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8402836	N/A	2016/09/22	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8405708	N/A	2016/09/21	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8405701	2016/09/21	2016/09/21	Edwin Lamigo
Ion Balance	CALC	8403437	N/A	2016/09/22	Automated Statchk
Sum of cations, anions	CALC	8403438	N/A	2016/09/22	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8403160	N/A	2016/09/22	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8404749	N/A	2016/09/21	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8405832	2016/09/21	2016/09/22	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8402954	N/A	2016/09/22	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8404294	N/A	2016/09/20	Clare Kwok



Maxxam Job #: B681195  
Report Date: 2016/09/26

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**TEST SUMMARY**

**Maxxam ID:** PN8384  
**Sample ID:** DUP1  
**Matrix:** Water

**Collected:** 2016/09/14  
**Shipped:**  
**Received:** 2016/09/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrate+Nitrite (N) (low level)	TRAA/COL	8406382	N/A	2016/09/20	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8406390	N/A	2016/09/20	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8403439	N/A	2016/09/21	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8404138	N/A	2016/09/20	Lucy Luo
pH Water	AT/ALK	8404273	N/A	2016/09/20	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8405323	N/A	2016/09/20	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8408622	2016/09/23	2016/09/23	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8408630	N/A	2016/09/23	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8404157	2016/09/20	2016/09/21	Wendy Fong

Maxxam Job #: B681195  
Report Date: 2016/09/26

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**GENERAL COMMENTS**

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	15.0°C
Package 2	15.7°C
Package 3	15.3°C

Samples were received at the analytical laboratory past the recommended hold time for Nitrite, Nitrate + Nitrite, Dissolved Phosphorus and Total Phosphorus.

Sample PN8373-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PN8374-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PN8375-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PN8376-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PN8377-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PN8378-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PN8379-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PN8380-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PN8381-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PN8382-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PN8383-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PN8384-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

**LL TOTAL METALS (DIGESTED) WITH CV HG Comments**

- Sample PN8373-03 Elements by ICPMS Digested LL (total): RDL raised due to sample matrix interference.
- Sample PN8374-03 Elements by ICPMS Digested LL (total): RDL raised due to sample matrix interference.
- Sample PN8375-03 Elements by ICPMS Digested LL (total): RDL raised due to sample matrix interference.
- Sample PN8376-03 Elements by ICPMS Digested LL (total): RDL raised due to sample matrix interference.
- Sample PN8377-03 Elements by ICPMS Digested LL (total): RDL raised due to sample matrix interference.

**Results relate only to the items tested.**

Maxxam Job #: B681195  
Report Date: 2016/09/26

**QUALITY ASSURANCE REPORT**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8403626	Acidity (pH 4.5)	2016/09/20							NC	20
8403626	Acidity (pH 8.3)	2016/09/20			101	80 - 120	<0.50	mg/L	NC	20
8403976	Total Suspended Solids	2016/09/21			99	80 - 120	<1.0	mg/L		
8404157	Total Suspended Solids	2016/09/21			104	80 - 120	<1.0	mg/L		
8404269	Alkalinity (PP as CaCO3)	2016/09/20					<0.50	mg/L	NC	20
8404269	Alkalinity (Total as CaCO3)	2016/09/20	NC	80 - 120	91	80 - 120	<0.50	mg/L	0.87	20
8404269	Bicarbonate (HCO3)	2016/09/20					<0.50	mg/L	0.87	20
8404269	Carbonate (CO3)	2016/09/20					<0.50	mg/L	NC	20
8404269	Hydroxide (OH)	2016/09/20					<0.50	mg/L	NC	20
8404273	pH	2016/09/20			102	97 - 103			0.63	N/A
8404274	Conductivity	2016/09/20			101	80 - 120	<1.0	uS/cm	0.27	20
8404289	Total Ammonia (N)	2016/09/20	94	80 - 120	104	80 - 120	<0.0050	mg/L	9.4	20
8404294	Total Ammonia (N)	2016/09/20	101	80 - 120	106	80 - 120	<0.0050	mg/L	NC	20
8404451	Acidity (pH 4.5)	2016/09/20					<0.50	mg/L	NC	20
8404451	Acidity (pH 8.3)	2016/09/20			100	80 - 120	<0.50	mg/L	NC	20
8404524	Dissolved Organic Carbon (C)	2016/09/20	NC	80 - 120	115	80 - 120	<0.50	mg/L	4.5	20
8404525	Dissolved Organic Carbon (C)	2016/09/20	106	80 - 120	108	80 - 120	<0.50	mg/L	NC	20
8404749	Dissolved Aluminum (Al)	2016/09/21	107	80 - 120	103	80 - 120	<0.00050	mg/L	NC	20
8404749	Dissolved Antimony (Sb)	2016/09/21	98	80 - 120	99	80 - 120	<0.000020	mg/L	NC	20
8404749	Dissolved Arsenic (As)	2016/09/21	103	80 - 120	101	80 - 120	<0.000020	mg/L	NC	20
8404749	Dissolved Barium (Ba)	2016/09/21	98	80 - 120	99	80 - 120	<0.000020	mg/L	3.7	20
8404749	Dissolved Beryllium (Be)	2016/09/21	107	80 - 120	102	80 - 120	<0.000010	mg/L	NC	20
8404749	Dissolved Bismuth (Bi)	2016/09/21	97	80 - 120	94	80 - 120	<0.0000050	mg/L	NC	20
8404749	Dissolved Boron (B)	2016/09/21	107	80 - 120	106	80 - 120	<0.010	mg/L	NC	20
8404749	Dissolved Cadmium (Cd)	2016/09/21	96	80 - 120	97	80 - 120	<0.0000050	mg/L	NC	20
8404749	Dissolved Chromium (Cr)	2016/09/21	97	80 - 120	99	80 - 120	<0.00010	mg/L	NC	20
8404749	Dissolved Cobalt (Co)	2016/09/21	97	80 - 120	99	80 - 120	<0.0000050	mg/L	NC	20
8404749	Dissolved Copper (Cu)	2016/09/21	97	80 - 120	100	80 - 120	<0.000050	mg/L	NC	20
8404749	Dissolved Iron (Fe)	2016/09/21	100	80 - 120	100	80 - 120	<0.0010	mg/L	NC	20
8404749	Dissolved Lead (Pb)	2016/09/21	100	80 - 120	97	80 - 120	<0.0000050	mg/L	NC	20
8404749	Dissolved Lithium (Li)	2016/09/21	106	80 - 120	94	80 - 120	<0.00050	mg/L	NC	20

Maxxam Job #: B681195  
Report Date: 2016/09/26

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8404749	Dissolved Manganese (Mn)	2016/09/21	96	80 - 120	99	80 - 120	<0.000050	mg/L	NC	20
8404749	Dissolved Molybdenum (Mo)	2016/09/21	94	80 - 120	97	80 - 120	<0.000050	mg/L	NC	20
8404749	Dissolved Nickel (Ni)	2016/09/21	98	80 - 120	100	80 - 120	<0.000020	mg/L	NC	20
8404749	Dissolved Phosphorus (P)	2016/09/21					0.0022, RDL=0.0020	mg/L		
8404749	Dissolved Selenium (Se)	2016/09/21	104	80 - 120	101	80 - 120	<0.000040	mg/L	NC	20
8404749	Dissolved Silicon (Si)	2016/09/21					<0.050	mg/L	NC	20
8404749	Dissolved Silver (Ag)	2016/09/21	82	80 - 120	96	80 - 120	<0.0000050	mg/L	NC	20
8404749	Dissolved Strontium (Sr)	2016/09/21	95	80 - 120	103	80 - 120	<0.000050	mg/L	1.9	20
8404749	Dissolved Thallium (Tl)	2016/09/21	96	80 - 120	94	80 - 120	<0.0000020	mg/L	NC	20
8404749	Dissolved Tin (Sn)	2016/09/21	97	80 - 120	102	80 - 120	<0.00020	mg/L	NC	20
8404749	Dissolved Titanium (Ti)	2016/09/21	105	80 - 120	98	80 - 120	<0.00050	mg/L	NC	20
8404749	Dissolved Uranium (U)	2016/09/21	97	80 - 120	95	80 - 120	<0.0000020	mg/L	NC	20
8404749	Dissolved Vanadium (V)	2016/09/21	96	80 - 120	100	80 - 120	<0.00020	mg/L	NC	20
8404749	Dissolved Zinc (Zn)	2016/09/21	107	80 - 120	100	80 - 120	<0.00010	mg/L	NC	20
8404749	Dissolved Zirconium (Zr)	2016/09/21					<0.00010	mg/L	NC	20
8404766	Dissolved Phosphorus (P)	2016/09/20	NC	80 - 120	92	80 - 120	<0.0020	mg/L	0.32	20
8404768	Total Phosphorus (P)	2016/09/20	NC	80 - 120	93	80 - 120	<0.0020	mg/L	1.3	20
8405319	Dissolved Chloride (Cl)	2016/09/20	99	80 - 120	100	80 - 120	<0.50	mg/L	NC	20
8405323	Dissolved Sulphate (SO4)	2016/09/20	NC	80 - 120	95	80 - 120	<0.50	mg/L	0.85	20
8405649	Fluoride (F)	2016/09/20	98	80 - 120	100	80 - 120	0.016, RDL=0.010	mg/L	0	20
8405683	Total Mercury (Hg)	2016/09/21	95	80 - 120	100	80 - 120	<0.000020 (1)	mg/L	NC	20
8405701	Total Mercury (Hg)	2016/09/21	95	80 - 120	96	80 - 120	<0.0000020	mg/L	NC	20
8405708	Dissolved Mercury (Hg)	2016/09/21	84	80 - 120	95	80 - 120	<0.0000020	mg/L	NC	20
8405832	Total Aluminum (Al)	2016/09/22	NC	80 - 120	109	80 - 120	<0.0030	mg/L	NC	20
8405832	Total Antimony (Sb)	2016/09/22	129 (2)	80 - 120	104	80 - 120	<0.000020	mg/L	NC	20
8405832	Total Arsenic (As)	2016/09/22	115	80 - 120	104	80 - 120	<0.000020	mg/L	NC	20
8405832	Total Barium (Ba)	2016/09/22	NC	80 - 120	106	80 - 120	<0.000050	mg/L	0.35	20
8405832	Total Beryllium (Be)	2016/09/22	100	80 - 120	106	80 - 120	<0.000010	mg/L	NC	20
8405832	Total Bismuth (Bi)	2016/09/22	100	80 - 120	101	80 - 120	<0.000010	mg/L	NC	20

Maxxam Job #: B681195  
Report Date: 2016/09/26

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8405832	Total Boron (B)	2016/09/22	NC	80 - 120	103	80 - 120	<0.010	mg/L	NC	20
8405832	Total Cadmium (Cd)	2016/09/22	98	80 - 120	103	80 - 120	<0.0000050	mg/L	NC	20
8405832	Total Chromium (Cr)	2016/09/22	93	80 - 120	103	80 - 120	<0.00010	mg/L	NC	20
8405832	Total Cobalt (Co)	2016/09/22	94	80 - 120	103	80 - 120	<0.000010	mg/L	NC	20
8405832	Total Copper (Cu)	2016/09/22	NC	80 - 120	106	80 - 120	<0.00010	mg/L	11	20
8405832	Total Iron (Fe)	2016/09/22	90	80 - 120	98	80 - 120	<0.0050	mg/L	NC	20
8405832	Total Lead (Pb)	2016/09/22	98	80 - 120	101	80 - 120	<0.000020	mg/L	NC	20
8405832	Total Lithium (Li)	2016/09/22	NC	80 - 120	99	80 - 120	<0.00050	mg/L	NC	20
8405832	Total Manganese (Mn)	2016/09/22	NC	80 - 120	101	80 - 120	<0.00010	mg/L	15	20
8405832	Total Molybdenum (Mo)	2016/09/22	NC	80 - 120	103	80 - 120	<0.000050	mg/L	NC	20
8405832	Total Nickel (Ni)	2016/09/22	NC	80 - 120	103	80 - 120	<0.00010	mg/L	9.8	20
8405832	Total Phosphorus (P)	2016/09/22					<0.0050	mg/L		
8405832	Total Selenium (Se)	2016/09/22	113	80 - 120	110	80 - 120	<0.000040	mg/L	NC	20
8405832	Total Silicon (Si)	2016/09/22					<0.050	mg/L	NC	20
8405832	Total Silver (Ag)	2016/09/22	134 (2)	80 - 120	91	80 - 120	<0.000010	mg/L	NC	20
8405832	Total Strontium (Sr)	2016/09/22	NC	80 - 120	104	80 - 120	<0.000050	mg/L	8.2	20
8405832	Total Thallium (Tl)	2016/09/22	103	80 - 120	95	80 - 120	<0.0000020	mg/L	NC	20
8405832	Total Tin (Sn)	2016/09/22	133 (2)	80 - 120	102	80 - 120	<0.00020	mg/L	NC	20
8405832	Total Titanium (Ti)	2016/09/22	105	80 - 120	94	80 - 120	<0.0020	mg/L	NC	20
8405832	Total Uranium (U)	2016/09/22	108	80 - 120	102	80 - 120	<0.0000050	mg/L	3.8	20
8405832	Total Vanadium (V)	2016/09/22	100	80 - 120	100	80 - 120	<0.00020	mg/L	NC	20
8405832	Total Zinc (Zn)	2016/09/22	NC	80 - 120	104	80 - 120	<0.0010	mg/L	NC	20
8405832	Total Zirconium (Zr)	2016/09/22					<0.00010	mg/L	NC	20
8406382	Nitrate plus Nitrite (N)	2016/09/20	103	80 - 120	106	80 - 120	<0.0020	mg/L	NC	25
8406390	Nitrite (N)	2016/09/20	96	80 - 120	99	80 - 120	<0.0020	mg/L	NC	25
8406391	Nitrate plus Nitrite (N)	2016/09/20	94	80 - 120	108	80 - 120	<0.0020	mg/L	0.76	25
8406392	Nitrite (N)	2016/09/20	96	80 - 120	102	80 - 120	<0.0020	mg/L	NC	25
8408622	Dissolved Phosphorus (P)	2016/09/23			109	80 - 120	<0.0020	mg/L		

Maxxam Job #: B681195  
Report Date: 2016/09/26

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8408630	Total Phosphorus (P)	2016/09/23	NC	80 - 120	109	80 - 120	<0.0020	mg/L	7.5	20

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

(1) RDL raised due to sample matrix interference sample dilution required

(2) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Maxxam Job #: B681195  
Report Date: 2016/09/26

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



---

David Huang, M.Sc., P.Chem., QP, Scientific Services Manager

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5. Toll Free (800) 665-8566

COC #: \_\_\_\_\_

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: <b>BMC MINERALS LTD.</b>	Company Name: <b>ALEXCO ENVIRONMENTAL</b>	Quotation #: <b>B60751</b>	<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses)
Contact Name: _____	Contact Name: <b>KAI WOLOSHYN</b>	P.O. #/ AFE#: _____	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: <b>530-1130 WEST PENDER ST</b> Vancouver, BC PC: V6E 4A4	Address: <b>UNIT 3 151 INDUSTRIAL RD</b> Whitehorse, YK PC: V1A 2V3	Project #: <b>BMC-16-01</b>	<b>Rush TAT (Surcharges will be applied)</b>
Phone: _____	Phone: <b>(867) 668-6463</b>	Site Location: <b>Kudz Ze Kayah</b>	<input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days
Email: _____	Email: <b>kwoloshyn@alexcoresource.com</b>	Site #: _____	<input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days
Sampled By: _____			Date Required: _____

Regulatory Criteria	Special Instructions	Analysis Requested	Rush Confirmation #:																												
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> CCME (Specify) _____ <input type="checkbox"/> Drinking Water	<input type="checkbox"/> BC CSR Water <input type="checkbox"/> Other (Specify) _____ <input type="checkbox"/> BC Water Quality	<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify) _____ <b>Also send report to:</b> hfougere@accessconsulting.ca nspneiss@accessconsulting.ca	LABORATORY USE ONLY																												
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM			<table border="1"> <tr> <th colspan="2">CUSTODY SEAL</th> <th colspan="2">COOLER TEMPERATURES</th> </tr> <tr> <td>Y/N</td> <td>(N)</td> <td colspan="2"></td> </tr> <tr> <td>Present</td> <td>Intact</td> <td>3/2/7</td> <td></td> </tr> <tr> <td>NA</td> <td>NA</td> <td>5/2/2</td> <td></td> </tr> <tr> <td>NA</td> <td>NA</td> <td>2/3/3</td> <td></td> </tr> <tr> <td colspan="2">COOLING MEDIA PRESENT</td> <td>(N)</td> <td>N</td> </tr> <tr> <td colspan="4">COMMENTS</td> </tr> </table>	CUSTODY SEAL		COOLER TEMPERATURES		Y/N	(N)			Present	Intact	3/2/7		NA	NA	5/2/2		NA	NA	2/3/3		COOLING MEDIA PRESENT		(N)	N	COMMENTS			
CUSTODY SEAL		COOLER TEMPERATURES																													
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NA	NA	2/3/3																													
COOLING MEDIA PRESENT		(N)	N																												
COMMENTS																															

Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	TOTAL LOW LEVEL METALS INCL. MERCURY	DISSOLVED LOW LEVEL METALS INCL. MERCURY	LOW LEVEL TSS	ANIONS (Cl, F, SO4, NO2, NO3)	AMMONIA	CONDUCTIVITY	pH	ALKALINITY & ACIDITY	DOC	TOTAL PHOSPHORUS - LOW LEVEL	DISSOLVED PHOSPHORUS - LOW LEVEL	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE
1	BH95G-29	13-Sep-16	13:40	Water	X	X	X	X	X	X	X	X	X	X	X		
2	MW16-15S	13-Sep-16	14:20	Water	X	X	X	X	X	X	X	X	X	X	X		
3	MW16-15D	13-Sep-16	15:05	Water	X	X	X	X	X	X	X	X	X	X	X		
4	BH95G-21	13-Sep-16	15:36	Water	X	X	X	X	X	X	X	X	X	X	X		
5	BH95G-22	13-Sep-16	16:30	Water	X	X	X	X	X	X	X	X	X	X	X		
6	MW15-11S	14-Sep-16	8:55	Water	X	X	X	X	X	X	X	X	X	X	X		
7	MW15-11D	14-Sep-16	9:28	Water	X	X	X	X	X	X	X	X	X	X	X		
8	MW15-01	14-Sep-16	10:35	Water	X	X	X	X	X	X	X	X	X	X	X		
9	MW15-02	14-Sep-16	11:45	Water	X	X	X	X	X	X	X	X	X	X	X		
10	BH95G-32	14-Sep-16	12:30	Water	X	X	X	X	X	X	X	X	X	X	X		

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)
			<i>Avanti Patel</i>	2016/09/19	13:20



B681195\_COC





Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: <b>BMC MINERALS LTD.</b>	Company Name: <b>ALEXCO ENVIRONMENTAL</b>	Quotation #: <b>B60751</b>	<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses)
Contact Name:	Contact Name: <b>KAI WOLOSHYN</b>	P.O. #/ AFE#:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: <b>530-1130 WEST PENDER ST</b> Vancouver, BC PC: V6E 4A4	Address: <b>UNIT 3 151 INDUSTRIAL RD</b> Whitehorse, YK PC: V1A 2V3	Project #: <b>BMC-16-01</b>	<b>Rush TAT (Surcharges will be applied)</b>
Phone:	Phone: <b>(867) 668-6463</b>	Site Location: <b>Kudz Ze Kayah</b>	<input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days
Email:	Email: <b>kwoloshyn@alexcoresource.com</b>	Site #:	<input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days
Date Required:			

Regulatory Criteria	Special Instructions	Analysis Requested	Rush Confirmation #:
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> CCME (Specify) <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC CSR Water <input type="checkbox"/> Other (Specify) <input type="checkbox"/> BC Water Quality	<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify) <b>Also send report to:</b> hfougere@accessconsulting.ca nsp@accessconsulting.ca	TOTAL LOW LEVEL METALS INCL. MERCURY DISSOLVED LOW LEVEL METALS INCL. MERCURY LOW LEVEL TSS ANIONS (Cl, F, SO4, NO2, NO3) AMMONIA CONDUCTIVITY PH ALKALINITY & ACIDITY DOC TOTAL PHOSPHORUS - LOW LEVEL DISSOLVED PHOSPHORUS - LOW LEVEL	LABORATORY USE ONLY CUSTODY SEAL Present Intact NA NA 3/2/17 NA NA 5/2/2 NA NA 2/3/3 COOLING MEDIA PRESENT COMMENTS

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	TOTAL LOW LEVEL METALS INCL. MERCURY	DISSOLVED LOW LEVEL METALS INCL. MERCURY	LOW LEVEL TSS	ANIONS (Cl, F, SO4, NO2, NO3)	AMMONIA	CONDUCTIVITY	PH	ALKALINITY & ACIDITY	DOC	TOTAL PHOSPHORUS - LOW LEVEL	DISSOLVED PHOSPHORUS - LOW LEVEL	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE
1	BH95G-31	14-Sep-16	13:40	Water	X	X	X	X	X	X	X	X	X	X	X		
2	DUP1	14-Sep-16		Water	X	X	X	X	X	X	X	X	X	X	X		
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

RECEIVED IN WHITEHORSE  
 BY: *Slymo @ 1540*  
 2016-09-19  
 cooler #  
 TEMP: 15 / 15 / 15 → 1  
 15 / 16 / 16 → 2  
 15 / 15 / 16 → 3

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)
			<i>Avanti Patel</i> AVANTI PATEL	2016/09/19	13:20



B681195\_COC

Your Project #: BMC-16-01  
 Site Location: KUDZ ZE KAYAH  
 Your C.O.C. #: 08428036, 08428037

**Attention: KAI WOLOSHYN**

ALEXCO ENVIRONMENTAL GROUP INC.  
 Unit 3 Calcite Business Centre  
 151 Industrial Road  
 WHITEHORSE, YT  
 Canada Y1A 2V3

**Report Date: 2016/10/12**  
 Report #: R2280840  
 Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B687225**

**Received: 2016/10/03, 15:15**

Sample Matrix: Water  
 # Samples Received: 16

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Acidity pH 4.5 & pH 8.3 (as CaCO3)	16	N/A	2016/10/06	BBY6SOP-00037	SM 22 2310 B m
Alkalinity - Water	16	2016/10/05	2016/10/05	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry	16	N/A	2016/10/06	BBY6SOP-00011	SM 22 4500-Cl- E m
Carbon (DOC) - field filtered/preserved (1)	16	N/A	2016/10/06	BBY6SOP-00003	SM 22 5310 C m
Conductance - water	16	N/A	2016/10/05	BBY6SOP-00026	SM 22 2510 B m
Fluoride	16	N/A	2016/10/05	BBY6SOP-00048	SM 22 4500-F C m
Hardness Total (calculated as CaCO3)	16	N/A	2016/10/06	BBY WI-00033	Auto Calc
Hardness (calculated as CaCO3)	15	N/A	2016/10/06	BBY WI-00033	Auto Calc
Hardness (calculated as CaCO3)	1	N/A	2016/10/07	BBY WI-00033	Auto Calc
Mercury (Dissolved-LowLevel) by CVAF	16	N/A	2016/10/06	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total-LowLevel) by CVAF	16	2016/10/06	2016/10/06	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Ion Balance	15	N/A	2016/10/06	BBY WI-00033	Auto Calc
Ion Balance	1	N/A	2016/10/07	BBY WI-00033	Auto Calc
Sum of cations, anions	15	N/A	2016/10/06	Calc	
Sum of cations, anions	1	N/A	2016/10/07	Calc	
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	15	N/A	2016/10/06	BBY7SOP-00002	EPA 6020B R2 m
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	1	N/A	2016/10/07	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Low Level (dissolved)	16	N/A	2016/10/06	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Digested LL (total)	13	2016/10/05	2016/10/06	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Na, K, Ca, Mg, S by CRC ICPMS (total)	16	N/A	2016/10/06	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Elements by ICPMS Low Level (total)	3	N/A	2016/10/06	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Ammonia-N (Preserved)	16	N/A	2016/10/06	BBY6SOP-00009	SM 22 4500-NH3- G m
Nitrate+Nitrite (N) (low level)	16	N/A	2016/10/05	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) (low level)	16	N/A	2016/10/05	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N)	16	N/A	2016/10/06	BBY6SOP-00010	SM 22 4500-NO3- I m
Filter and HNO3 Preserve for Metals	16	N/A	2016/10/05	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (2)	16	N/A	2016/10/05	BBY6SOP-00026	SM 22 4500-H+ B m
Sulphate by Automated Colourimetry	16	N/A	2016/10/06	BBY6SOP-00017	SM 22 4500-SO42- E m
Phosphorus-P (LL Tot, dissolved) - UF/UP	16	2016/10/05	2016/10/05	BBY6SOP-00013	SM 22 4500-P E m

Your Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Your C.O.C. #: 08428036, 08428037

**Attention: KAI WOLOSHYN**

ALEXCO ENVIRONMENTAL GROUP INC.  
Unit 3 Calcite Business Centre  
151 Industrial Road  
WHITEHORSE, YT  
Canada Y1A 2V3

**Report Date: 2016/10/12**  
Report #: R2280840  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B687225**

**Received: 2016/10/03, 15:15**

Sample Matrix: Water  
# Samples Received: 16

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
Total Phosphorus - unpreserved	15	N/A	2016/10/05	BBY6SOP-00013	SM 22 4500-P E m
Total Phosphorus - unpreserved	1	N/A	2016/10/08	BBY6SOP-00013	SM 22 4500-P E m
Total Suspended Solids-Low Level	16	2016/10/05	2016/10/06	BBY6SOP-00034	SM 22 2540 D

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) DOC present in the sample should be considered as non-purgeable DOC.

(2) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

**Encryption Key**

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Megan Smith, Project Manager

Email: msmith@maxxam.ca

Phone# (604) 734 7276

=====

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PR5403			PR5404		PR5405		PR5406		
Sampling Date		2016/09/30 18:30			2016/10/01 09:30		2016/10/01 09:49		2016/10/01 10:54		
COC Number		08428036			08428036		08428036		08428036		
	<b>UNITS</b>	<b>BH95G-131</b>	<b>RDL</b>	<b>QC Batch</b>	<b>MW15-03D</b>	<b>RDL</b>	<b>MW15-03S</b>	<b>QC Batch</b>	<b>MW15-04D</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Calculated Parameters</b>											
Anion Sum	meq/L	14	N/A	8422093	4.3	N/A	2.9	8422093	3.2	N/A	8422093
Cation Sum	meq/L	13	N/A	8422093	4.2	N/A	2.8	8422093	3.1	N/A	8422093
Filter and HNO3 Preservation	N/A	LAB	N/A	8422689	LAB	N/A	LAB	8422689	LAB	N/A	8422689
Ion Balance	N/A	0.97	0.010	8422092	0.99	0.010	0.98	8422092	0.97	0.010	8422092
Nitrate (N)	mg/L	0.0026	0.0020	8421618	<0.0020	0.0020	0.114	8421618	0.0115	0.0020	8421618
<b>Misc. Inorganics</b>											
Fluoride (F)	mg/L	0.099	0.010	8423449	0.150	0.010	0.058	8423449	0.220	0.010	8423449
Dissolved Organic Carbon (C)	mg/L	1.08	0.50	8424812	<0.50	0.50	<0.50	8424813	<0.50	0.50	8424812
Acidity (pH 4.5)	mg/L	<0.50	0.50	8423014	<0.50	0.50	<0.50	8423014	<0.50	0.50	8423014
Alkalinity (Total as CaCO3)	mg/L	444	0.50	8423393	191	0.50	131	8423393	135	0.50	8423393
Acidity (pH 8.3)	mg/L	8.89	0.50	8423014	<0.50	0.50	<0.50	8423014	<0.50	0.50	8423014
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8423393	<0.50	0.50	<0.50	8423393	<0.50	0.50	8423393
Bicarbonate (HCO3)	mg/L	542	0.50	8423393	233	0.50	160	8423393	165	0.50	8423393
Carbonate (CO3)	mg/L	<0.50	0.50	8423393	<0.50	0.50	<0.50	8423393	<0.50	0.50	8423393
Hydroxide (OH)	mg/L	<0.50	0.50	8423393	<0.50	0.50	<0.50	8423393	<0.50	0.50	8423393
<b>Anions</b>											
Dissolved Sulphate (SO4)	mg/L	229 (1)	5.0	8424709	21.1	0.50	9.77	8424709	19.9	0.50	8424709
Dissolved Chloride (Cl)	mg/L	1.3	0.50	8424705	0.89	0.50	0.73	8424705	0.71	0.50	8424705
<b>Nutrients</b>											
Dissolved Phosphorus (P)	mg/L	0.0330 (2)	0.0020	8423090	0.0035 (2)	0.0020	0.0408 (2)	8423090	0.0198 (2)	0.0020	8423090
Total Ammonia (N)	mg/L	0.034	0.0050	8424852	0.24	0.0050	0.046	8424854	0.038	0.0050	8424852
Nitrate plus Nitrite (N)	mg/L	0.0026 (2)	0.0020	8424477	<0.0020 (2)	0.0020	0.114 (2)	8424477	0.0115 (2)	0.0020	8424477
Nitrite (N)	mg/L	<0.0020 (2)	0.0020	8424483	<0.0020 (2)	0.0020	<0.0020 (2)	8424483	<0.0020 (2)	0.0020	8424483
Total Phosphorus (P)	mg/L	0.383 (2)	0.0020	8423108	0.0034 (2)	0.0020	0.198 (2)	8423108	0.113 (2)	0.0020	8423108
<b>Physical Properties</b>											
Conductivity	uS/cm	1140	1.0	8423398	395	1.0	267	8423398	291	1.0	8423398
pH	pH	7.58		8423396	7.94		7.97	8423396	7.97		8423396

RDL = Reportable Detection Limit

N/A = Not Applicable

(1) Detection limits raised due to dilution to bring analyte within the calibrated range.

(2) Sample analysed past recommended hold time.

Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		PR5403			PR5404		PR5405		PR5406		
<b>Sampling Date</b>		2016/09/30 18:30			2016/10/01 09:30		2016/10/01 09:49		2016/10/01 10:54		
<b>COC Number</b>		08428036			08428036		08428036		08428036		
	<b>UNITS</b>	<b>BH95G-131</b>	<b>RDL</b>	<b>QC Batch</b>	<b>MW15-03D</b>	<b>RDL</b>	<b>MW15-03S</b>	<b>QC Batch</b>	<b>MW15-04D</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Physical Properties</b>											
Total Suspended Solids	mg/L	170 (1)	6.7	8422714	3.1	1.0	166 (1)	8422714	147 (1)	4.0	8422714

RDL = Reportable Detection Limit

(1) RDL raised due to high concentration of solids in the sample.

Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PR5407			PR5408			PR5409		
Sampling Date		2016/10/01 11:33			2016/10/01 12:35			2016/10/01 13:30		
COC Number		08428036			08428036			08428036		
	UNITS	MW15-04S	RDL	QC Batch	MW15-07S	RDL	QC Batch	MW15-05D	RDL	QC Batch
<b>Calculated Parameters</b>										
Anion Sum	meq/L	2.5	N/A	8422093	4.2	N/A	8426132	4.3	N/A	8422093
Cation Sum	meq/L	2.4	N/A	8422093	4.2	N/A	8426132	4.1	N/A	8422093
Filter and HNO3 Preservation	N/A	LAB	N/A	8422689	LAB	N/A	8422689	LAB	N/A	8422689
Ion Balance	N/A	0.99	0.010	8422092	0.99	0.010	8426418	0.95	0.010	8422092
Nitrate (N)	mg/L	0.236	0.0020	8421618	<0.0020	0.0020	8421618	0.242	0.0020	8421618
<b>Misc. Inorganics</b>										
Fluoride (F)	mg/L	0.081	0.010	8423449	0.300	0.010	8423449	0.130	0.010	8423449
Dissolved Organic Carbon (C)	mg/L	<0.50	0.50	8424813	<0.50	0.50	8424813	0.98	0.50	8424813
Acidity (pH 4.5)	mg/L	<0.50	0.50	8423014	<0.50	0.50	8423018	<0.50	0.50	8423014
Alkalinity (Total as CaCO3)	mg/L	113	0.50	8423393	176	0.50	8423393	183	0.50	8423393
Acidity (pH 8.3)	mg/L	<0.50	0.50	8423014	<0.50	0.50	8423018	<0.50	0.50	8423014
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8423393	<0.50	0.50	8423393	<0.50	0.50	8423393
Bicarbonate (HCO3)	mg/L	137	0.50	8423393	215	0.50	8423393	223	0.50	8423393
Carbonate (CO3)	mg/L	<0.50	0.50	8423393	<0.50	0.50	8423393	<0.50	0.50	8423393
Hydroxide (OH)	mg/L	<0.50	0.50	8423393	<0.50	0.50	8423393	<0.50	0.50	8423393
<b>Anions</b>										
Dissolved Sulphate (SO4)	mg/L	8.94	0.50	8424709	32.6	0.50	8424709	29.1	0.50	8424709
Dissolved Chloride (Cl)	mg/L	0.69	0.50	8424705	0.63	0.50	8424705	0.77	0.50	8424705
<b>Nutrients</b>										
Dissolved Phosphorus (P)	mg/L	0.0859 (1)	0.0020	8423090	0.0131 (1)	0.0020	8423090	0.0245 (1)	0.0020	8423090
Total Ammonia (N)	mg/L	0.057	0.0050	8424854	0.026	0.0050	8424854	0.037	0.0050	8424854
Nitrate plus Nitrite (N)	mg/L	0.236 (1)	0.0020	8424477	<0.0020 (1)	0.0020	8424477	0.242 (1)	0.0020	8424477
Nitrite (N)	mg/L	<0.0020 (1)	0.0020	8424483	0.0020 (1)	0.0020	8424483	<0.0020 (1)	0.0020	8424483
Total Phosphorus (P)	mg/L	0.529 (2)	0.020	8423108	0.0150 (1)	0.0020	8423108	0.132 (1)	0.0020	8423108
<b>Physical Properties</b>										
Conductivity	uS/cm	231	1.0	8423398	382	1.0	8423398	388	1.0	8423398
pH	pH	8.00		8423396	7.86		8423396	7.88		8423396
RDL = Reportable Detection Limit N/A = Not Applicable (1) Sample analysed past recommended hold time. (2) Detection limits raised due to dilution to bring analyte within the calibrated range. Sample analysed past recommended hold time.										

Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		PR5407			PR5408			PR5409		
<b>Sampling Date</b>		2016/10/01 11:33			2016/10/01 12:35			2016/10/01 13:30		
<b>COC Number</b>		08428036			08428036			08428036		
	<b>UNITS</b>	<b>MW15-04S</b>	<b>RDL</b>	<b>QC Batch</b>	<b>MW15-07S</b>	<b>RDL</b>	<b>QC Batch</b>	<b>MW15-05D</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Physical Properties</b>										
Total Suspended Solids	mg/L	476 (1)	4.0	8422714	17.3	1.0	8422714	728 (1)	20	8422714
RDL = Reportable Detection Limit										
(1) RDL raised due to high concentration of solids in the sample.										

Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PR5410			PR5411		PR5412	PR5419		
Sampling Date		2016/10/01 14:47			2016/10/01		2016/10/02 09:36	2016/10/02 10:47		
COC Number		08428036			08428036		08428036	08428037		
	<b>UNITS</b>	<b>MW15-08S</b>	<b>RDL</b>	<b>QC Batch</b>	<b>DUP1</b>	<b>QC Batch</b>	<b>MW16-15S</b>	<b>MW16-15D</b>	<b>RDL</b>	<b>QC Batch</b>

Calculated Parameters										
Anion Sum	meq/L	4.2	N/A	8422093	3.2	8422093	2.6	4.0	N/A	8422093
Cation Sum	meq/L	4.0	N/A	8422093	3.1	8422093	2.5	3.8	N/A	8422093
Filter and HNO3 Preservation	N/A	LAB	N/A	8422689	LAB	8422689	LAB	LAB	N/A	8422689
Ion Balance	N/A	0.97	0.010	8422092	0.98	8422092	0.96	0.97	0.010	8422092
Nitrate (N)	mg/L	0.269	0.0020	8421618	0.0135	8421618	0.537	<0.0020	0.0020	8421618

Misc. Inorganics										
Fluoride (F)	mg/L	0.089	0.010	8423449	0.210	8423449	0.047	0.100	0.010	8423449
Dissolved Organic Carbon (C)	mg/L	0.89	0.50	8424813	<0.50	8424813	1.14	<0.50	0.50	8424813
Acidity (pH 4.5)	mg/L	<0.50	0.50	8423014	<0.50	8423014	<0.50	<0.50	0.50	8423014
Alkalinity (Total as CaCO3)	mg/L	181	0.50	8423393	136	8423393	90.4	126	0.50	8423393
Acidity (pH 8.3)	mg/L	<0.50	0.50	8423014	<0.50	8423014	0.90	<0.50	0.50	8423014
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8423393	<0.50	8423393	<0.50	<0.50	0.50	8423393
Bicarbonate (HCO3)	mg/L	221	0.50	8423393	166	8423393	110	154	0.50	8423393
Carbonate (CO3)	mg/L	<0.50	0.50	8423393	<0.50	8423393	<0.50	<0.50	0.50	8423393
Hydroxide (OH)	mg/L	<0.50	0.50	8423393	<0.50	8423393	<0.50	<0.50	0.50	8423393

Anions										
Dissolved Sulphate (SO4)	mg/L	25.0	0.50	8424709	18.9	8424709	36.6	68.7	0.50	8424709
Dissolved Chloride (Cl)	mg/L	0.75	0.50	8424705	0.83	8424705	0.96	0.91	0.50	8424705

Nutrients										
Dissolved Phosphorus (P)	mg/L	0.0147 (1)	0.0020	8423090	0.0113 (1)	8423090	0.0184	0.0241	0.0020	8423090
Total Ammonia (N)	mg/L	0.023	0.0050	8424854	0.068	8424852	0.0094	0.041	0.0050	8424854
Nitrate plus Nitrite (N)	mg/L	0.269 (1)	0.0020	8424477	0.0135 (1)	8424477	0.537	<0.0020	0.0020	8424477
Nitrite (N)	mg/L	<0.0020 (1)	0.0020	8424483	<0.0020 (1)	8424483	<0.0020	<0.0020	0.0020	8424483
Total Phosphorus (P)	mg/L	0.0118 (1)	0.0020	8427749	0.0805 (1)	8423108	0.211	0.198	0.0020	8423108

Physical Properties										
Conductivity	uS/cm	384	1.0	8423398	292	8423398	256	378	1.0	8423398
pH	pH	7.94		8423396	8.00	8423396	7.29	7.98		8423396

Physical Properties										
Total Suspended Solids	mg/L	12.4	1.0	8422714	109 (2)	8422734	197 (2)	301 (2)	2.0	8422734

RDL = Reportable Detection Limit  
N/A = Not Applicable  
(1) Sample analysed past recommended hold time.  
(2) RDL raised due to high concentration of solids in the sample.



Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PR5420		PR5421	PR5422		PR5423		PR5424		
Sampling Date		2016/10/02 12:55		2016/10/02 14:20	2016/10/02 15:34		2016/10/02 16:53		2016/10/02		
COC Number		08428037		08428037	08428037		08428037		08428037		
	UNITS	BH95G-32	RDL	BH95G-2	MW15-01	RDL	MW16-14D	RDL	DUP2	RDL	QC Batch

<b>Calculated Parameters</b>											
Anion Sum	meq/L	4.2	N/A	6.3	4.6	N/A	5.0	N/A	4.1	N/A	8422093
Cation Sum	meq/L	4.1	N/A	6.1	4.5	N/A	4.8	N/A	3.9	N/A	8422093
Filter and HNO3 Preservation	N/A	LAB	N/A	LAB	LAB	N/A	LAB	N/A	LAB	N/A	8422689
Ion Balance	N/A	0.98	0.010	0.96	0.98	0.010	0.95	0.010	0.95	0.010	8422092
Nitrate (N)	mg/L	0.0561	0.0020	0.443	0.458	0.0020	<0.0020	0.0020	0.0020	0.0020	8421618
<b>Misc. Inorganics</b>											
Fluoride (F)	mg/L	0.035	0.010	0.057	0.099	0.010	0.230	0.010	0.099	0.010	8423449
Dissolved Organic Carbon (C)	mg/L	<0.50	0.50	0.73	1.69	0.50	0.58	0.50	0.69	0.50	8424813
Acidity (pH 4.5)	mg/L	<0.50	0.50	<0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	8423014
Alkalinity (Total as CaCO3)	mg/L	175	0.50	271	152	0.50	159	0.50	130	0.50	8423393
Acidity (pH 8.3)	mg/L	<0.50	0.50	<0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	8423014
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	<0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	8423393
Bicarbonate (HCO3)	mg/L	214	0.50	330	185	0.50	194	0.50	158	0.50	8423393
Carbonate (CO3)	mg/L	<0.50	0.50	<0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	8423393
Hydroxide (OH)	mg/L	<0.50	0.50	<0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	8423393
<b>Anions</b>											
Dissolved Sulphate (SO4)	mg/L	34.0	0.50	40.1	73.0	0.50	87.7	0.50	68.4	0.50	8424709
Dissolved Chloride (Cl)	mg/L	0.89	0.50	0.88	0.95	0.50	0.88	0.50	0.96	0.50	8424705
<b>Nutrients</b>											
Dissolved Phosphorus (P)	mg/L	0.0120	0.0020	0.0061	0.0041	0.0020	0.0135	0.0020	0.0300	0.0020	8423090
Total Ammonia (N)	mg/L	0.26	0.0050	0.085	0.13	0.0050	0.058	0.0050	0.030	0.0050	8424854
Nitrate plus Nitrite (N)	mg/L	0.0561	0.0020	0.443	0.461	0.0020	<0.0020	0.0020	0.0020	0.0020	8424477
Nitrite (N)	mg/L	<0.0020	0.0020	<0.0020	0.0030	0.0020	<0.0020	0.0020	<0.0020	0.0020	8424483
Total Phosphorus (P)	mg/L	0.139	0.0020	0.0069	0.0286	0.0020	0.0274	0.0020	0.230	0.0020	8423108
<b>Physical Properties</b>											
Conductivity	uS/cm	400	1.0	555	428	1.0	466	1.0	376	1.0	8423398
pH	pH	7.87		7.94	7.97		7.88		7.94		8423396
RDL = Reportable Detection Limit N/A = Not Applicable											

Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		PR5420		PR5421	PR5422		PR5423		PR5424		
<b>Sampling Date</b>		2016/10/02 12:55		2016/10/02 14:20	2016/10/02 15:34		2016/10/02 16:53		2016/10/02		
<b>COC Number</b>		08428037		08428037	08428037		08428037		08428037		
	<b>UNITS</b>	<b>BH95G-32</b>	<b>RDL</b>	<b>BH95G-2</b>	<b>MW15-01</b>	<b>RDL</b>	<b>MW16-14D</b>	<b>RDL</b>	<b>DUP2</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Physical Properties</b>											
Total Suspended Solids	mg/L	91.8 (1)	2.0	<1.0	36.3	1.0	74.5 (1)	1.7	280 (2)	3.3	8422734

RDL = Reportable Detection Limit  
(1) RDL raised due to sample matrix interference.  
(2) RDL raised due to high concentration of solids in the sample.

Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PR5403		PR5404	PR5405		
Sampling Date		2016/09/30 18:30		2016/10/01 09:30	2016/10/01 09:49		
COC Number		08428036		08428036	08428036		
	UNITS	BH95G-131	QC Batch	MW15-03D	MW15-03S	RDL	QC Batch
<b>Misc. Inorganics</b>							
Dissolved Hardness (CaCO3)	mg/L	655	8422091	203	137	0.50	8422091
<b>Elements</b>							
Dissolved Mercury (Hg)	mg/L	<0.0000020	8424150	<0.0000020	<0.0000020	0.0000020	8424135
<b>Dissolved Metals by ICPMS</b>							
Dissolved Aluminum (Al)	mg/L	0.00105	8423304	0.00057	0.00219	0.00050	8423304
Dissolved Antimony (Sb)	mg/L	0.00167	8423304	0.000037	<0.000020	0.000020	8423304
Dissolved Arsenic (As)	mg/L	0.00173	8423304	0.00137	0.000201	0.000020	8423304
Dissolved Barium (Ba)	mg/L	0.0299	8423304	0.0477	0.0429	0.000020	8423304
Dissolved Beryllium (Be)	mg/L	<0.000010	8423304	<0.000010	<0.000010	0.000010	8423304
Dissolved Bismuth (Bi)	mg/L	<0.0000050	8423304	<0.0000050	<0.0000050	0.0000050	8423304
Dissolved Boron (B)	mg/L	<0.010	8423304	<0.010	<0.010	0.010	8423304
Dissolved Cadmium (Cd)	mg/L	<0.0000050	8423304	<0.0000050	0.0000050	0.0000050	8423304
Dissolved Chromium (Cr)	mg/L	<0.00010	8423304	<0.00010	0.00012	0.00010	8423304
Dissolved Cobalt (Co)	mg/L	0.000109	8423304	0.0000370	0.0000130	0.0000050	8423304
Dissolved Copper (Cu)	mg/L	<0.000050	8423304	<0.000050	0.000142	0.000050	8423304
Dissolved Iron (Fe)	mg/L	0.0012	8423304	0.0025	<0.0010	0.0010	8423304
Dissolved Lead (Pb)	mg/L	0.0000840	8423304	<0.0000050	<0.0000050	0.0000050	8423304
Dissolved Lithium (Li)	mg/L	0.0184	8423304	0.00670	0.00123	0.00050	8423304
Dissolved Manganese (Mn)	mg/L	0.153	8423304	0.0544	0.00481	0.000050	8423304
Dissolved Molybdenum (Mo)	mg/L	0.000132	8423304	0.00328	0.00112	0.000050	8423304
Dissolved Nickel (Ni)	mg/L	0.000390	8423304	0.000142	0.000515	0.000020	8423304
Dissolved Phosphorus (P)	mg/L	0.0292	8423304	<0.0020	<0.0020	0.0020	8423304
Dissolved Selenium (Se)	mg/L	0.000042	8423304	<0.000040	0.000267	0.000040	8423304
Dissolved Silicon (Si)	mg/L	11.9	8423304	4.95	2.99	0.050	8423304
Dissolved Silver (Ag)	mg/L	0.0000150	8423304	<0.0000050	<0.0000050	0.0000050	8423304
Dissolved Strontium (Sr)	mg/L	0.916	8423304	0.270	0.161	0.000050	8423304
Dissolved Thallium (Tl)	mg/L	0.0000020	8423304	<0.0000020	<0.0000020	0.0000020	8423304
Dissolved Tin (Sn)	mg/L	<0.00020	8423304	<0.00020	<0.00020	0.00020	8423304
Dissolved Titanium (Ti)	mg/L	<0.00050	8423304	<0.00050	<0.00050	0.00050	8423304
Dissolved Uranium (U)	mg/L	0.0122	8423304	0.00251	0.000596	0.0000020	8423304
Dissolved Vanadium (V)	mg/L	<0.00020	8423304	<0.00020	<0.00020	0.00020	8423304
RDL = Reportable Detection Limit							

Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PR5403		PR5404	PR5405		
Sampling Date		2016/09/30 18:30		2016/10/01 09:30	2016/10/01 09:49		
COC Number		08428036		08428036	08428036		
	UNITS	BH95G-131	QC Batch	MW15-03D	MW15-03S	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	0.00155	8423304	0.00011	<0.00010	0.00010	8423304
Dissolved Zirconium (Zr)	mg/L	0.00525	8427147	<0.00010	<0.00010	0.00010	8423304
Dissolved Calcium (Ca)	mg/L	166	8421359	55.8	48.0	0.050	8421359
Dissolved Magnesium (Mg)	mg/L	58.5	8421359	15.5	4.19	0.050	8421359
Dissolved Potassium (K)	mg/L	4.05	8421359	2.48	1.00	0.050	8421359
Dissolved Sodium (Na)	mg/L	3.05	8421359	1.84	0.773	0.050	8421359
Dissolved Sulphur (S)	mg/L	82.8	8421359	8.2	3.3	3.0	8421359
RDL = Reportable Detection Limit							

Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		PR5406		PR5407		PR5408		
<b>Sampling Date</b>		2016/10/01 10:54		2016/10/01 11:33		2016/10/01 12:35		
<b>COC Number</b>		08428036		08428036		08428036		
	<b>UNITS</b>	<b>MW15-04D</b>	<b>QC Batch</b>	<b>MW15-04S</b>	<b>QC Batch</b>	<b>MW15-07S</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO3)	mg/L	147	8422091	118	8422091	199 (1)	0.50	8425828
<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	0.0000032	8424135	<0.0000020	8424135	<0.0000020	0.0000020	8424135
<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	0.00162	8423304	0.00218	8423304	<0.00050	0.00050	8423304
Dissolved Antimony (Sb)	mg/L	<0.000020	8423304	<0.000020	8423304	<0.000020	0.000020	8423304
Dissolved Arsenic (As)	mg/L	0.00167	8423304	0.000155	8423304	0.00133	0.000020	8427147
Dissolved Barium (Ba)	mg/L	0.0581	8423304	0.0739	8423304	0.0317 (1)	0.000020	8427147
Dissolved Beryllium (Be)	mg/L	<0.000010	8423304	<0.000010	8423304	<0.000010	0.000010	8423304
Dissolved Bismuth (Bi)	mg/L	<0.0000050	8423304	<0.0000050	8423304	<0.0000050	0.0000050	8423304
Dissolved Boron (B)	mg/L	<0.010	8423304	<0.010	8423304	<0.010	0.010	8423304
Dissolved Cadmium (Cd)	mg/L	0.0000100	8423304	<0.0000050	8423304	<0.0000050	0.0000050	8423304
Dissolved Chromium (Cr)	mg/L	<0.00010	8423304	0.00026	8423304	<0.00010	0.00010	8423304
Dissolved Cobalt (Co)	mg/L	0.000246	8423304	<0.0000050	8423304	0.0000550	0.0000050	8423304
Dissolved Copper (Cu)	mg/L	<0.000050	8423304	<0.000050	8423304	<0.000050	0.000050	8423304
Dissolved Iron (Fe)	mg/L	<0.0010	8423304	<0.0010	8423304	<0.0010	0.0010	8423304
Dissolved Lead (Pb)	mg/L	<0.0000050	8423304	<0.0000050	8423304	<0.0000050	0.0000050	8423304
Dissolved Lithium (Li)	mg/L	0.00075	8423304	<0.00050	8423304	0.00683	0.00050	8427147
Dissolved Manganese (Mn)	mg/L	0.169	8423304	0.000364	8423304	0.144 (1)	0.000050	8427147
Dissolved Molybdenum (Mo)	mg/L	0.00209 (1)	8427147	0.00121	8423304	0.000196	0.000050	8423304
Dissolved Nickel (Ni)	mg/L	0.000740	8423304	0.000065	8423304	0.000080	0.000020	8423304
Dissolved Phosphorus (P)	mg/L	<0.0020	8423304	<0.0020	8423304	<0.0020	0.0020	8423304
Dissolved Selenium (Se)	mg/L	0.000078	8423304	0.000848	8427147	<0.000040	0.000040	8423304
Dissolved Silicon (Si)	mg/L	3.05	8423304	3.37	8423304	6.56 (1)	0.050	8427147
Dissolved Silver (Ag)	mg/L	<0.0000050	8423304	<0.0000050	8423304	<0.0000050	0.0000050	8423304
Dissolved Strontium (Sr)	mg/L	0.214	8423304	0.161	8423304	0.263 (1)	0.000050	8427147
Dissolved Thallium (Tl)	mg/L	<0.0000020	8423304	<0.0000020	8423304	<0.0000020	0.0000020	8423304
Dissolved Tin (Sn)	mg/L	<0.00020	8423304	<0.00020	8423304	<0.00020	0.00020	8423304
Dissolved Titanium (Ti)	mg/L	<0.00050	8423304	<0.00050	8423304	<0.00050	0.00050	8423304
Dissolved Uranium (U)	mg/L	0.000896	8423304	0.000590	8423304	0.00178 (1)	0.0000020	8427147

RDL = Reportable Detection Limit  
(1) Dissolved greater than total. Reanalysis yields similar results.

Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PR5406		PR5407		PR5408		
Sampling Date		2016/10/01 10:54		2016/10/01 11:33		2016/10/01 12:35		
COC Number		08428036		08428036		08428036		
	UNITS	MW15-04D	QC Batch	MW15-04S	QC Batch	MW15-07S	RDL	QC Batch
Dissolved Vanadium (V)	mg/L	<0.00020	8423304	<0.00020	8423304	<0.00020	0.00020	8423304
Dissolved Zinc (Zn)	mg/L	0.00020	8423304	<0.00010	8423304	<0.00010	0.00010	8423304
Dissolved Zirconium (Zr)	mg/L	<0.00010	8423304	<0.00010	8423304	<0.00010	0.00010	8423304
Dissolved Calcium (Ca)	mg/L	50.5	8421359	42.2	8421359	62.4 (1)	0.050	8425829
Dissolved Magnesium (Mg)	mg/L	5.05	8421359	3.18	8421359	10.4 (1)	0.050	8425829
Dissolved Potassium (K)	mg/L	2.25	8421359	1.27	8421359	1.35 (1)	0.050	8425829
Dissolved Sodium (Na)	mg/L	1.42	8421359	0.884	8421359	3.62 (1)	0.050	8425829
Dissolved Sulphur (S)	mg/L	6.3	8421359	3.1	8421359	11.4	3.0	8425829
RDL = Reportable Detection Limit								
(1) Dissolved greater than total. Reanalysis yields similar results.								

Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		PR5409		PR5410		PR5411		
<b>Sampling Date</b>		2016/10/01 13:30		2016/10/01 14:47		2016/10/01		
<b>COC Number</b>		08428036		08428036		08428036		
	<b>UNITS</b>	<b>MW15-05D</b>	<b>QC Batch</b>	<b>MW15-08S</b>	<b>QC Batch</b>	<b>DUP1</b>	<b>RDL</b>	<b>QC Batch</b>

**Misc. Inorganics**

Dissolved Hardness (CaCO <sub>3</sub> )	mg/L	199	8422091	198	8422091	148	0.50	8422091
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**Elements**

Dissolved Mercury (Hg)	mg/L	<0.0000020	8424135	<0.0000020	8424135	<0.0000020	0.0000020	8424135
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**Dissolved Metals by ICPMS**

Dissolved Aluminum (Al)	mg/L	0.00122	8423304	0.00059	8423304	0.00165	0.00050	8423304
Dissolved Antimony (Sb)	mg/L	<0.000020	8423304	<0.000020	8423304	<0.000020	0.000020	8423304
Dissolved Arsenic (As)	mg/L	0.000104	8423304	0.000454	8423304	0.00164	0.000020	8423304
Dissolved Barium (Ba)	mg/L	0.0475	8423304	0.0612	8423304	0.0580	0.000020	8423304
Dissolved Beryllium (Be)	mg/L	<0.000010	8423304	<0.000010	8423304	<0.000010	0.000010	8423304
Dissolved Bismuth (Bi)	mg/L	<0.0000050	8423304	<0.0000050	8423304	<0.0000050	0.0000050	8423304
Dissolved Boron (B)	mg/L	<0.010	8423304	<0.010	8423304	<0.010	0.010	8423304
Dissolved Cadmium (Cd)	mg/L	0.0000280	8423304	0.0000130	8423304	0.0000100	0.0000050	8423304
Dissolved Chromium (Cr)	mg/L	<0.00010	8423304	<0.00010	8423304	<0.00010	0.00010	8423304
Dissolved Cobalt (Co)	mg/L	0.0000180	8423304	0.0000290	8423304	0.000230	0.0000050	8423304
Dissolved Copper (Cu)	mg/L	0.000079	8423304	0.000106	8423304	0.000051	0.000050	8423304
Dissolved Iron (Fe)	mg/L	<0.0010	8423304	<0.0010	8423304	<0.0010	0.0010	8423304
Dissolved Lead (Pb)	mg/L	0.0000080	8423304	0.0000070	8423304	<0.0000050	0.0000050	8423304
Dissolved Lithium (Li)	mg/L	0.00147	8423304	0.00223	8423304	0.00095	0.00050	8423304
Dissolved Manganese (Mn)	mg/L	0.00285	8423304	0.000511	8423304	0.172	0.000050	8423304
Dissolved Molybdenum (Mo)	mg/L	0.000966 (1)	8427147	0.00194	8423304	0.00195 (1)	0.000050	8427147
Dissolved Nickel (Ni)	mg/L	0.000263	8423304	0.000183	8423304	0.000602	0.000020	8423304
Dissolved Phosphorus (P)	mg/L	<0.0020	8423304	<0.0020	8423304	0.0034	0.0020	8423304
Dissolved Selenium (Se)	mg/L	0.00181 (1)	8427147	0.00217	8427147	0.000077	0.000040	8423304
Dissolved Silicon (Si)	mg/L	2.71	8423304	3.63	8423304	3.03	0.050	8423304
Dissolved Silver (Ag)	mg/L	<0.0000050	8423304	<0.0000050	8423304	<0.0000050	0.0000050	8423304
Dissolved Strontium (Sr)	mg/L	0.288	8423304	0.229	8427147	0.205	0.000050	8423304
Dissolved Thallium (Tl)	mg/L	<0.0000020	8423304	<0.0000020	8423304	<0.0000020	0.0000020	8423304
Dissolved Tin (Sn)	mg/L	<0.00020	8423304	<0.00020	8423304	<0.00020	0.00020	8423304
Dissolved Titanium (Ti)	mg/L	<0.00050	8423304	<0.00050	8423304	<0.00050	0.00050	8423304
Dissolved Uranium (U)	mg/L	0.00205	8423304	0.00244	8423304	0.000883	0.0000020	8423304

RDL = Reportable Detection Limit

(1) Dissolved greater than total. Reanalysis yields similar results.

Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PR5409		PR5410		PR5411		
Sampling Date		2016/10/01 13:30		2016/10/01 14:47		2016/10/01		
COC Number		08428036		08428036		08428036		
	UNITS	MW15-05D	QC Batch	MW15-08S	QC Batch	DUP1	RDL	QC Batch
Dissolved Vanadium (V)	mg/L	<0.00020	8423304	<0.00020	8423304	<0.00020	0.00020	8423304
Dissolved Zinc (Zn)	mg/L	0.00053	8423304	0.00029	8423304	0.00020	0.00010	8423304
Dissolved Zirconium (Zr)	mg/L	<0.00010	8423304	<0.00010	8423304	<0.00010	0.00010	8423304
Dissolved Calcium (Ca)	mg/L	68.7	8421359	69.7	8421359	51.0	0.050	8421359
Dissolved Magnesium (Mg)	mg/L	6.57	8421359	5.85	8421359	4.96	0.050	8421359
Dissolved Potassium (K)	mg/L	1.54	8421359	1.35	8421359	2.23	0.050	8421359
Dissolved Sodium (Na)	mg/L	1.44	8421359	1.19	8421359	1.30	0.050	8421359
Dissolved Sulphur (S)	mg/L	9.8	8421359	8.6	8421359	6.3	3.0	8421359
RDL = Reportable Detection Limit								



Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PR5412	PR5419	PR5420	PR5421		
Sampling Date		2016/10/02 09:36	2016/10/02 10:47	2016/10/02 12:55	2016/10/02 14:20		
COC Number		08428036	08428037	08428037	08428037		
	UNITS	MW16-15S	MW16-15D	BH95G-32	BH95G-2	RDL	QC Batch
<b>Misc. Inorganics</b>							
Dissolved Hardness (CaCO3)	mg/L	122	184	199	301	0.50	8422091
<b>Elements</b>							
Dissolved Mercury (Hg)	mg/L	0.0000028	<0.0000020	<0.0000020	<0.0000020	0.0000020	8424135
<b>Dissolved Metals by ICPMS</b>							
Dissolved Aluminum (Al)	mg/L	0.00219	0.00815	0.00153	<0.00050	0.00050	8423304
Dissolved Antimony (Sb)	mg/L	0.000081	0.000308	0.000029	<0.000020	0.000020	8423304
Dissolved Arsenic (As)	mg/L	0.000281	0.0180	0.000162	0.000080	0.000020	8423304
Dissolved Barium (Ba)	mg/L	0.0696	0.0381	0.179	0.0268	0.000020	8423304
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	0.000010	8423304
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8423304
Dissolved Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	0.010	8423304
Dissolved Cadmium (Cd)	mg/L	0.00166	0.0000240	0.0000450	0.00126	0.0000050	8423304
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	8423304
Dissolved Cobalt (Co)	mg/L	0.000119	0.000140	0.000154	<0.0000050	0.0000050	8423304
Dissolved Copper (Cu)	mg/L	0.00371	0.000058	0.000090	0.000129	0.000050	8423304
Dissolved Iron (Fe)	mg/L	0.0012	<0.0010	<0.0010	<0.0010	0.0010	8423304
Dissolved Lead (Pb)	mg/L	0.0000670	<0.0000050	<0.0000050	<0.0000050	0.0000050	8423304
Dissolved Lithium (Li)	mg/L	0.00211	0.00337	0.00126	0.00131	0.00050	8423304
Dissolved Manganese (Mn)	mg/L	0.0154	0.134	0.0630	0.000138	0.000050	8423304
Dissolved Molybdenum (Mo)	mg/L	0.000331	0.000766	0.000681	0.00219	0.000050	8423304
Dissolved Nickel (Ni)	mg/L	0.00229	0.000202	0.000834	0.000395	0.000020	8423304
Dissolved Phosphorus (P)	mg/L	<0.0020	<0.0020	0.0026	0.0077	0.0020	8423304
Dissolved Selenium (Se)	mg/L	0.00315	0.000045	0.000835	0.00729	0.000040	8423304
Dissolved Silicon (Si)	mg/L	3.51	3.32	2.46	2.44	0.050	8423304
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8423304
Dissolved Strontium (Sr)	mg/L	0.125	0.203	0.293	0.255	0.000050	8423304
Dissolved Thallium (Tl)	mg/L	0.0000030	0.0000020	0.0000030	<0.0000020	0.0000020	8423304
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8423304
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	8423304
Dissolved Uranium (U)	mg/L	0.00186	0.00528	0.00113	0.00310	0.0000020	8423304
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8423304
RDL = Reportable Detection Limit							

Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PR5412	PR5419	PR5420	PR5421		
Sampling Date		2016/10/02 09:36	2016/10/02 10:47	2016/10/02 12:55	2016/10/02 14:20		
COC Number		08428036	08428037	08428037	08428037		
	UNITS	MW16-15S	MW16-15D	BH95G-32	BH95G-2	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	0.164	0.0303	0.00027	0.0164	0.00010	8423304
Dissolved Zirconium (Zr)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	8423304
Dissolved Calcium (Ca)	mg/L	40.3	60.1	73.1	72.5	0.050	8421359
Dissolved Magnesium (Mg)	mg/L	5.24	8.23	3.90	29.1	0.050	8421359
Dissolved Potassium (K)	mg/L	2.27	3.12	4.55	0.403	0.050	8421359
Dissolved Sodium (Na)	mg/L	0.742	1.80	0.639	0.648	0.050	8421359
Dissolved Sulphur (S)	mg/L	12.8	23.7	12.3	14.2	3.0	8421359
RDL = Reportable Detection Limit							

Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PR5422	PR5423	PR5424		
Sampling Date		2016/10/02 15:34	2016/10/02 16:53	2016/10/02		
COC Number		08428037	08428037	08428037		
	<b>UNITS</b>	<b>MW15-01</b>	<b>MW16-14D</b>	<b>DUP2</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Misc. Inorganics</b>						
Dissolved Hardness (CaCO3)	mg/L	222	230	185	0.50	8422091
<b>Elements</b>						
Dissolved Mercury (Hg)	mg/L	<0.0000020	0.0000020	<0.0000020	0.0000020	8424135
<b>Dissolved Metals by ICPMS</b>						
Dissolved Aluminum (Al)	mg/L	0.00297	0.00099	0.00807	0.00050	8423315
Dissolved Antimony (Sb)	mg/L	0.000041	<0.000020	0.000302	0.000020	8423315
Dissolved Arsenic (As)	mg/L	0.000111	0.00410	0.0178	0.000020	8423315
Dissolved Barium (Ba)	mg/L	0.0259	0.0169	0.0371	0.000020	8423315
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	0.000010	8423315
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	0.0000050	8423315
Dissolved Boron (B)	mg/L	<0.010	<0.010	<0.010	0.010	8423315
Dissolved Cadmium (Cd)	mg/L	0.0000100	<0.0000050	0.0000230	0.0000050	8423315
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	<0.00010	0.00010	8423315
Dissolved Cobalt (Co)	mg/L	0.0000450	0.000128	0.000128	0.0000050	8423315
Dissolved Copper (Cu)	mg/L	0.000344	<0.000050	<0.000050	0.000050	8423315
Dissolved Iron (Fe)	mg/L	<0.0010	<0.0010	<0.0010	0.0010	8423315
Dissolved Lead (Pb)	mg/L	<0.0000050	<0.0000050	<0.0000050	0.0000050	8423315
Dissolved Lithium (Li)	mg/L	0.00204	0.00277	0.00330	0.00050	8423315
Dissolved Manganese (Mn)	mg/L	0.00238	0.279	0.131	0.000050	8423315
Dissolved Molybdenum (Mo)	mg/L	0.000728	0.000275	0.000767	0.000050	8423315
Dissolved Nickel (Ni)	mg/L	0.000499	0.000339	0.000214	0.000020	8423315
Dissolved Phosphorus (P)	mg/L	0.0029	0.0029	<0.0020	0.0020	8423315
Dissolved Selenium (Se)	mg/L	0.000599	<0.000040	0.000044	0.000040	8423315
Dissolved Silicon (Si)	mg/L	2.18	4.88	3.27	0.050	8423315
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	<0.0000050	0.0000050	8423315
Dissolved Strontium (Sr)	mg/L	0.212	0.327	0.202	0.000050	8423315
Dissolved Thallium (Tl)	mg/L	<0.0000020	<0.0000020	<0.0000020	0.0000020	8423315
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	0.00020	8423315
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	<0.00050	0.00050	8423315
Dissolved Uranium (U)	mg/L	0.00299	0.00385	0.00522	0.0000020	8423315
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	0.00020	8423315
RDL = Reportable Detection Limit						

Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PR5422	PR5423	PR5424		
Sampling Date		2016/10/02 15:34	2016/10/02 16:53	2016/10/02		
COC Number		08428037	08428037	08428037		
	UNITS	MW15-01	MW16-14D	DUP2	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	0.00204	0.0496	0.0278	0.00010	8423315
Dissolved Zirconium (Zr)	mg/L	<0.00010	<0.00010	<0.00010	0.00010	8423315
Dissolved Calcium (Ca)	mg/L	74.0	82.9	60.5	0.050	8421359
Dissolved Magnesium (Mg)	mg/L	8.99	5.69	8.31	0.050	8421359
Dissolved Potassium (K)	mg/L	0.570	2.07	3.05	0.050	8421359
Dissolved Sodium (Na)	mg/L	1.63	2.55	1.76	0.050	8421359
Dissolved Sulphur (S)	mg/L	25.4	29.4	23.5	3.0	8421359
RDL = Reportable Detection Limit						

Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		PR5404	PR5410		PR5421		
Sampling Date		2016/10/01 09:30	2016/10/01 14:47		2016/10/02 14:20		
COC Number		08428036	08428036		08428037		
	<b>UNITS</b>	<b>MW15-03D</b>	<b>MW15-08S</b>	<b>QC Batch</b>	<b>BH95G-2</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>							
Total Hardness (CaCO3)	mg/L	198	192	8420969	311	0.50	8420969
<b>Elements</b>							
Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	8424144	<0.0000020	0.0000020	8424159
<b>Total Metals by ICPMS</b>							
Total Aluminum (Al)	mg/L	0.0448	0.0128	8422961	0.00193	0.00050	8422961
Total Antimony (Sb)	mg/L	0.000058	<0.000020	8422961	<0.000020	0.000020	8422961
Total Arsenic (As)	mg/L	0.00275	0.000399	8422961	0.000074	0.000020	8422961
Total Barium (Ba)	mg/L	0.0485	0.0579	8422961	0.0262	0.000020	8422961
Total Beryllium (Be)	mg/L	<0.000010	<0.000010	8422961	<0.000010	0.000010	8422961
Total Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	8422961	<0.0000050	0.0000050	8422961
Total Boron (B)	mg/L	<0.010	<0.010	8422961	<0.010	0.010	8422961
Total Cadmium (Cd)	mg/L	<0.0000050	0.0000200	8422961	0.00144	0.0000050	8422961
Total Chromium (Cr)	mg/L	0.00030	<0.00010	8422961	<0.00010	0.00010	8422961
Total Cobalt (Co)	mg/L	0.0000690	0.0000580	8422961	0.0000050	0.0000050	8422961
Total Copper (Cu)	mg/L	0.00130	0.000337	8422961	0.000237	0.000050	8422961
Total Iron (Fe)	mg/L	1.59	0.0272	8422961	0.0036	0.0010	8422961
Total Lead (Pb)	mg/L	0.000130	0.000164	8422961	0.0000510	0.0000050	8422961
Total Lithium (Li)	mg/L	0.00654	0.00199	8422961	0.00148	0.00050	8422961
Total Manganese (Mn)	mg/L	0.0582	0.00173	8422961	0.000242	0.000050	8422961
Total Molybdenum (Mo)	mg/L	0.00321	0.00186	8422961	0.00216	0.000050	8422961
Total Nickel (Ni)	mg/L	0.000278	0.000250	8422961	0.000422	0.000020	8422961
Total Phosphorus (P)	mg/L	0.0101	0.0105	8422961	0.0054	0.0020	8422961
Total Selenium (Se)	mg/L	<0.000040	0.00190	8422961	0.00629	0.000040	8422961
Total Silicon (Si)	mg/L	4.60	3.30	8422961	2.12	0.050	8422961
Total Silver (Ag)	mg/L	0.0000080	<0.0000050	8422961	<0.0000050	0.0000050	8422961
Total Strontium (Sr)	mg/L	0.257	0.221	8422961	0.238	0.000050	8422961
Total Thallium (Tl)	mg/L	0.0000020	0.0000020	8422961	<0.0000020	0.0000020	8422961
Total Tin (Sn)	mg/L	<0.00020	<0.00020	8422961	<0.00020	0.00020	8422961
Total Titanium (Ti)	mg/L	0.00234	0.00141	8422961	<0.00050	0.00050	8422961
Total Uranium (U)	mg/L	0.00251	0.00236	8422961	0.00295	0.0000020	8422961
Total Vanadium (V)	mg/L	<0.00020	<0.00020	8422961	<0.00020	0.00020	8422961
RDL = Reportable Detection Limit							

Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		PR5404	PR5410		PR5421		
Sampling Date		2016/10/01 09:30	2016/10/01 14:47		2016/10/02 14:20		
COC Number		08428036	08428036		08428037		
	UNITS	MW15-03D	MW15-08S	QC Batch	BH95G-2	RDL	QC Batch
Total Zinc (Zn)	mg/L	0.00140	0.00097	8422961	0.0244	0.00010	8422961
Total Zirconium (Zr)	mg/L	0.00160	<0.00010	8422961	<0.00010	0.00010	8422961
Total Calcium (Ca)	mg/L	54.0	67.2	8421360	79.2	0.050	8421360
Total Magnesium (Mg)	mg/L	15.2	5.81	8421360	27.5	0.050	8421360
Total Potassium (K)	mg/L	2.41	1.33	8421360	0.372	0.050	8421360
Total Sodium (Na)	mg/L	1.83	1.19	8421360	0.620	0.050	8421360
Total Sulphur (S)	mg/L	6.9	8.0	8421360	12.2	3.0	8421360
RDL = Reportable Detection Limit							

Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PR5403		PR5405	PR5406	PR5407		
Sampling Date		2016/09/30 18:30		2016/10/01 09:49	2016/10/01 10:54	2016/10/01 11:33		
COC Number		08428036		08428036	08428036	08428036		
	UNITS	BH95G-131	QC Batch	MW15-03S	MW15-04D	MW15-04S	RDL	QC Batch
<b>Calculated Parameters</b>								
Total Hardness (CaCO3)	mg/L	654	8420969	167	185	152	0.50	8420969
<b>Elements</b>								
Total Mercury (Hg)	mg/L	<0.0000020	8424144	<0.0000020	<0.0000020	0.0000023	0.0000020	8424144
<b>Total Metals by ICPMS</b>								
Total Aluminum (Al)	mg/L	1.51	8423005	6.00	1.05	8.42	0.0030	8423529
Total Antimony (Sb)	mg/L	0.00523	8423005	0.000135	0.000069	0.000073	0.000020	8423529
Total Arsenic (As)	mg/L	0.0158	8423005	0.00942	0.00549	0.00470	0.000020	8423529
Total Barium (Ba)	mg/L	0.0902	8423005	0.122	0.121	0.216	0.000050	8423529
Total Beryllium (Be)	mg/L	0.000116	8423005	0.000257	0.000061	0.000179	0.000010	8423529
Total Bismuth (Bi)	mg/L	0.000082	8423005	0.000133	0.000030	0.000086	0.000010	8423529
Total Boron (B)	mg/L	<0.010	8423005	<0.010	<0.010	<0.010	0.010	8423529
Total Cadmium (Cd)	mg/L	0.000628	8423005	0.000398	0.000191	0.000346	0.000050	8423529
Total Chromium (Cr)	mg/L	0.00357	8423005	0.0178	0.0105	0.0172	0.00010	8423529
Total Cobalt (Co)	mg/L	0.00104	8423005	0.00913	0.00358	0.0101	0.000010	8423529
Total Copper (Cu)	mg/L	0.00625	8423005	0.0364	0.00735	0.0331	0.00010	8423529
Total Iron (Fe)	mg/L	5.87	8423005	13.4	3.27	16.5	0.0050	8423529
Total Lead (Pb)	mg/L	0.0636	8423005	0.0175	0.00454	0.0101	0.000020	8423529
Total Lithium (Li)	mg/L	0.0186	8423005	0.00747	0.00176	0.00531	0.00050	8423529
Total Manganese (Mn)	mg/L	0.203	8423005	0.327	0.328	0.493	0.00010	8423529
Total Molybdenum (Mo)	mg/L	0.000283	8423005	0.00109	0.00150	0.00107	0.000050	8423529
Total Nickel (Ni)	mg/L	0.00249	8423005	0.0246	0.00690	0.0172	0.00010	8423529
Total Phosphorus (P)	mg/L	0.288	8423005	0.902	0.222	0.513	0.0050	8423529
Total Selenium (Se)	mg/L	0.000123	8423005	0.000237	0.000150	0.000772	0.000040	8423529
Total Silicon (Si)	mg/L	13.6	8423005	11.4	4.28	14.3	0.050	8423529
Total Silver (Ag)	mg/L	0.000189	8423005	0.000320	0.000113	0.000316	0.000010	8423529
Total Strontium (Sr)	mg/L	0.898	8423005	0.180	0.270	0.188	0.000050	8423529
Total Thallium (Tl)	mg/L	0.0000840	8423005	0.0000840	0.0000230	0.0000570	0.0000020	8423529
Total Tin (Sn)	mg/L	0.00162	8423005	0.00036	0.00045	0.00024	0.00020	8423529
Total Titanium (Ti)	mg/L	0.0279	8423005	0.387	0.0387	0.417	0.0020	8423529
Total Uranium (U)	mg/L	0.0160	8423005	0.000964	0.00112	0.000966	0.0000050	8423529
Total Vanadium (V)	mg/L	0.00272	8423005	0.0215	0.00215	0.0357	0.00020	8423529
RDL = Reportable Detection Limit								

Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PR5403		PR5405	PR5406	PR5407		
Sampling Date		2016/09/30 18:30		2016/10/01 09:49	2016/10/01 10:54	2016/10/01 11:33		
COC Number		08428036		08428036	08428036	08428036		
	UNITS	BH95G-131	QC Batch	MW15-03S	MW15-04D	MW15-04S	RDL	QC Batch
Total Zinc (Zn)	mg/L	0.122	8423005	0.0614	0.0110	0.0512	0.0010	8423529
Total Zirconium (Zr)	mg/L	0.00459	8423005	0.00138	0.00121	0.00174	0.00010	8423529
Total Calcium (Ca)	mg/L	166	8421360	53.6	64.2	47.7	0.25	8421360
Total Magnesium (Mg)	mg/L	58.0	8421360	8.01	5.88	7.89	0.25	8421360
Total Potassium (K)	mg/L	4.19	8421360	2.54	2.62	3.34	0.25	8421360
Total Sodium (Na)	mg/L	3.06	8421360	0.84	1.46	0.92	0.25	8421360
Total Sulphur (S)	mg/L	77.9	8421360	<3.0	6.5	<3.0	3.0	8421360
RDL = Reportable Detection Limit								



Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PR5408	PR5409	PR5411	PR5412		
Sampling Date		2016/10/01 12:35	2016/10/01 13:30	2016/10/01	2016/10/02 09:36		
COC Number		08428036	08428036	08428036	08428036		
	<b>UNITS</b>	<b>MW15-07S</b>	<b>MW15-05D</b>	<b>DUP1</b>	<b>MW16-15S</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>							
Total Hardness (CaCO3)	mg/L	147	233	180	133	0.50	8420969
<b>Elements</b>							
Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	0.0000026	0.0000107	0.0000020	8424144
<b>Total Metals by ICPMS</b>							
Total Aluminum (Al)	mg/L	0.0809	3.12	0.988	3.13	0.0030	8423529
Total Antimony (Sb)	mg/L	<0.000020	0.000048	0.000063	0.00391	0.000020	8423529
Total Arsenic (As)	mg/L	0.00120	0.000692	0.00551	0.0580	0.000020	8423529
Total Barium (Ba)	mg/L	0.0247	0.203	0.137	0.149	0.000050	8423529
Total Beryllium (Be)	mg/L	<0.000010	0.000964	0.000059	0.000160	0.000010	8423529
Total Bismuth (Bi)	mg/L	<0.000010	0.000233	0.000019	0.000528	0.000010	8423529
Total Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	0.010	8423529
Total Cadmium (Cd)	mg/L	0.0000050	0.00117	0.000148	0.00391	0.0000050	8423529
Total Chromium (Cr)	mg/L	0.00035	0.00165	0.00762	0.00772	0.00010	8423529
Total Cobalt (Co)	mg/L	0.000183	0.00579	0.00380	0.00464	0.000010	8423529
Total Copper (Cu)	mg/L	0.00123	0.0147	0.0117	0.0821	0.00010	8423529
Total Iron (Fe)	mg/L	0.476	3.71	2.88	8.79	0.0050	8423529
Total Lead (Pb)	mg/L	0.000117	0.0360	0.00426	0.248	0.000020	8423529
Total Lithium (Li)	mg/L	0.00559	0.00272	0.00171	0.00641	0.00050	8423529
Total Manganese (Mn)	mg/L	0.114	0.571	0.307	0.284	0.00010	8423529
Total Molybdenum (Mo)	mg/L	0.000166	0.000459	0.00152	0.00103	0.000050	8423529
Total Nickel (Ni)	mg/L	0.00041	0.00806	0.00844	0.00985	0.00010	8423529
Total Phosphorus (P)	mg/L	0.0058	0.0845	0.222	0.245	0.0050	8423529
Total Selenium (Se)	mg/L	<0.000040	0.00133	0.000159	0.00273	0.000040	8423529
Total Silicon (Si)	mg/L	5.35	6.73	4.30	7.55	0.050	8423529
Total Silver (Ag)	mg/L	<0.000010	0.000445	0.000102	0.00153	0.000010	8423529
Total Strontium (Sr)	mg/L	0.206	0.317	0.255	0.131	0.000050	8423529
Total Thallium (Tl)	mg/L	0.0000030	0.0000620	0.0000220	0.000104	0.0000020	8423529
Total Tin (Sn)	mg/L	<0.00020	0.00062	0.00050	0.00075	0.00020	8423529
Total Titanium (Ti)	mg/L	<0.0020	0.0080	0.0263	0.186	0.0020	8423529
Total Uranium (U)	mg/L	0.00124	0.00388	0.00110	0.00620	0.0000050	8423529
Total Vanadium (V)	mg/L	0.00024	0.00246	0.00181	0.00843	0.00020	8423529
RDL = Reportable Detection Limit							

Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PR5408	PR5409	PR5411	PR5412		
Sampling Date		2016/10/01 12:35	2016/10/01 13:30	2016/10/01	2016/10/02 09:36		
COC Number		08428036	08428036	08428036	08428036		
	UNITS	MW15-07S	MW15-05D	DUP1	MW16-15S	RDL	QC Batch
Total Zinc (Zn)	mg/L	0.0018	0.107	0.0138	0.485	0.0010	8423529
Total Zirconium (Zr)	mg/L	0.00012	0.00050	0.00123	0.00032	0.00010	8423529
Total Calcium (Ca)	mg/L	46.1	79.7	62.2	41.5	0.25	8421360
Total Magnesium (Mg)	mg/L	7.69	8.37	5.91	7.16	0.25	8421360
Total Potassium (K)	mg/L	1.04	2.27	2.60	3.20	0.25	8421360
Total Sodium (Na)	mg/L	2.66	1.56	1.42	0.81	0.25	8421360
Total Sulphur (S)	mg/L	8.6	9.9	6.6	13.0	3.0	8421360
RDL = Reportable Detection Limit							

Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PR5419	PR5420	PR5422	PR5423		
Sampling Date		2016/10/02 10:47	2016/10/02 12:55	2016/10/02 15:34	2016/10/02 16:53		
COC Number		08428037	08428037	08428037	08428037		
	<b>UNITS</b>	<b>MW16-15D</b>	<b>BH95G-32</b>	<b>MW15-01</b>	<b>MW16-14D</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>							
Total Hardness (CaCO3)	mg/L	203	216	228	250	0.50	8420969
<b>Elements</b>							
Total Mercury (Hg)	mg/L	0.0000028	<0.0000020	<0.0000020	<0.0000020	0.0000020	8424159
<b>Total Metals by ICPMS</b>							
Total Aluminum (Al)	mg/L	3.29	2.28	0.432	0.588	0.0030	8423529
Total Antimony (Sb)	mg/L	0.000797	0.000134	0.000082	0.000024	0.000020	8423529
Total Arsenic (As)	mg/L	0.0236	0.00296	0.000671	0.00423	0.000020	8423529
Total Barium (Ba)	mg/L	0.0865	0.271	0.0345	0.0224	0.000050	8423529
Total Beryllium (Be)	mg/L	0.000216	0.000167	0.000013	0.000130	0.000010	8423529
Total Bismuth (Bi)	mg/L	0.000322	0.000135	<0.000010	0.000024	0.000010	8423529
Total Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	0.010	8423529
Total Cadmium (Cd)	mg/L	0.00787	0.000353	0.0000440	0.0000170	0.0000050	8423529
Total Chromium (Cr)	mg/L	0.00414	0.00560	0.00148	0.00058	0.00010	8423529
Total Cobalt (Co)	mg/L	0.00270	0.00385	0.000638	0.000384	0.000010	8423529
Total Copper (Cu)	mg/L	0.0226	0.0122	0.00281	0.00078	0.00010	8423529
Total Iron (Fe)	mg/L	10.9	6.57	1.91	0.887	0.0050	8423529
Total Lead (Pb)	mg/L	0.0239	0.0156	0.000811	0.000808	0.000020	8423529
Total Lithium (Li)	mg/L	0.00658	0.00205	0.00224	0.00263	0.00050	8423529
Total Manganese (Mn)	mg/L	0.460	0.531	0.0338	0.313	0.00010	8423529
Total Molybdenum (Mo)	mg/L	0.000802	0.000830	0.000859	0.000762	0.000050	8423529
Total Nickel (Ni)	mg/L	0.00352	0.00685	0.00173	0.00092	0.00010	8423529
Total Phosphorus (P)	mg/L	0.182	0.124	0.0383	0.0282	0.0050	8423529
Total Selenium (Se)	mg/L	0.000156	0.00114	0.000515	<0.000040	0.000040	8423529
Total Silicon (Si)	mg/L	7.59	5.80	2.65	5.77	0.050	8423529
Total Silver (Ag)	mg/L	0.000749	0.000180	0.000229	0.000047	0.000010	8423529
Total Strontium (Sr)	mg/L	0.205	0.298	0.211	0.331	0.000050	8423529
Total Thallium (Tl)	mg/L	0.0000860	0.0000330	0.0000100	0.0000120	0.0000020	8423529
Total Tin (Sn)	mg/L	0.00047	<0.00020	0.00022	<0.00020	0.00020	8423529
Total Titanium (Ti)	mg/L	0.146	0.282	0.0265	0.0065	0.0020	8423529
Total Uranium (U)	mg/L	0.00661	0.00143	0.00325	0.00409	0.0000050	8423529
Total Vanadium (V)	mg/L	0.00615	0.0153	0.00216	0.00081	0.00020	8423529
RDL = Reportable Detection Limit							

Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PR5419	PR5420	PR5422	PR5423		
Sampling Date		2016/10/02 10:47	2016/10/02 12:55	2016/10/02 15:34	2016/10/02 16:53		
COC Number		08428037	08428037	08428037	08428037		
	UNITS	MW16-15D	BH95G-32	MW15-01	MW16-14D	RDL	QC Batch
Total Zinc (Zn)	mg/L	1.47	0.0273	0.0144	0.0741	0.0010	8423529
Total Zirconium (Zr)	mg/L	0.0188	0.00070	0.00068	0.00030	0.00010	8423529
Total Calcium (Ca)	mg/L	63.8	77.9	75.5	89.8	0.25	8421360
Total Magnesium (Mg)	mg/L	10.5	5.14	9.50	6.33	0.25	8421360
Total Potassium (K)	mg/L	4.44	5.03	0.68	2.29	0.25	8421360
Total Sodium (Na)	mg/L	1.77	0.70	1.69	2.71	0.25	8421360
Total Sulphur (S)	mg/L	22.4	11.7	24.8	29.7	3.0	8421360
RDL = Reportable Detection Limit							

Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

<b>Maxxam ID</b>		PR5424		
<b>Sampling Date</b>		2016/10/02		
<b>COC Number</b>		08428037		
	<b>UNITS</b>	<b>DUP2</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>				
Total Hardness (CaCO3)	mg/L	208	0.50	8422169
<b>Elements</b>				
Total Mercury (Hg)	mg/L	<0.0000020	0.0000020	8424159
<b>Total Metals by ICPMS</b>				
Total Aluminum (Al)	mg/L	3.16	0.0030	8423529
Total Antimony (Sb)	mg/L	0.000831	0.000020	8423529
Total Arsenic (As)	mg/L	0.0238	0.000020	8423529
Total Barium (Ba)	mg/L	0.0862	0.000050	8423529
Total Beryllium (Be)	mg/L	0.000208	0.000010	8423529
Total Bismuth (Bi)	mg/L	0.000308	0.000010	8423529
Total Boron (B)	mg/L	<0.010	0.010	8423529
Total Cadmium (Cd)	mg/L	0.00816	0.0000050	8423529
Total Chromium (Cr)	mg/L	0.00419	0.00010	8423529
Total Cobalt (Co)	mg/L	0.00275	0.000010	8423529
Total Copper (Cu)	mg/L	0.0221	0.00010	8423529
Total Iron (Fe)	mg/L	11.1	0.0050	8423529
Total Lead (Pb)	mg/L	0.0252	0.000020	8423529
Total Lithium (Li)	mg/L	0.00642	0.00050	8423529
Total Manganese (Mn)	mg/L	0.475	0.00010	8423529
Total Molybdenum (Mo)	mg/L	0.00170	0.000050	8423529
Total Nickel (Ni)	mg/L	0.00344	0.00010	8423529
Total Phosphorus (P)	mg/L	0.194	0.0050	8423529
Total Selenium (Se)	mg/L	0.000151	0.000040	8423529
Total Silicon (Si)	mg/L	7.56	0.050	8423529
Total Silver (Ag)	mg/L	0.000623	0.000010	8423529
Total Strontium (Sr)	mg/L	0.210	0.000050	8423529
Total Thallium (Tl)	mg/L	0.0000820	0.0000020	8423529
Total Tin (Sn)	mg/L	0.00042	0.00020	8423529
Total Titanium (Ti)	mg/L	0.151	0.0020	8423529
Total Uranium (U)	mg/L	0.00701	0.0000050	8423529
Total Vanadium (V)	mg/L	0.00602	0.00020	8423529
RDL = Reportable Detection Limit				

Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

<b>Maxxam ID</b>		PR5424		
<b>Sampling Date</b>		2016/10/02		
<b>COC Number</b>		08428037		
	<b>UNITS</b>	<b>DUP2</b>	<b>RDL</b>	<b>QC Batch</b>
Total Zinc (Zn)	mg/L	1.51	0.0010	8423529
Total Zirconium (Zr)	mg/L	0.0194	0.00010	8423529
Total Calcium (Ca)	mg/L	65.2	0.25	8421360
Total Magnesium (Mg)	mg/L	10.8	0.25	8421360
Total Potassium (K)	mg/L	4.57	0.25	8421360
Total Sodium (Na)	mg/L	1.85	0.25	8421360
Total Sulphur (S)	mg/L	23.4	3.0	8421360
RDL = Reportable Detection Limit				

Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PR5403  
**Sample ID:** BH95G-131  
**Matrix:** Water

**Collected:** 2016/09/30  
**Shipped:**  
**Received:** 2016/10/03

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8423014	N/A	2016/10/06	Maria Maclean
Alkalinity - Water	AT/ALK	8423393	2016/10/05	2016/10/05	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8424705	N/A	2016/10/06	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8424812	N/A	2016/10/06	Isabel Choi
Conductance - water	AT/ALK	8423398	N/A	2016/10/05	Wilson Au Yueng
Fluoride	ISE/ISE	8423449	N/A	2016/10/05	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8420969	N/A	2016/10/06	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8422091	N/A	2016/10/06	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8424150	N/A	2016/10/06	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8424144	2016/10/06	2016/10/06	Edwin Lamigo
Ion Balance	CALC	8422092	N/A	2016/10/06	Automated Statchk
Sum of cations, anions	CALC	8422093	N/A	2016/10/06	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8421359	N/A	2016/10/06	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8423304	N/A	2016/10/06	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8423005	2016/10/05	2016/10/06	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8421360	N/A	2016/10/06	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8424852	N/A	2016/10/06	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8424477	N/A	2016/10/05	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8424483	N/A	2016/10/05	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8421618	N/A	2016/10/06	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8422689	N/A	2016/10/05	Lucy Luo
pH Water	AT/ALK	8423396	N/A	2016/10/05	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8424709	N/A	2016/10/06	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8423090	2016/10/05	2016/10/05	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8423108	N/A	2016/10/05	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8422714	2016/10/05	2016/10/06	Wendy Fong

**Maxxam ID:** PR5403 Dup  
**Sample ID:** BH95G-131  
**Matrix:** Water

**Collected:** 2016/09/30  
**Shipped:**  
**Received:** 2016/10/03

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8424150	N/A	2016/10/06	Edwin Lamigo

**Maxxam ID:** PR5404  
**Sample ID:** MW15-03D  
**Matrix:** Water

**Collected:** 2016/10/01  
**Shipped:**  
**Received:** 2016/10/03

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8423014	N/A	2016/10/06	Maria Maclean
Alkalinity - Water	AT/ALK	8423393	2016/10/05	2016/10/05	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8424705	N/A	2016/10/06	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8424813	N/A	2016/10/06	Isabel Choi
Conductance - water	AT/ALK	8423398	N/A	2016/10/05	Wilson Au Yueng

Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PR5404  
**Sample ID:** MW15-03D  
**Matrix:** Water

**Collected:** 2016/10/01  
**Shipped:**  
**Received:** 2016/10/03

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Fluoride	ISE/ISE	8423449	N/A	2016/10/05	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8420969	N/A	2016/10/06	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8422091	N/A	2016/10/06	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8424135	N/A	2016/10/06	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8424144	2016/10/06	2016/10/06	Edwin Lamigo
Ion Balance	CALC	8422092	N/A	2016/10/06	Automated Statchk
Sum of cations, anions	CALC	8422093	N/A	2016/10/06	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8421359	N/A	2016/10/06	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8423304	N/A	2016/10/06	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8421360	N/A	2016/10/06	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8422961	N/A	2016/10/06	Andrew An
Ammonia-N (Preserved)	KONE/COL	8424854	N/A	2016/10/06	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8424477	N/A	2016/10/05	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8424483	N/A	2016/10/05	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8421618	N/A	2016/10/06	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8422689	N/A	2016/10/05	Lucy Luo
pH Water	AT/ALK	8423396	N/A	2016/10/05	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8424709	N/A	2016/10/06	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8423090	2016/10/05	2016/10/05	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8423108	N/A	2016/10/05	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8422714	2016/10/05	2016/10/06	Wendy Fong

**Maxxam ID:** PR5405  
**Sample ID:** MW15-03S  
**Matrix:** Water

**Collected:** 2016/10/01  
**Shipped:**  
**Received:** 2016/10/03

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8423014	N/A	2016/10/06	Maria Maclean
Alkalinity - Water	AT/ALK	8423393	2016/10/05	2016/10/05	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8424705	N/A	2016/10/06	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8424813	N/A	2016/10/06	Isabel Choi
Conductance - water	AT/ALK	8423398	N/A	2016/10/05	Wilson Au Yueng
Fluoride	ISE/ISE	8423449	N/A	2016/10/05	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8420969	N/A	2016/10/06	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8422091	N/A	2016/10/06	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8424135	N/A	2016/10/06	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8424144	2016/10/06	2016/10/06	Edwin Lamigo
Ion Balance	CALC	8422092	N/A	2016/10/06	Automated Statchk
Sum of cations, anions	CALC	8422093	N/A	2016/10/06	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8421359	N/A	2016/10/06	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8423304	N/A	2016/10/06	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8423529	2016/10/05	2016/10/06	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8421360	N/A	2016/10/06	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8424854	N/A	2016/10/06	Diana Cruz



Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PR5405  
**Sample ID:** MW15-03S  
**Matrix:** Water

**Collected:** 2016/10/01  
**Shipped:**  
**Received:** 2016/10/03

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrate+Nitrite (N) (low level)	TRAA/COL	8424477	N/A	2016/10/05	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8424483	N/A	2016/10/05	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8421618	N/A	2016/10/06	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8422689	N/A	2016/10/05	Lucy Luo
pH Water	AT/ALK	8423396	N/A	2016/10/05	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8424709	N/A	2016/10/06	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8423090	2016/10/05	2016/10/05	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8423108	N/A	2016/10/05	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8422714	2016/10/05	2016/10/06	Wendy Fong

**Maxxam ID:** PR5406  
**Sample ID:** MW15-04D  
**Matrix:** Water

**Collected:** 2016/10/01  
**Shipped:**  
**Received:** 2016/10/03

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8423014	N/A	2016/10/06	Maria Maclean
Alkalinity - Water	AT/ALK	8423393	2016/10/05	2016/10/05	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8424705	N/A	2016/10/06	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8424812	N/A	2016/10/06	Isabel Choi
Conductance - water	AT/ALK	8423398	N/A	2016/10/05	Wilson Au Yueng
Fluoride	ISE/ISE	8423449	N/A	2016/10/05	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8420969	N/A	2016/10/06	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8422091	N/A	2016/10/06	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8424135	N/A	2016/10/06	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8424144	2016/10/06	2016/10/06	Edwin Lamigo
Ion Balance	CALC	8422092	N/A	2016/10/06	Automated Statchk
Sum of cations, anions	CALC	8422093	N/A	2016/10/06	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8421359	N/A	2016/10/06	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8423304	N/A	2016/10/06	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8423529	2016/10/05	2016/10/06	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8421360	N/A	2016/10/06	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8424852	N/A	2016/10/06	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8424477	N/A	2016/10/05	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8424483	N/A	2016/10/05	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8421618	N/A	2016/10/06	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8422689	N/A	2016/10/05	Lucy Luo
pH Water	AT/ALK	8423396	N/A	2016/10/05	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8424709	N/A	2016/10/06	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8423090	2016/10/05	2016/10/05	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8423108	N/A	2016/10/05	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8422714	2016/10/05	2016/10/06	Wendy Fong

Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PR5407  
**Sample ID:** MW15-04S  
**Matrix:** Water

**Collected:** 2016/10/01  
**Shipped:**  
**Received:** 2016/10/03

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8423014	N/A	2016/10/06	Maria Maclean
Alkalinity - Water	AT/ALK	8423393	2016/10/05	2016/10/05	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8424705	N/A	2016/10/06	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8424813	N/A	2016/10/06	Isabel Choi
Conductance - water	AT/ALK	8423398	N/A	2016/10/05	Wilson Au Yueng
Fluoride	ISE/ISE	8423449	N/A	2016/10/05	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8420969	N/A	2016/10/06	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8422091	N/A	2016/10/06	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8424135	N/A	2016/10/06	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8424144	2016/10/06	2016/10/06	Edwin Lamigo
Ion Balance	CALC	8422092	N/A	2016/10/06	Automated Statchk
Sum of cations, anions	CALC	8422093	N/A	2016/10/06	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8421359	N/A	2016/10/06	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8423304	N/A	2016/10/06	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8423529	2016/10/05	2016/10/06	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8421360	N/A	2016/10/06	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8424854	N/A	2016/10/06	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8424477	N/A	2016/10/05	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8424483	N/A	2016/10/05	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8421618	N/A	2016/10/06	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8422689	N/A	2016/10/05	Lucy Luo
pH Water	AT/ALK	8423396	N/A	2016/10/05	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8424709	N/A	2016/10/06	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8423090	2016/10/05	2016/10/05	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8423108	N/A	2016/10/05	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8422714	2016/10/05	2016/10/06	Wendy Fong

**Maxxam ID:** PR5408  
**Sample ID:** MW15-07S  
**Matrix:** Water

**Collected:** 2016/10/01  
**Shipped:**  
**Received:** 2016/10/03

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8423018	N/A	2016/10/06	Maria Maclean
Alkalinity - Water	AT/ALK	8423393	2016/10/05	2016/10/05	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8424705	N/A	2016/10/06	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8424813	N/A	2016/10/06	Isabel Choi
Conductance - water	AT/ALK	8423398	N/A	2016/10/05	Wilson Au Yueng
Fluoride	ISE/ISE	8423449	N/A	2016/10/05	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8420969	N/A	2016/10/06	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8425828	N/A	2016/10/07	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8424135	N/A	2016/10/06	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8424144	2016/10/06	2016/10/06	Edwin Lamigo
Ion Balance	CALC	8426418	N/A	2016/10/07	Automated Statchk
Sum of cations, anions	CALC	8426132	N/A	2016/10/07	Automated Statchk

Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**TEST SUMMARY**

**Maxxam ID:** PR5408  
**Sample ID:** MW15-07S  
**Matrix:** Water

**Collected:** 2016/10/01  
**Shipped:**  
**Received:** 2016/10/03

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8425829	N/A	2016/10/07	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8423304	N/A	2016/10/06	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8423529	2016/10/05	2016/10/06	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8421360	N/A	2016/10/06	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8424854	N/A	2016/10/06	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8424477	N/A	2016/10/05	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8424483	N/A	2016/10/05	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8421618	N/A	2016/10/06	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8422689	N/A	2016/10/05	Lucy Luo
pH Water	AT/ALK	8423396	N/A	2016/10/05	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8424709	N/A	2016/10/06	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8423090	2016/10/05	2016/10/05	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8423108	N/A	2016/10/05	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8422714	2016/10/05	2016/10/06	Wendy Fong

**Maxxam ID:** PR5408 Dup  
**Sample ID:** MW15-07S  
**Matrix:** Water

**Collected:** 2016/10/01  
**Shipped:**  
**Received:** 2016/10/03

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8423018	N/A	2016/10/06	Maria Maclean
Alkalinity - Water	AT/ALK	8423393	2016/10/05	2016/10/05	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8424705	N/A	2016/10/06	Balwinder Bassi
Conductance - water	AT/ALK	8423398	N/A	2016/10/05	Wilson Au Yueng
Fluoride	ISE/ISE	8423449	N/A	2016/10/05	Balwinder Bassi
Elements by ICPMS Digested LL (total)	ICP/CRCM	8423529	2016/10/05	2016/10/06	Andrew An
Nitrate+Nitrite (N) (low level)	TRAA/COL	8424477	N/A	2016/10/05	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8424483	N/A	2016/10/05	Isaac Wang
pH Water	AT/ALK	8423396	N/A	2016/10/05	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8424709	N/A	2016/10/06	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8423090	2016/10/05	2016/10/05	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8423108	N/A	2016/10/05	Isabel Choi

**Maxxam ID:** PR5409  
**Sample ID:** MW15-05D  
**Matrix:** Water

**Collected:** 2016/10/01  
**Shipped:**  
**Received:** 2016/10/03

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8423014	N/A	2016/10/06	Maria Maclean
Alkalinity - Water	AT/ALK	8423393	2016/10/05	2016/10/05	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8424705	N/A	2016/10/06	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8424813	N/A	2016/10/06	Isabel Choi
Conductance - water	AT/ALK	8423398	N/A	2016/10/05	Wilson Au Yueng
Fluoride	ISE/ISE	8423449	N/A	2016/10/05	Balwinder Bassi

Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PR5409  
**Sample ID:** MW15-05D  
**Matrix:** Water

**Collected:** 2016/10/01  
**Shipped:**  
**Received:** 2016/10/03

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hardness Total (calculated as CaCO3)	CALC	8420969	N/A	2016/10/06	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8422091	N/A	2016/10/06	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8424135	N/A	2016/10/06	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8424144	2016/10/06	2016/10/06	Edwin Lamigo
Ion Balance	CALC	8422092	N/A	2016/10/06	Automated Statchk
Sum of cations, anions	CALC	8422093	N/A	2016/10/06	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8421359	N/A	2016/10/06	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8423304	N/A	2016/10/06	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8423529	2016/10/05	2016/10/06	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8421360	N/A	2016/10/06	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8424854	N/A	2016/10/06	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8424477	N/A	2016/10/05	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8424483	N/A	2016/10/05	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8421618	N/A	2016/10/06	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8422689	N/A	2016/10/05	Lucy Luo
pH Water	AT/ALK	8423396	N/A	2016/10/05	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8424709	N/A	2016/10/06	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8423090	2016/10/05	2016/10/05	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8423108	N/A	2016/10/05	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8422714	2016/10/05	2016/10/06	Wendy Fong

**Maxxam ID:** PR5410  
**Sample ID:** MW15-08S  
**Matrix:** Water

**Collected:** 2016/10/01  
**Shipped:**  
**Received:** 2016/10/03

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8423014	N/A	2016/10/06	Maria Maclean
Alkalinity - Water	AT/ALK	8423393	2016/10/05	2016/10/05	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8424705	N/A	2016/10/06	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8424813	N/A	2016/10/06	Isabel Choi
Conductance - water	AT/ALK	8423398	N/A	2016/10/05	Wilson Au Yueng
Fluoride	ISE/ISE	8423449	N/A	2016/10/05	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8420969	N/A	2016/10/06	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8422091	N/A	2016/10/06	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8424135	N/A	2016/10/06	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8424144	2016/10/06	2016/10/06	Edwin Lamigo
Ion Balance	CALC	8422092	N/A	2016/10/06	Automated Statchk
Sum of cations, anions	CALC	8422093	N/A	2016/10/06	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8421359	N/A	2016/10/06	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8423304	N/A	2016/10/06	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8421360	N/A	2016/10/06	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8422961	N/A	2016/10/06	Andrew An
Ammonia-N (Preserved)	KONE/COL	8424854	N/A	2016/10/06	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8424477	N/A	2016/10/05	Isaac Wang

Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PR5410  
**Sample ID:** MW15-08S  
**Matrix:** Water

**Collected:** 2016/10/01  
**Shipped:**  
**Received:** 2016/10/03

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrite (N) (low level)	TRAA/COL	8424483	N/A	2016/10/05	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8421618	N/A	2016/10/06	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8422689	N/A	2016/10/05	Lucy Luo
pH Water	AT/ALK	8423396	N/A	2016/10/05	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8424709	N/A	2016/10/06	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8423090	2016/10/05	2016/10/05	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8427749	N/A	2016/10/08	Balwinder Bassi
Total Suspended Solids-Low Level	BAL/BAL	8422714	2016/10/05	2016/10/06	Wendy Fong

**Maxxam ID:** PR5411  
**Sample ID:** DUP1  
**Matrix:** Water

**Collected:** 2016/10/01  
**Shipped:**  
**Received:** 2016/10/03

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8423014	N/A	2016/10/06	Maria Maclean
Alkalinity - Water	AT/ALK	8423393	2016/10/05	2016/10/05	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8424705	N/A	2016/10/06	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8424813	N/A	2016/10/06	Isabel Choi
Conductance - water	AT/ALK	8423398	N/A	2016/10/05	Wilson Au Yueng
Fluoride	ISE/ISE	8423449	N/A	2016/10/05	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8420969	N/A	2016/10/06	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8422091	N/A	2016/10/06	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8424135	N/A	2016/10/06	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8424144	2016/10/06	2016/10/06	Edwin Lamigo
Ion Balance	CALC	8422092	N/A	2016/10/06	Automated Statchk
Sum of cations, anions	CALC	8422093	N/A	2016/10/06	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8421359	N/A	2016/10/06	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8423304	N/A	2016/10/06	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8423529	2016/10/05	2016/10/06	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8421360	N/A	2016/10/06	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8424852	N/A	2016/10/06	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8424477	N/A	2016/10/05	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8424483	N/A	2016/10/05	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8421618	N/A	2016/10/06	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8422689	N/A	2016/10/05	Lucy Luo
pH Water	AT/ALK	8423396	N/A	2016/10/05	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8424709	N/A	2016/10/06	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8423090	2016/10/05	2016/10/05	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8423108	N/A	2016/10/05	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8422734	2016/10/05	2016/10/06	Wendy Fong

Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PR5412  
**Sample ID:** MW16-15S  
**Matrix:** Water

**Collected:** 2016/10/02  
**Shipped:**  
**Received:** 2016/10/03

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8423014	N/A	2016/10/06	Maria Maclean
Alkalinity - Water	AT/ALK	8423393	2016/10/05	2016/10/05	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8424705	N/A	2016/10/06	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8424813	N/A	2016/10/06	Isabel Choi
Conductance - water	AT/ALK	8423398	N/A	2016/10/05	Wilson Au Yueng
Fluoride	ISE/ISE	8423449	N/A	2016/10/05	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8420969	N/A	2016/10/06	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8422091	N/A	2016/10/06	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8424135	N/A	2016/10/06	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8424144	2016/10/06	2016/10/06	Edwin Lamigo
Ion Balance	CALC	8422092	N/A	2016/10/06	Automated Statchk
Sum of cations, anions	CALC	8422093	N/A	2016/10/06	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8421359	N/A	2016/10/06	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8423304	N/A	2016/10/06	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8423529	2016/10/05	2016/10/06	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8421360	N/A	2016/10/06	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8424854	N/A	2016/10/06	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8424477	N/A	2016/10/05	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8424483	N/A	2016/10/05	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8421618	N/A	2016/10/06	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8422689	N/A	2016/10/05	Lucy Luo
pH Water	AT/ALK	8423396	N/A	2016/10/05	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8424709	N/A	2016/10/06	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8423090	2016/10/05	2016/10/05	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8423108	N/A	2016/10/05	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8422734	2016/10/05	2016/10/06	Wendy Fong

**Maxxam ID:** PR5419  
**Sample ID:** MW16-15D  
**Matrix:** Water

**Collected:** 2016/10/02  
**Shipped:**  
**Received:** 2016/10/03

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8423014	N/A	2016/10/06	Maria Maclean
Alkalinity - Water	AT/ALK	8423393	2016/10/05	2016/10/05	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8424705	N/A	2016/10/06	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8424813	N/A	2016/10/06	Isabel Choi
Conductance - water	AT/ALK	8423398	N/A	2016/10/05	Wilson Au Yueng
Fluoride	ISE/ISE	8423449	N/A	2016/10/05	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8420969	N/A	2016/10/06	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8422091	N/A	2016/10/06	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8424135	N/A	2016/10/06	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8424159	2016/10/06	2016/10/06	Edwin Lamigo
Ion Balance	CALC	8422092	N/A	2016/10/06	Automated Statchk
Sum of cations, anions	CALC	8422093	N/A	2016/10/06	Automated Statchk



Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PR5419  
**Sample ID:** MW16-15D  
**Matrix:** Water

**Collected:** 2016/10/02  
**Shipped:**  
**Received:** 2016/10/03

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8421359	N/A	2016/10/06	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8423304	N/A	2016/10/06	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8423529	2016/10/05	2016/10/06	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8421360	N/A	2016/10/06	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8424854	N/A	2016/10/06	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8424477	N/A	2016/10/05	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8424483	N/A	2016/10/05	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8421618	N/A	2016/10/06	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8422689	N/A	2016/10/05	Lucy Luo
pH Water	AT/ALK	8423396	N/A	2016/10/05	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8424709	N/A	2016/10/06	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8423090	2016/10/05	2016/10/05	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8423108	N/A	2016/10/05	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8422734	2016/10/05	2016/10/06	Wendy Fong

**Maxxam ID:** PR5420  
**Sample ID:** BH95G-32  
**Matrix:** Water

**Collected:** 2016/10/02  
**Shipped:**  
**Received:** 2016/10/03

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8423014	N/A	2016/10/06	Maria Maclean
Alkalinity - Water	AT/ALK	8423393	2016/10/05	2016/10/05	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8424705	N/A	2016/10/06	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8424813	N/A	2016/10/06	Isabel Choi
Conductance - water	AT/ALK	8423398	N/A	2016/10/05	Wilson Au Yueng
Fluoride	ISE/ISE	8423449	N/A	2016/10/05	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8420969	N/A	2016/10/06	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8422091	N/A	2016/10/06	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8424135	N/A	2016/10/06	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8424159	2016/10/06	2016/10/06	Edwin Lamigo
Ion Balance	CALC	8422092	N/A	2016/10/06	Automated Statchk
Sum of cations, anions	CALC	8422093	N/A	2016/10/06	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8421359	N/A	2016/10/06	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8423304	N/A	2016/10/06	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8423529	2016/10/05	2016/10/06	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8421360	N/A	2016/10/06	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8424854	N/A	2016/10/06	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8424477	N/A	2016/10/05	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8424483	N/A	2016/10/05	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8421618	N/A	2016/10/06	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8422689	N/A	2016/10/05	Lucy Luo
pH Water	AT/ALK	8423396	N/A	2016/10/05	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8424709	N/A	2016/10/06	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8423090	2016/10/05	2016/10/05	Isabel Choi

Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**TEST SUMMARY**

**Maxxam ID:** PR5420  
**Sample ID:** BH95G-32  
**Matrix:** Water

**Collected:** 2016/10/02  
**Shipped:**  
**Received:** 2016/10/03

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Phosphorus - unpreserved	KONE/COL	8423108	N/A	2016/10/05	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8422734	2016/10/05	2016/10/06	Wendy Fong

**Maxxam ID:** PR5421  
**Sample ID:** BH95G-2  
**Matrix:** Water

**Collected:** 2016/10/02  
**Shipped:**  
**Received:** 2016/10/03

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8423014	N/A	2016/10/06	Maria Maclean
Alkalinity - Water	AT/ALK	8423393	2016/10/05	2016/10/05	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8424705	N/A	2016/10/06	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8424813	N/A	2016/10/06	Isabel Choi
Conductance - water	AT/ALK	8423398	N/A	2016/10/05	Wilson Au Yueng
Fluoride	ISE/ISE	8423449	N/A	2016/10/05	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8420969	N/A	2016/10/06	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8422091	N/A	2016/10/06	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8424135	N/A	2016/10/06	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8424159	2016/10/06	2016/10/06	Edwin Lamigo
Ion Balance	CALC	8422092	N/A	2016/10/06	Automated Statchk
Sum of cations, anions	CALC	8422093	N/A	2016/10/06	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8421359	N/A	2016/10/06	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8423304	N/A	2016/10/06	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8421360	N/A	2016/10/06	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8422961	N/A	2016/10/06	Andrew An
Ammonia-N (Preserved)	KONE/COL	8424854	N/A	2016/10/06	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8424477	N/A	2016/10/05	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8424483	N/A	2016/10/05	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8421618	N/A	2016/10/06	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8422689	N/A	2016/10/05	Lucy Luo
pH Water	AT/ALK	8423396	N/A	2016/10/05	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8424709	N/A	2016/10/06	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8423090	2016/10/05	2016/10/05	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8423108	N/A	2016/10/05	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8422734	2016/10/05	2016/10/06	Wendy Fong

**Maxxam ID:** PR5421 Dup  
**Sample ID:** BH95G-2  
**Matrix:** Water

**Collected:** 2016/10/02  
**Shipped:**  
**Received:** 2016/10/03

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Ammonia-N (Preserved)	KONE/COL	8424854	N/A	2016/10/06	Diana Cruz



Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PR5422  
**Sample ID:** MW15-01  
**Matrix:** Water

**Collected:** 2016/10/02  
**Shipped:**  
**Received:** 2016/10/03

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8423014	N/A	2016/10/06	Maria Maclean
Alkalinity - Water	AT/ALK	8423393	2016/10/05	2016/10/05	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8424705	N/A	2016/10/06	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8424813	N/A	2016/10/06	Isabel Choi
Conductance - water	AT/ALK	8423398	N/A	2016/10/05	Wilson Au Yueng
Fluoride	ISE/ISE	8423449	N/A	2016/10/05	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8420969	N/A	2016/10/06	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8422091	N/A	2016/10/06	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8424135	N/A	2016/10/06	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8424159	2016/10/06	2016/10/06	Edwin Lamigo
Ion Balance	CALC	8422092	N/A	2016/10/06	Automated Statchk
Sum of cations, anions	CALC	8422093	N/A	2016/10/06	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8421359	N/A	2016/10/06	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8423315	N/A	2016/10/06	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8423529	2016/10/05	2016/10/06	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8421360	N/A	2016/10/06	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8424854	N/A	2016/10/06	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8424477	N/A	2016/10/05	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8424483	N/A	2016/10/05	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8421618	N/A	2016/10/06	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8422689	N/A	2016/10/05	Lucy Luo
pH Water	AT/ALK	8423396	N/A	2016/10/05	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8424709	N/A	2016/10/06	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8423090	2016/10/05	2016/10/05	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8423108	N/A	2016/10/05	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8422734	2016/10/05	2016/10/06	Wendy Fong

**Maxxam ID:** PR5423  
**Sample ID:** MW16-14D  
**Matrix:** Water

**Collected:** 2016/10/02  
**Shipped:**  
**Received:** 2016/10/03

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8423014	N/A	2016/10/06	Maria Maclean
Alkalinity - Water	AT/ALK	8423393	2016/10/05	2016/10/05	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8424705	N/A	2016/10/06	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8424813	N/A	2016/10/06	Isabel Choi
Conductance - water	AT/ALK	8423398	N/A	2016/10/05	Wilson Au Yueng
Fluoride	ISE/ISE	8423449	N/A	2016/10/05	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8420969	N/A	2016/10/06	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8422091	N/A	2016/10/06	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8424135	N/A	2016/10/06	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8424159	2016/10/06	2016/10/06	Edwin Lamigo
Ion Balance	CALC	8422092	N/A	2016/10/06	Automated Statchk
Sum of cations, anions	CALC	8422093	N/A	2016/10/06	Automated Statchk

Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**TEST SUMMARY**

**Maxxam ID:** PR5423  
**Sample ID:** MW16-14D  
**Matrix:** Water

**Collected:** 2016/10/02  
**Shipped:**  
**Received:** 2016/10/03

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8421359	N/A	2016/10/06	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8423315	N/A	2016/10/06	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8423529	2016/10/05	2016/10/06	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8421360	N/A	2016/10/06	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8424854	N/A	2016/10/06	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8424477	N/A	2016/10/05	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8424483	N/A	2016/10/05	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8421618	N/A	2016/10/06	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8422689	N/A	2016/10/05	Lucy Luo
pH Water	AT/ALK	8423396	N/A	2016/10/05	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8424709	N/A	2016/10/06	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8423090	2016/10/05	2016/10/05	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8423108	N/A	2016/10/05	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8422734	2016/10/05	2016/10/06	Wendy Fong

**Maxxam ID:** PR5424  
**Sample ID:** DUP2  
**Matrix:** Water

**Collected:** 2016/10/02  
**Shipped:**  
**Received:** 2016/10/03

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8423014	N/A	2016/10/06	Maria Maclean
Alkalinity - Water	AT/ALK	8423393	2016/10/05	2016/10/05	Wilson Au Yueng
Chloride by Automated Colourimetry	KONE/COL	8424705	N/A	2016/10/06	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8424813	N/A	2016/10/06	Isabel Choi
Conductance - water	AT/ALK	8423398	N/A	2016/10/05	Wilson Au Yueng
Fluoride	ISE/ISE	8423449	N/A	2016/10/05	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8422169	N/A	2016/10/06	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8422091	N/A	2016/10/06	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8424135	N/A	2016/10/06	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8424159	2016/10/06	2016/10/06	Edwin Lamigo
Ion Balance	CALC	8422092	N/A	2016/10/06	Automated Statchk
Sum of cations, anions	CALC	8422093	N/A	2016/10/06	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8421359	N/A	2016/10/06	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8423315	N/A	2016/10/06	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8423529	2016/10/05	2016/10/06	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8421360	N/A	2016/10/06	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8424854	N/A	2016/10/06	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8424477	N/A	2016/10/05	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8424483	N/A	2016/10/05	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8421618	N/A	2016/10/06	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8422689	N/A	2016/10/05	Lucy Luo
pH Water	AT/ALK	8423396	N/A	2016/10/05	Wilson Au Yueng
Sulphate by Automated Colourimetry	KONE/COL	8424709	N/A	2016/10/06	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8423090	2016/10/05	2016/10/05	Isabel Choi

Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**TEST SUMMARY**

**Maxxam ID:** PR5424  
**Sample ID:** DUP2  
**Matrix:** Water

**Collected:** 2016/10/02  
**Shipped:**  
**Received:** 2016/10/03

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Phosphorus - unpreserved	KONE/COL	8423108	N/A	2016/10/05	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8422734	2016/10/05	2016/10/06	Wendy Fong

Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	6.7°C
Package 2	6.0°C
Package 3	4.7°C
Package 4	5.7°C

Samples collected on September 30th were received at the analytical lab past the recommended hold time for Nitrite, Nitrate, Total Phosphorus and Dissolved Phosphorus. Samples collected on October 1st were received at the analytical lab on the date of expiry and were analyzed past the recommended hold time for Nitrite, Nitrate, Total Phosphorus and Dissolved Phosphorus.

Sample PR5403-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PR5405-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PR5406-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PR5407-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PR5408-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PR5409-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PR5411-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PR5412-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PR5419-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PR5420-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PR5422-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PR5423-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PR5424-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PR5403, Elements by ICPMS Low Level (dissolved): Test repeated.

Sample PR5406, Elements by ICPMS Low Level (dissolved): Test repeated.

Sample PR5407, Elements by ICPMS Low Level (dissolved): Test repeated.

Sample PR5408, Elements by ICPMS Low Level (dissolved): Test repeated.

Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### GENERAL COMMENTS

Sample PR5409, Elements by ICPMS Low Level (dissolved): Test repeated.  
Sample PR5410, Elements by ICPMS Low Level (dissolved): Test repeated.  
Sample PR5411, Elements by ICPMS Low Level (dissolved): Test repeated.

**Results relate only to the items tested.**

Maxxam Job #: B687225  
Report Date: 2016/10/12

**QUALITY ASSURANCE REPORT**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8422714	Total Suspended Solids	2016/10/06			102	80 - 120	<1.0	mg/L		
8422734	Total Suspended Solids	2016/10/06			100	80 - 120	<1.0	mg/L		
8422961	Total Aluminum (Al)	2016/10/06	99	80 - 120	111	80 - 120	<0.00050	mg/L	4.2	20
8422961	Total Antimony (Sb)	2016/10/06	103	80 - 120	97	80 - 120	<0.000020	mg/L	NC	20
8422961	Total Arsenic (As)	2016/10/06	106	80 - 120	95	80 - 120	<0.000020	mg/L	8.6	20
8422961	Total Barium (Ba)	2016/10/06	NC	80 - 120	100	80 - 120	<0.000020	mg/L	2.3	20
8422961	Total Beryllium (Be)	2016/10/06	102	80 - 120	98	80 - 120	<0.000010	mg/L	NC	20
8422961	Total Bismuth (Bi)	2016/10/06	96	80 - 120	98	80 - 120	<0.0000050	mg/L	NC	20
8422961	Total Boron (B)	2016/10/06	101	80 - 120	98	80 - 120	<0.010	mg/L	NC	20
8422961	Total Cadmium (Cd)	2016/10/06	100	80 - 120	99	80 - 120	<0.0000050	mg/L	2.7	20
8422961	Total Chromium (Cr)	2016/10/06	100	80 - 120	97	80 - 120	<0.00010	mg/L	NC	20
8422961	Total Cobalt (Co)	2016/10/06	98	80 - 120	98	80 - 120	<0.0000050	mg/L	12	20
8422961	Total Copper (Cu)	2016/10/06	94	80 - 120	96	80 - 120	<0.000050	mg/L	1.6	20
8422961	Total Iron (Fe)	2016/10/06	NC	80 - 120	97	80 - 120	<0.0010	mg/L	1.1	20
8422961	Total Lead (Pb)	2016/10/06	98	80 - 120	98	80 - 120	<0.0000050	mg/L	2.0	20
8422961	Total Lithium (Li)	2016/10/06	101	80 - 120	102	80 - 120	<0.00050	mg/L	NC	20
8422961	Total Manganese (Mn)	2016/10/06	NC	80 - 120	98	80 - 120	<0.000050	mg/L	0.82	20
8422961	Total Molybdenum (Mo)	2016/10/06	NC	80 - 120	97	80 - 120	<0.000050	mg/L	0.11	20
8422961	Total Nickel (Ni)	2016/10/06	97	80 - 120	98	80 - 120	<0.000020	mg/L	6.0	20
8422961	Total Phosphorus (P)	2016/10/06					0.0023, RDL=0.0020	mg/L	NC	20
8422961	Total Selenium (Se)	2016/10/06	106	80 - 120	95	80 - 120	<0.000040	mg/L	5.6	20
8422961	Total Silicon (Si)	2016/10/06					<0.050	mg/L	0.098	20
8422961	Total Silver (Ag)	2016/10/06	109	80 - 120	91	80 - 120	<0.0000050	mg/L	NC	20
8422961	Total Strontium (Sr)	2016/10/06	NC	80 - 120	90	80 - 120	<0.000050	mg/L	1.7	20
8422961	Total Thallium (Tl)	2016/10/06	88	80 - 120	99	80 - 120	0.0000020, RDL=0.0000020	mg/L	NC	20
8422961	Total Tin (Sn)	2016/10/06	107	80 - 120	102	80 - 120	<0.00020	mg/L	NC	20
8422961	Total Titanium (Ti)	2016/10/06	91	80 - 120	81	80 - 120	<0.00050	mg/L	NC	20
8422961	Total Uranium (U)	2016/10/06	102	80 - 120	97	80 - 120	<0.0000020	mg/L	0.91	20
8422961	Total Vanadium (V)	2016/10/06	102	80 - 120	97	80 - 120	<0.00020	mg/L	NC	20

Maxxam Job #: B687225  
Report Date: 2016/10/12

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8422961	Total Zinc (Zn)	2016/10/06	NC	80 - 120	96	80 - 120	<0.00010	mg/L	0.16	20
8422961	Total Zirconium (Zr)	2016/10/06					<0.00010	mg/L	NC	20
8423005	Total Aluminum (Al)	2016/10/06	103	80 - 120	113	80 - 120	<0.0030	mg/L	NC	20
8423005	Total Antimony (Sb)	2016/10/06	100	80 - 120	104	80 - 120	<0.000020	mg/L	NC	20
8423005	Total Arsenic (As)	2016/10/06	108	80 - 120	108	80 - 120	<0.000020	mg/L	2.8	20
8423005	Total Barium (Ba)	2016/10/06	NC	80 - 120	103	80 - 120	<0.000050	mg/L	1.2	20
8423005	Total Beryllium (Be)	2016/10/06	105	80 - 120	108	80 - 120	<0.000010	mg/L	NC	20
8423005	Total Bismuth (Bi)	2016/10/06	92	80 - 120	96	80 - 120	<0.000010	mg/L	NC	20
8423005	Total Boron (B)	2016/10/06	NC	80 - 120	102	80 - 120	<0.010	mg/L	2.4	20
8423005	Total Cadmium (Cd)	2016/10/06	101	80 - 120	108	80 - 120	<0.0000050	mg/L	NC	20
8423005	Total Chromium (Cr)	2016/10/06	100	80 - 120	98	80 - 120	<0.00010	mg/L	NC	20
8423005	Total Cobalt (Co)	2016/10/06	98	80 - 120	98	80 - 120	<0.000010	mg/L	2.9	20
8423005	Total Copper (Cu)	2016/10/06	95	80 - 120	101	80 - 120	<0.00010	mg/L	NC	20
8423005	Total Iron (Fe)	2016/10/06	NC	80 - 120	99	80 - 120	<0.0050	mg/L	0.024	20
8423005	Total Lead (Pb)	2016/10/06	96	80 - 120	98	80 - 120	<0.000020	mg/L	NC	20
8423005	Total Lithium (Li)	2016/10/06	NC	80 - 120	96	80 - 120	<0.00050	mg/L	1.8	20
8423005	Total Manganese (Mn)	2016/10/06	NC	80 - 120	100	80 - 120	<0.00010	mg/L	3.2	20
8423005	Total Molybdenum (Mo)	2016/10/06	103	80 - 120	99	80 - 120	<0.000050	mg/L	2.5	20
8423005	Total Nickel (Ni)	2016/10/06	95	80 - 120	100	80 - 120	<0.00010	mg/L	NC	20
8423005	Total Phosphorus (P)	2016/10/06					<0.0050	mg/L		
8423005	Total Selenium (Se)	2016/10/06	110	80 - 120	114	80 - 120	<0.000040	mg/L	NC	20
8423005	Total Silicon (Si)	2016/10/06					<0.050	mg/L	2.7	20
8423005	Total Silver (Ag)	2016/10/06	110	80 - 120	101	80 - 120	<0.000010	mg/L	NC	20
8423005	Total Strontium (Sr)	2016/10/06	NC	80 - 120	95	80 - 120	<0.000050	mg/L	1.0	20
8423005	Total Thallium (Tl)	2016/10/06	92	80 - 120	81	80 - 120	<0.0000020	mg/L	NC	20
8423005	Total Tin (Sn)	2016/10/06	107	80 - 120	96	80 - 120	<0.00020	mg/L	NC	20
8423005	Total Titanium (Ti)	2016/10/06	84	80 - 120	96	80 - 120	<0.0020	mg/L	NC	20
8423005	Total Uranium (U)	2016/10/06	102	80 - 120	94	80 - 120	<0.0000050	mg/L	4.1	20
8423005	Total Vanadium (V)	2016/10/06	103	80 - 120	99	80 - 120	<0.00020	mg/L	NC	20
8423005	Total Zinc (Zn)	2016/10/06	95	80 - 120	117	80 - 120	<0.0010	mg/L	NC	20
8423005	Total Zirconium (Zr)	2016/10/06					<0.00010	mg/L	NC	20

Maxxam Job #: B687225  
Report Date: 2016/10/12

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8423014	Acidity (pH 4.5)	2016/10/06					<0.50	mg/L	NC	20
8423014	Acidity (pH 8.3)	2016/10/06			98	80 - 120	<0.50	mg/L	NC	20
8423018	Acidity (pH 4.5)	2016/10/06					<0.50	mg/L	NC	20
8423018	Acidity (pH 8.3)	2016/10/06			99	80 - 120	<0.50	mg/L	NC	20
8423090	Dissolved Phosphorus (P)	2016/10/05	95	80 - 120	115	80 - 120	<0.0020	mg/L	3.8	20
8423108	Total Phosphorus (P)	2016/10/05	95	80 - 120	101	80 - 120	<0.0020	mg/L	6.6	20
8423304	Dissolved Aluminum (Al)	2016/10/06	106	80 - 120	113	80 - 120	<0.00050	mg/L	NC	20
8423304	Dissolved Antimony (Sb)	2016/10/06	102	80 - 120	95	80 - 120	<0.000020	mg/L	NC	20
8423304	Dissolved Arsenic (As)	2016/10/06	108	80 - 120	97	80 - 120	<0.000020	mg/L	0.071	20
8423304	Dissolved Barium (Ba)	2016/10/06	NC	80 - 120	98	80 - 120	<0.000020	mg/L	1.9	20
8423304	Dissolved Beryllium (Be)	2016/10/06	106	80 - 120	95	80 - 120	<0.000010	mg/L	NC	20
8423304	Dissolved Bismuth (Bi)	2016/10/06	89	80 - 120	100	80 - 120	<0.0000050	mg/L	NC	20
8423304	Dissolved Boron (B)	2016/10/06	98	80 - 120	95	80 - 120	<0.010	mg/L	NC	20
8423304	Dissolved Cadmium (Cd)	2016/10/06	103	80 - 120	97	80 - 120	<0.0000050	mg/L	NC	20
8423304	Dissolved Chromium (Cr)	2016/10/06	92	80 - 120	96	80 - 120	<0.00010	mg/L	NC	20
8423304	Dissolved Cobalt (Co)	2016/10/06	89	80 - 120	97	80 - 120	<0.0000050	mg/L	18	20
8423304	Dissolved Copper (Cu)	2016/10/06	86	80 - 120	98	80 - 120	<0.000050	mg/L	3.9	20
8423304	Dissolved Iron (Fe)	2016/10/06	97	80 - 120	99	80 - 120	<0.0010	mg/L	0.51	20
8423304	Dissolved Lead (Pb)	2016/10/06	90	80 - 120	100	80 - 120	<0.0000050	mg/L	NC	20
8423304	Dissolved Lithium (Li)	2016/10/06	98	80 - 120	96	80 - 120	<0.00050	mg/L	5.9	20
8423304	Dissolved Manganese (Mn)	2016/10/06	NC	80 - 120	97	80 - 120	<0.000050	mg/L	1.1	20
8423304	Dissolved Molybdenum (Mo)	2016/10/06	NC	80 - 120	99	80 - 120	<0.000050	mg/L	0.35	20
8423304	Dissolved Nickel (Ni)	2016/10/06	88	80 - 120	98	80 - 120	<0.000020	mg/L	4.4	20
8423304	Dissolved Phosphorus (P)	2016/10/06					<0.0020	mg/L	NC	20
8423304	Dissolved Selenium (Se)	2016/10/06	114	80 - 120	97	80 - 120	<0.000040	mg/L		
8423304	Dissolved Silicon (Si)	2016/10/06					<0.050	mg/L	1.0	20
8423304	Dissolved Silver (Ag)	2016/10/06	109	80 - 120	77 (1)	80 - 120	<0.0000050	mg/L	NC	20
8423304	Dissolved Strontium (Sr)	2016/10/06	NC	80 - 120	100	80 - 120	<0.000050	mg/L	4.0	20
8423304	Dissolved Thallium (Tl)	2016/10/06	81	80 - 120	99	80 - 120	0.0000020, RDL=0.0000020	mg/L	NC	20
8423304	Dissolved Tin (Sn)	2016/10/06	97	80 - 120	102	80 - 120	<0.00020	mg/L	NC	20



Maxxam Job #: B687225  
Report Date: 2016/10/12

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8423304	Dissolved Titanium (Ti)	2016/10/06	91	80 - 120	82	80 - 120	<0.00050	mg/L	NC	20
8423304	Dissolved Uranium (U)	2016/10/06	92	80 - 120	97	80 - 120	<0.0000020	mg/L	1.6	20
8423304	Dissolved Vanadium (V)	2016/10/06	95	80 - 120	95	80 - 120	<0.00020	mg/L	NC	20
8423304	Dissolved Zinc (Zn)	2016/10/06	115	80 - 120	98	80 - 120	<0.00010	mg/L	NC	20
8423304	Dissolved Zirconium (Zr)	2016/10/06					<0.00010	mg/L	NC	20
8423315	Dissolved Aluminum (Al)	2016/10/06	104	80 - 120	114	80 - 120	<0.00050	mg/L	NC	20
8423315	Dissolved Antimony (Sb)	2016/10/06	95	80 - 120	99	80 - 120	<0.000020	mg/L	NC	20
8423315	Dissolved Arsenic (As)	2016/10/06	102	80 - 120	96	80 - 120	<0.000020	mg/L	NC	20
8423315	Dissolved Barium (Ba)	2016/10/06	NC	80 - 120	100	80 - 120	<0.000020	mg/L	NC	20
8423315	Dissolved Beryllium (Be)	2016/10/06	96	80 - 120	95	80 - 120	<0.000010	mg/L	NC	20
8423315	Dissolved Bismuth (Bi)	2016/10/06	89	80 - 120	97	80 - 120	<0.0000050	mg/L	NC	20
8423315	Dissolved Boron (B)	2016/10/06	NC	80 - 120	95	80 - 120	<0.010	mg/L	NC	20
8423315	Dissolved Cadmium (Cd)	2016/10/06	97	80 - 120	97	80 - 120	<0.0000050	mg/L	NC	20
8423315	Dissolved Chromium (Cr)	2016/10/06	95	80 - 120	98	80 - 120	<0.00010	mg/L	NC	20
8423315	Dissolved Cobalt (Co)	2016/10/06	93	80 - 120	98	80 - 120	<0.0000050	mg/L	NC	20
8423315	Dissolved Copper (Cu)	2016/10/06	90	80 - 120	98	80 - 120	<0.000050	mg/L	NC	20
8423315	Dissolved Iron (Fe)	2016/10/06	92	80 - 120	99	80 - 120	<0.0010	mg/L	NC	20
8423315	Dissolved Lead (Pb)	2016/10/06	92	80 - 120	97	80 - 120	<0.0000050	mg/L	NC	20
8423315	Dissolved Lithium (Li)	2016/10/06	NC	80 - 120	97	80 - 120	<0.00050	mg/L	NC	20
8423315	Dissolved Manganese (Mn)	2016/10/06	94	80 - 120	99	80 - 120	<0.000050	mg/L	NC	20
8423315	Dissolved Molybdenum (Mo)	2016/10/06	103	80 - 120	95	80 - 120	<0.000050	mg/L	NC	20
8423315	Dissolved Nickel (Ni)	2016/10/06	91	80 - 120	99	80 - 120	<0.000020	mg/L	NC	20
8423315	Dissolved Phosphorus (P)	2016/10/06					<0.0020	mg/L	NC	20
8423315	Dissolved Selenium (Se)	2016/10/06	101	80 - 120	95	80 - 120	<0.000040	mg/L	NC	20
8423315	Dissolved Silicon (Si)	2016/10/06					<0.050	mg/L	NC	20
8423315	Dissolved Silver (Ag)	2016/10/06	93	80 - 120	91	80 - 120	<0.0000050	mg/L	NC	20
8423315	Dissolved Strontium (Sr)	2016/10/06	NC	80 - 120	94	80 - 120	<0.000050	mg/L	NC	20
8423315	Dissolved Thallium (Tl)	2016/10/06	81	80 - 120	98	80 - 120	<0.0000020	mg/L	NC	20
8423315	Dissolved Tin (Sn)	2016/10/06	95	80 - 120	108	80 - 120	<0.00020	mg/L	NC	20
8423315	Dissolved Titanium (Ti)	2016/10/06	80	80 - 120	101	80 - 120	<0.00050	mg/L	NC	20
8423315	Dissolved Uranium (U)	2016/10/06	96	80 - 120	96	80 - 120	<0.0000020	mg/L	NC	20

Maxxam Job #: B687225  
Report Date: 2016/10/12

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8423315	Dissolved Vanadium (V)	2016/10/06	96	80 - 120	96	80 - 120	<0.00020	mg/L	NC	20
8423315	Dissolved Zinc (Zn)	2016/10/06	97	80 - 120	98	80 - 120	<0.00010	mg/L	NC	20
8423315	Dissolved Zirconium (Zr)	2016/10/06					<0.00010	mg/L	NC	20
8423393	Alkalinity (PP as CaCO3)	2016/10/05					<0.50	mg/L	NC	20
8423393	Alkalinity (Total as CaCO3)	2016/10/05	NC	80 - 120	97	80 - 120	<0.50	mg/L	0.21	20
8423393	Bicarbonate (HCO3)	2016/10/05					<0.50	mg/L	0.21	20
8423393	Carbonate (CO3)	2016/10/05					<0.50	mg/L	NC	20
8423393	Hydroxide (OH)	2016/10/05					<0.50	mg/L	NC	20
8423396	pH	2016/10/05			102	97 - 103			0.51	N/A
8423398	Conductivity	2016/10/05			99	80 - 120	<1.0	uS/cm	1.0	20
8423449	Fluoride (F)	2016/10/05	NC	80 - 120	102	80 - 120	0.010, RDL=0.010	mg/L	3.4	20
8423529	Total Aluminum (Al)	2016/10/06	NC	80 - 120	114	80 - 120	<0.0030	mg/L	1.4	20
8423529	Total Antimony (Sb)	2016/10/06	100	80 - 120	100	80 - 120	<0.000020	mg/L	NC	20
8423529	Total Arsenic (As)	2016/10/06	101	80 - 120	102	80 - 120	<0.000020	mg/L	2.3	20
8423529	Total Barium (Ba)	2016/10/06	NC	80 - 120	106	80 - 120	<0.000050	mg/L	2.9	20
8423529	Total Beryllium (Be)	2016/10/06	100	80 - 120	99	80 - 120	<0.000010	mg/L	NC	20
8423529	Total Bismuth (Bi)	2016/10/06	96	80 - 120	99	80 - 120	<0.000010	mg/L	NC	20
8423529	Total Boron (B)	2016/10/06	99	80 - 120	98	80 - 120	<0.010	mg/L	NC	20
8423529	Total Cadmium (Cd)	2016/10/06	103	80 - 120	103	80 - 120	<0.0000050	mg/L	NC	20
8423529	Total Chromium (Cr)	2016/10/06	102	80 - 120	101	80 - 120	<0.00010	mg/L	NC	20
8423529	Total Cobalt (Co)	2016/10/06	99	80 - 120	102	80 - 120	<0.000010	mg/L	0.54	20
8423529	Total Copper (Cu)	2016/10/06	94	80 - 120	101	80 - 120	<0.00010	mg/L	6.1	20
8423529	Total Iron (Fe)	2016/10/06	NC	80 - 120	108	80 - 120	<0.0050	mg/L	0.16	20
8423529	Total Lead (Pb)	2016/10/06	98	80 - 120	100	80 - 120	<0.000020	mg/L	4.4	20
8423529	Total Lithium (Li)	2016/10/06	NC	80 - 120	102	80 - 120	<0.00050	mg/L	0.11	20
8423529	Total Manganese (Mn)	2016/10/06	NC	80 - 120	105	80 - 120	<0.00010	mg/L	0.064	20
8423529	Total Molybdenum (Mo)	2016/10/06	97	80 - 120	103	80 - 120	<0.000050	mg/L	NC	20
8423529	Total Nickel (Ni)	2016/10/06	99	80 - 120	103	80 - 120	<0.00010	mg/L	NC	20
8423529	Total Phosphorus (P)	2016/10/06					<0.0050	mg/L	NC	20
8423529	Total Selenium (Se)	2016/10/06	103	80 - 120	101	80 - 120	<0.000040	mg/L	NC	20

Maxxam Job #: B687225  
Report Date: 2016/10/12

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8423529	Total Silicon (Si)	2016/10/06					<0.050	mg/L	0.99	20
8423529	Total Silver (Ag)	2016/10/06	104	80 - 120	87	80 - 120	<0.000010	mg/L	NC	20
8423529	Total Strontium (Sr)	2016/10/06	NC	80 - 120	105	80 - 120	<0.000050	mg/L	1.5	20
8423529	Total Thallium (Tl)	2016/10/06	86	80 - 120	97	80 - 120	<0.0000020	mg/L	NC	20
8423529	Total Tin (Sn)	2016/10/06	88	80 - 120	109	80 - 120	<0.00020	mg/L	NC	20
8423529	Total Titanium (Ti)	2016/10/06	109	80 - 120	98	80 - 120	<0.0020	mg/L	NC	20
8423529	Total Uranium (U)	2016/10/06	102	80 - 120	102	80 - 120	<0.0000050	mg/L	2.2	20
8423529	Total Vanadium (V)	2016/10/06	103	80 - 120	102	80 - 120	<0.00020	mg/L	NC	20
8423529	Total Zinc (Zn)	2016/10/06	95	80 - 120	107	80 - 120	<0.0010	mg/L	NC	20
8423529	Total Zirconium (Zr)	2016/10/06					<0.00010	mg/L	NC	20
8424135	Dissolved Mercury (Hg)	2016/10/06	90	80 - 120	98	80 - 120	<0.0000020	mg/L	NC	20
8424144	Total Mercury (Hg)	2016/10/06	92	80 - 120	95	80 - 120	<0.0000020	mg/L	NC	20
8424150	Dissolved Mercury (Hg)	2016/10/06	92	80 - 120	97	80 - 120	<0.0000020	mg/L	NC	20
8424159	Total Mercury (Hg)	2016/10/06	97	80 - 120	99	80 - 120	<0.0000020	mg/L	NC	20
8424477	Nitrate plus Nitrite (N)	2016/10/05	106	80 - 120	103	80 - 120	<0.0020	mg/L	NC	25
8424483	Nitrite (N)	2016/10/05	99	80 - 120	93	80 - 120	<0.0020	mg/L	NC	25
8424705	Dissolved Chloride (Cl)	2016/10/06	95	80 - 120	101	80 - 120	<0.50	mg/L	NC	20
8424709	Dissolved Sulphate (SO4)	2016/10/06	NC	80 - 120	97	80 - 120	0.58, RDL=0.50	mg/L	1.1	20
8424812	Dissolved Organic Carbon (C)	2016/10/06	105	80 - 120	113	80 - 120	<0.50	mg/L	NC	20
8424813	Dissolved Organic Carbon (C)	2016/10/06	107	80 - 120	115	80 - 120	<0.50	mg/L	NC	20
8424852	Total Ammonia (N)	2016/10/06	102	80 - 120	96	80 - 120	<0.0050	mg/L	2.4	20
8424854	Total Ammonia (N)	2016/10/06	NC	80 - 120	100	80 - 120	<0.0050	mg/L	2.5	20
8427147	Dissolved Arsenic (As)	2016/10/07			95	80 - 120	0.000029, RDL=0.000020	mg/L		
8427147	Dissolved Barium (Ba)	2016/10/07			99	80 - 120	<0.000020	mg/L		
8427147	Dissolved Lithium (Li)	2016/10/07			89	80 - 120	<0.00050	mg/L		
8427147	Dissolved Manganese (Mn)	2016/10/07			95	80 - 120	<0.000050	mg/L		
8427147	Dissolved Molybdenum (Mo)	2016/10/07			99	80 - 120	<0.000050	mg/L		
8427147	Dissolved Selenium (Se)	2016/10/07			97	80 - 120	<0.000040	mg/L		
8427147	Dissolved Silicon (Si)	2016/10/07					<0.050	mg/L		
8427147	Dissolved Strontium (Sr)	2016/10/07			87	80 - 120	<0.000050	mg/L		

Maxxam Job #: B687225  
Report Date: 2016/10/12

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8427147	Dissolved Uranium (U)	2016/10/07			101	80 - 120	<0.0000020	mg/L		
8427147	Dissolved Zirconium (Zr)	2016/10/07					<0.00010	mg/L		
8427749	Total Phosphorus (P)	2016/10/08	87	80 - 120	105	80 - 120	<0.0020	mg/L	NC	20

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

(1) Blank Spike outside acceptance criteria (10% of analytes failure allowed).

Maxxam Job #: B687225  
Report Date: 2016/10/12

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



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David Huang, M.Sc., P.Chem., QP, Scientific Services Manager

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5. Toll Free (800) 665-8566

CHAIN OF CUSTODY REPORT



BBY FCD-00077/05

COC #

08428036

Page 1 of 2

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	me (TAT) Required
Company Name: <b>BMC MINERALS LTD.</b>	Company Name: <b>ALEXCO ENVIRONMENTAL</b>	Quotation #: <b>860751</b>	<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses)
Contact Name:	Contact Name: <b>KAI WOLOSHYN</b>	P.O. #/ AFE#:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: <b>530-1130 WEST PENDER ST</b>	Address: <b>UNIT 3 151 INDUSTRIAL RD</b>	Project #: <b>BMC-16-01</b>	Rush TAT (Surcharges will be applied)
<b>Vancouver, BC PC: V6E 4A4</b>	<b>Whitehorse, YK PC: V1A 2V3</b>	Site Location: <b>Kudz Ze Kayah</b>	<input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days
Phone:	Phone: <b>(867) 668-6463</b>	Site #:	<input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days
Email:	Email: <b>kwoloshyn@alexcoresource.com</b>	Sampled By: <b>Andrea Badger</b>	Date Required:

Regulatory Criteria	Special Instructions	Analysis Requested	Rush Confirmation #:
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> BC CSR Water <input type="checkbox"/> COME (Specify) <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC Water Quality	<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify) <b>Also send report to: ifougere@accessconsulting.ca</b>	TOTAL LOW LEVEL METALS INCL. MERCURY DISSOLVED LOW LEVEL METALS INCL. MERCURY LOW LEVEL TSS ANIONS (Cl, F, SO4, NO2, NO3) AMMONIA CONDUCTIVITY pH ALKALINITY & ACIDITY DOC TOTAL PHOSPHORUS - LOW LEVEL DISSOLVED PHOSPHORUS - LOW LEVEL	LABORATORY USE ONLY CUSTODY SEAL Y N Present Intact COOLING MEDIA PRESENT Y N COMMENTS

Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	TOTAL LOW LEVEL METALS INCL. MERCURY	DISSOLVED LOW LEVEL METALS INCL. MERCURY	LOW LEVEL TSS	ANIONS (Cl, F, SO4, NO2, NO3)	AMMONIA	CONDUCTIVITY	pH	ALKALINITY & ACIDITY	DOC	TOTAL PHOSPHORUS - LOW LEVEL	DISSOLVED PHOSPHORUS - LOW LEVEL	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	LABORATORY USE ONLY
1	BH96G-131	30-Sep-16	18:30	Water	X	X	X	X	X	X	X	X	X	X	X	10		RECEIVED IN WHITEHORSE
2	MW15-03D	01-Oct-16	9:30	Water	X	X	X	X	X	X	X	X	X	X	X	10		BY: <i>kyano@1515</i>
3	MW15-03S	01-Oct-16	9:49	Water	X	X	X	X	X	X	X	X	X	X	X	10		2016-10-03
4	MW15-04D	01-Oct-16	10:54	Water	X	X	X	X	X	X	X	X	X	X	X	10		
5	MW15-04S	01-Oct-16	11:33	Water	X	X	X	X	X	X	X	X	X	X	X	10		
6	MW15-07S	01-Oct-16	12:35	Water	X	X	X	X	X	X	X	X	X	X	X	10		TEMP: <i>6/7</i>
7	MW15-05D	01-Oct-16	13:30	Water	X	X	X	X	X	X	X	X	X	X	X	10		<i>6/9</i>
8	MW15-08S	01-Oct-16	14:47	Water	X	X	X	X	X	X	X	X	X	X	X	10		<i>6/9</i>
9	DUP1	01-Oct-16		Water	X	X	X	X	X	X	X	X	X	X	X	10		
10	MW16-15S	02-Oct-16	9:36	Water	X	X	X	X	X	X	X	X	X	X	X	10		

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)
<i>Catherine Henry</i>	2016/10/03	11:30	<i>Alexandra Finer</i>	2016/10/04	13:35



B687225\_COC

cooler #  
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Invoice Information		Report Information (if differs from invoice)			Project Information (where appropriate)										Turnaround Time (TAT) Required		
Company Name: <b>BMC MINERALS LTD.</b>		Company Name: <b>ALEXCO ENVIRONMENTAL</b>			Quotation #: <b>B60751</b>										<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses)		
Contact Name:		Contact Name: <b>KAI WOLOSHYN</b>			P.O. #/ AFE#:										PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS		
Address: <b>530-1130 WEST PENDER ST</b> <b>Vancouver, BC PC: V6E 4A4</b>		Address: <b>UNIT 3 151 INDUSTRIAL RD</b> <b>Whitehorse, YK PC: V1A 2V3</b>			Project #: <b>BMC-16-01</b>										Rush TAT (Surcharges will be applied)		
Phone:		Phone: <b>(867) 668-6463</b>			Site Location: <b>Kudz Ze Kayah</b>										<input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days		
Email:		Email: <b>kwoloshyn@alexcoresource.com</b>			Site #:										<input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days		
Date Required:					Sampled By: <b>Andrea Badger</b>												
Regulatory Criteria		Special Instructions			Analysis Requested										Rush Confirmation #:		
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> BC CSR Water <input type="checkbox"/> CCME (Specify) <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC Water Quality		<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify) <b>Also send report to:</b> ifougere@accessconsulting.ca nsnelss@accessconsulting.ca			TOTAL LOW LEVEL METALS INCL. MERCURY DISSOLVED LOW LEVEL METALS INCL. MERCURY LOW LEVEL TSS ANIONS (CL, F, SO4, NO2, NO3) AMMONIA CONDUCTIVITY PH ALKALINITY & ACIDITY DOC TOTAL PHOSPHORUS - LOW LEVEL DISSOLVED PHOSPHORUS - LOW LEVEL										LABORATORY USE ONLY		
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM															CUSTODY SEAL Y/N Present Intact COOLING MEDIA PRESENT Y/N COMMENTS		
Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	TOTAL LOW LEVEL METALS INCL. MERCURY	DISSOLVED LOW LEVEL METALS INCL. MERCURY	LOW LEVEL TSS	ANIONS (CL, F, SO4, NO2, NO3)	AMMONIA	CONDUCTIVITY	PH	ALKALINITY & ACIDITY	DOC	TOTAL PHOSPHORUS - LOW LEVEL	DISSOLVED PHOSPHORUS - LOW LEVEL	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE
1	MW16-15D	02-Oct-16	10:47	Water	X	X	X	X	X	X	X	X	X	X	X	10	
2	BH95G-32	02-Oct-16	12:55	Water	X	X	X	X	X	X	X	X	X	X	X	10	
3	BH95G-2	02-Oct-16	14:20	Water	X	X	X	X	X	X	X	X	X	X	X	10	
4	MW15-01	02-Oct-16	15:34	Water	X	X	X	X	X	X	X	X	X	X	X	10	
5	MW16-14D	02-Oct-16	16:53	Water	X	X	X	X	X	X	X	X	X	X	X	10	
6	DUP2	02-Oct-16		Water	X	X	X	X	X	X	X	X	X	X	X	10	
7																	
8																	
9																	
10																	
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)		TIME: (HH:MM)		RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)		TIME: (HH:MM)							
<i>Catherine Henry</i>		2016/10/03		11:30		<i>Laurel Becher</i>		2016/10/04		13:35							





Your Project #: BMC-16-01  
 Site Location: KUDZ ZE KAYAH  
 Your C.O.C. #: 08428207, 08428208

**Attention: KAI WOLOSHYN**

ALEXCO ENVIRONMENTAL GROUP INC.  
 Unit 3 Calcite Business Centre  
 151 Industrial Road  
 WHITEHORSE, YT  
 Canada Y1A 2V3

**Report Date: 2016/10/19**  
 Report #: R2285075  
 Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B688874**

**Received: 2016/10/06, 16:30**

Sample Matrix: Water  
 # Samples Received: 14

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
Acidity pH 4.5 & pH 8.3 (as CaCO3)	14	N/A	2016/10/13	BBY6SOP-00037	SM 22 2310 B m
Alkalinity - Water	14	2016/10/08	2016/10/08	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry	14	N/A	2016/10/11	BBY6SOP-00011	SM 22 4500-Cl- E m
Carbon (DOC) - field filtered/preserved (1)	14	N/A	2016/10/12	BBY6SOP-00003	SM 22 5310 C m
Conductance - water	14	N/A	2016/10/08	BBY6SOP-00026	SM 22 2510 B m
Fluoride	14	N/A	2016/10/11	BBY6SOP-00048	SM 22 4500-F C m
Hardness Total (calculated as CaCO3)	14	N/A	2016/10/12	BBY WI-00033	Auto Calc
Hardness (calculated as CaCO3)	14	N/A	2016/10/12	BBY WI-00033	Auto Calc
Mercury (Dissolved-LowLevel) by CVAf	14	N/A	2016/10/11	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total-LowLevel) by CVAf	14	2016/10/11	2016/10/11	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Ion Balance	13	N/A	2016/10/12	BBY WI-00033	Auto Calc
Ion Balance	1	N/A	2016/10/13	BBY WI-00033	Auto Calc
Sum of cations, anions	14	N/A	2016/10/12	Calc	
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	14	N/A	2016/10/12	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Low Level (dissolved)	14	N/A	2016/10/12	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Digested LL (total)	11	2016/10/12	2016/10/12	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Na, K, Ca, Mg, S by CRC ICPMS (total)	14	N/A	2016/10/12	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Elements by ICPMS Low Level (total)	3	N/A	2016/10/12	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Ammonia-N (Preserved)	14	N/A	2016/10/11	BBY6SOP-00009	SM 22 4500-NH3- G m
Nitrate+Nitrite (N) (low level)	13	N/A	2016/10/08	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrate+Nitrite (N) (low level)	1	N/A	2016/10/18	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) (low level)	14	N/A	2016/10/08	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N)	14	N/A	2016/10/12	BBY6SOP-00010	SM 22 4500-NO3- I m
Filter and HNO3 Preserve for Metals	14	N/A	2016/10/11	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (2)	14	N/A	2016/10/08	BBY6SOP-00026	SM 22 4500-H+ B m
Sulphate by Automated Colourimetry	14	N/A	2016/10/11	BBY6SOP-00017	SM 22 4500-SO42- E m
Phosphorus-P (LL Tot, dissolved) - UF/UP	14	2016/10/11	2016/10/12	BBY6SOP-00013	SM 22 4500-P E m
Total Phosphorus - unpreserved	14	N/A	2016/10/12	BBY6SOP-00013	SM 22 4500-P E m
Total Suspended Solids-Low Level	10	2016/10/08	2016/10/11	BBY6SOP-00034	SM 22 2540 D



Your Project #: BMC-16-01  
 Site Location: KUDZ ZE KAYAH  
 Your C.O.C. #: 08428207, 08428208

**Attention:KAI WOLOSHYN**

ALEXCO ENVIRONMENTAL GROUP INC.  
 Unit 3 Calcite Business Centre  
 151 Industrial Road  
 WHITEHORSE, YT  
 Canada Y1A 2V3

**Report Date: 2016/10/19**  
 Report #: R2285075  
 Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B688874**

**Received: 2016/10/06, 16:30**

Sample Matrix: Water  
 # Samples Received: 14

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Total Suspended Solids-Low Level	4	2016/10/11	2016/10/12	BBY6SOP-00034	SM 22 2540 D

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) DOC present in the sample should be considered as non-purgeable DOC.

(2) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

**Encryption Key**

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Megan Smith, Project Manager

Email: msmith@maxxam.ca

Phone# (604) 734 7276

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B688874  
Report Date: 2016/10/19

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PS5227			PS5228			PS5229		
Sampling Date		2016/10/03 09:06			2016/10/03 11:56			2016/10/03 13:10		
COC Number		08428207			08428207			08428207		
	UNITS	MW15-09S	RDL	QC Batch	MW16-12S	RDL	QC Batch	MW16-12D	RDL	QC Batch
<b>Calculated Parameters</b>										
Anion Sum	meq/L	4.4	N/A	8426132	16	N/A	8426132	18	N/A	8426132
Cation Sum	meq/L	4.3	N/A	8426132	17	N/A	8426132	17	N/A	8426132
Filter and HNO3 Preservation	N/A	LAB	N/A	8428543	LAB	N/A	8428543	LAB	N/A	8428543
Ion Balance	N/A	0.97	0.010	8426418	1.1	0.010	8426418	0.96	0.010	8426418
Nitrate (N)	mg/L	0.0873	0.0020	8426133	0.0037	0.0020	8426133	<0.0020	0.0020	8426133
<b>Misc. Inorganics</b>										
Fluoride (F)	mg/L	0.290	0.010	8429543	0.850	0.010	8429543	1.10	0.010	8429543
Dissolved Organic Carbon (C)	mg/L	1.38	0.50	8430899	6.54	0.50	8430899	1.24	0.50	8430899
Acidity (pH 4.5)	mg/L	<0.50	0.50	8427488	<5.0	5.0	8427488	<5.0	5.0	8427488
Alkalinity (Total as CaCO3)	mg/L	201	0.50	8427378	776	0.50	8427378	878	0.50	8427378
Acidity (pH 8.3)	mg/L	2.64	0.50	8427488	72.9	5.0	8427488	67.9	5.0	8427488
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8427378	<0.50	0.50	8427378	<0.50	0.50	8427378
Bicarbonate (HCO3)	mg/L	245	0.50	8427378	947	0.50	8427378	1070	0.50	8427378
Carbonate (CO3)	mg/L	<0.50	0.50	8427378	<0.50	0.50	8427378	<0.50	0.50	8427378
Hydroxide (OH)	mg/L	<0.50	0.50	8427378	<0.50	0.50	8427378	<0.50	0.50	8427378
<b>Anions</b>										
Dissolved Sulphate (SO4)	mg/L	18.4	0.50	8429141	<0.50	0.50	8429141	<0.50	0.50	8429141
Dissolved Chloride (Cl)	mg/L	0.76	0.50	8429138	2.0	0.50	8429138	1.9	0.50	8429138
<b>Nutrients</b>										
Dissolved Phosphorus (P)	mg/L	0.0179 (1)	0.0020	8429710	0.298 (1)	0.0020	8429710	0.125 (1)	0.0020	8429710
Total Ammonia (N)	mg/L	0.019	0.0050	8429579	0.18	0.0050	8429663	0.27	0.0050	8429663
Nitrate plus Nitrite (N)	mg/L	0.0927 (1)	0.0020	8430715	0.0061 (1)	0.0020	8430715	<0.0020 (1)	0.0020	8430715
Nitrite (N)	mg/L	0.0054 (1)	0.0020	8430717	0.0024 (1)	0.0020	8430717	0.0023 (1)	0.0020	8430717
Total Phosphorus (P)	mg/L	0.0194 (1)	0.0020	8429711	0.308 (1)	0.0020	8429711	0.138 (1)	0.0020	8429711
<b>Physical Properties</b>										
Conductivity	uS/cm	407	1.0	8427379	1500	1.0	8427379	1510	1.0	8427379
pH	pH	7.97		8427380	7.02		8427380	6.98		8427380
<b>Physical Properties</b>										
Total Suspended Solids	mg/L	20.0	1.0	8427448	1380 (2)	10	8427448	76.3	1.0	8427448
RDL = Reportable Detection Limit N/A = Not Applicable (1) Sample analysed past recommended hold time. (2) RDL raised due to high concentration of solids in the sample.										

Maxxam Job #: B688874  
Report Date: 2016/10/19

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PS5230		PS5231			PS5232		
Sampling Date		2016/10/03 15:12		2016/10/03 16:20			2016/10/03 17:36		
COC Number		08428207		08428207			08428207		
	UNITS	BH95G-15D	RDL	MW15-10D	RDL	QC Batch	MW15-06	RDL	QC Batch
<b>Calculated Parameters</b>									
Anion Sum	meq/L	3.8	N/A	32	N/A	8426132	4.1	N/A	8426132
Cation Sum	meq/L	4.0	N/A	44	N/A	8426132	4.5	N/A	8426132
Filter and HNO3 Preservation	N/A	LAB	N/A	LAB	N/A	8428543	LAB	N/A	8428543
Ion Balance	N/A	1.1	0.010	1.4 (1)	0.010	8426418	1.1	0.010	8426418
Nitrate (N)	mg/L	0.567	0.0020	0.0024	0.0020	8426133	0.356	0.0020	8426133
<b>Misc. Inorganics</b>									
Fluoride (F)	mg/L	0.150	0.010	1.30	0.010	8429543	0.120	0.010	8429543
Dissolved Organic Carbon (C)	mg/L	1.95	0.50	0.95	0.50	8430893	0.67	0.50	8430899
Acidity (pH 4.5)	mg/L	<0.50	0.50	<0.50	0.50	8427488	<0.50	0.50	8427488
Alkalinity (Total as CaCO3)	mg/L	171	0.50	1610	0.50	8427378	180	0.50	8427376
Acidity (pH 8.3)	mg/L	2.20	0.50	169	5.0	8427488	2.07	0.50	8427488
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	<0.50	0.50	8427378	<0.50	0.50	8427376
Bicarbonate (HCO3)	mg/L	208	0.50	1960	0.50	8427378	219	0.50	8427376
Carbonate (CO3)	mg/L	<0.50	0.50	<0.50	0.50	8427378	<0.50	0.50	8427376
Hydroxide (OH)	mg/L	<0.50	0.50	<0.50	0.50	8427378	<0.50	0.50	8427376
<b>Anions</b>									
Dissolved Sulphate (SO4)	mg/L	13.5	0.50	8.26	0.50	8429141	23.0	0.50	8429137
Dissolved Chloride (Cl)	mg/L	0.71	0.50	3.3	0.50	8429138	1.0	0.50	8429135
<b>Nutrients</b>									
Dissolved Phosphorus (P)	mg/L	1.11 (2)	0.020	0.0630 (3)	0.0020	8429710	0.0025 (3)	0.0020	8429710
Total Ammonia (N)	mg/L	0.053	0.0050	0.27	0.0050	8429663	0.0051	0.0050	8429579
Nitrate plus Nitrite (N)	mg/L	0.572 (3)	0.0020	0.0024 (3)	0.0020	8430715	0.356 (3)	0.0020	8430715
Nitrite (N)	mg/L	0.0052 (3)	0.0020	<0.0020 (3)	0.0020	8430717	<0.0020 (3)	0.0020	8430717
Total Phosphorus (P)	mg/L	1.16 (2)	0.020	0.0759 (3)	0.0020	8429711	0.0049 (3)	0.0020	8429711
<b>Physical Properties</b>									
Conductivity	uS/cm	359	1.0	2970	1.0	8427379	382	1.0	8427375
pH	pH	7.67		6.88		8427380	8.00		8427374
<p>RDL = Reportable Detection Limit  N/A = Not Applicable  (1) Anion - Cation balance exceeds normal acceptance limits, major ions reanalyzed, possible matrix interference  (2) Detection limits raised due to dilution to bring analyte within the calibrated range. Sample analysed past recommended hold time.  (3) Sample analysed past recommended hold time.</p>									

Maxxam Job #: B688874  
Report Date: 2016/10/19

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		PS5230		PS5231			PS5232		
<b>Sampling Date</b>		2016/10/03 15:12		2016/10/03 16:20			2016/10/03 17:36		
<b>COC Number</b>		08428207		08428207			08428207		
	<b>UNITS</b>	<b>BH95G-15D</b>	<b>RDL</b>	<b>MW15-10D</b>	<b>RDL</b>	<b>QC Batch</b>	<b>MW15-06</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Physical Properties</b>									
Total Suspended Solids	mg/L	3740 (1)	10	68.6 (2)	2.0	8427448	<1.0	1.0	8427448
RDL = Reportable Detection Limit									
(1) RDL raised due to high concentration of solids in the sample.									
(2) RDL raised due to sample matrix interference.									

Maxxam Job #: B688874  
Report Date: 2016/10/19

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		PS5233			PS5234	PS5235			PS5236		
Sampling Date		2016/10/03			2016/10/04 08:30	2016/10/04 09:17			2016/10/04 09:36		
COC Number		08428207			08428207	08428207			08428207		
	UNITS	DUP3	RDL	QC Batch	BH95G-21	BH96G-25S	RDL	QC Batch	BH95G-25D	RDL	QC Batch

Calculated Parameters											
Anion Sum	meq/L	32	N/A	8426132	4.3	11	N/A	8426132	12	N/A	8426132
Cation Sum	meq/L	44	N/A	8426132	4.2	12	N/A	8426132	12	N/A	8426132
Filter and HNO3 Preservation	N/A	LAB	N/A	8428543	LAB	LAB	N/A	8428543	LAB	N/A	8428543
Ion Balance	N/A	1.3 (1)	0.010	8426418	0.98	1.1	0.010	8426418	1.0	0.010	8426418
Nitrate (N)	mg/L	<0.0020	0.0020	8426133	0.0047	0.0025	0.0020	8426133	0.0035	0.0020	8426133

Misc. Inorganics											
Fluoride (F)	mg/L	1.30	0.010	8429543	0.097	0.130	0.010	8429543	0.093	0.010	8429543
Dissolved Organic Carbon (C)	mg/L	0.65	0.50	8430893	2.40	2.73	0.50	8430893	2.11	0.50	8430893
Acidity (pH 4.5)	mg/L	<5.0	5.0	8427488	<0.50	<0.50	0.50	8427488	<0.50	0.50	8427488
Alkalinity (Total as CaCO3)	mg/L	1610	0.50	8427376	166	335	0.50	8427376	352	0.50	8427376
Acidity (pH 8.3)	mg/L	198	5.0	8427488	1.02	8.88	0.50	8427488	12.7	0.50	8427488
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8427376	<0.50	<0.50	0.50	8427376	<0.50	0.50	8427376
Bicarbonate (HCO3)	mg/L	1960	0.50	8427376	202	409	0.50	8427376	429	0.50	8427376
Carbonate (CO3)	mg/L	<0.50	0.50	8427376	<0.50	<0.50	0.50	8427376	<0.50	0.50	8427376
Hydroxide (OH)	mg/L	<0.50	0.50	8427376	<0.50	<0.50	0.50	8427376	<0.50	0.50	8427376

Anions											
Dissolved Sulphate (SO4)	mg/L	4.20	0.50	8429137	48.0	191	0.50	8429137	221 (2)	5.0	8429137
Dissolved Chloride (Cl)	mg/L	3.7	0.50	8429135	0.67	1.1	0.50	8429135	1.2	0.50	8429135

Nutrients											
Dissolved Phosphorus (P)	mg/L	0.0514 (3)	0.0020	8429710	0.315 (3)	0.0571 (3)	0.0020	8429710	0.0799 (3)	0.0020	8429710
Total Ammonia (N)	mg/L	0.27	0.0050	8429663	0.050	0.26	0.0050	8429579	0.10	0.0050	8429579
Nitrate plus Nitrite (N)	mg/L	<0.0020 (3)	0.0020	8437779	0.0047 (3)	0.0025 (3)	0.0020	8430715	0.0035 (3)	0.0020	8430710
Nitrite (N)	mg/L	<0.0020 (3)	0.0020	8430717	<0.0020 (3)	<0.0020 (3)	0.0020	8430717	<0.0020 (3)	0.0020	8430712
Total Phosphorus (P)	mg/L	0.0860 (3)	0.0020	8429711	0.325 (3)	0.0671 (3)	0.0020	8429711	0.0873 (3)	0.0020	8429711

Physical Properties											
Conductivity	uS/cm	3040	1.0	8427375	411	916	1.0	8427375	1040	1.0	8427375
pH	pH	6.83		8427374	7.71	7.79		8427374	7.63		8427374

RDL = Reportable Detection Limit  
 N/A = Not Applicable  
 (1) Anion - Cation balance exceeds normal acceptance limits, major ions reanalyzed, possible matrix interference  
 (2) Detection limits raised due to dilution to bring analyte within the calibrated range.  
 (3) Sample analysed past recommended hold time.

Maxxam Job #: B688874  
Report Date: 2016/10/19

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		PS5233			PS5234	PS5235			PS5236		
<b>Sampling Date</b>		2016/10/03			2016/10/04 08:30	2016/10/04 09:17			2016/10/04 09:36		
<b>COC Number</b>		08428207			08428207	08428207			08428207		
	<b>UNITS</b>	<b>DUP3</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH95G-21</b>	<b>BH96G-25S</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH95G-25D</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Physical Properties</b>											
Total Suspended Solids	mg/L	53.4	1.0	8427448	378	215	1.0	8427448	576 (1)	4.0	8427448

RDL = Reportable Detection Limit

(1) RDL raised due to high concentration of solids in the sample.

Maxxam Job #: B688874  
Report Date: 2016/10/19

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		PS5237			PS5238			PS5239		
<b>Sampling Date</b>		2016/10/04 11:04			2016/10/04 11:56			2016/10/04 08:50		
<b>COC Number</b>		08428208			08428208			08428208		
	<b>UNITS</b>	<b>MW15-02</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH95G-33D</b>	<b>RDL</b>	<b>QC Batch</b>	<b>FIELD BLANK</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Calculated Parameters</b>										
Anion Sum	meq/L	5.0	N/A	8426132	5.4	N/A	8426132	0.030	N/A	8426132
Cation Sum	meq/L	5.0	N/A	8426132	5.0	N/A	8426132	0.0058	N/A	8426132
Filter and HNO3 Preservation	N/A	LAB	N/A	8428543	LAB	N/A	8428543	LAB	N/A	8428543
Ion Balance	N/A	1.0	0.010	8426418	0.93	0.010	8426418	0.19 (1)	0.010	8426418
Nitrate (N)	mg/L	0.224	0.0020	8426133	0.164	0.0020	8426133	<0.0020	0.0020	8426133

<b>Misc. Inorganics</b>										
Fluoride (F)	mg/L	0.092	0.010	8429543	0.050	0.010	8429541	<0.010	0.010	8429543
Dissolved Organic Carbon (C)	mg/L	1.63	0.50	8430893	1.38	0.50	8430893	1.15	0.50	8430893
Acidity (pH 4.5)	mg/L	<0.50	0.50	8427488	<0.50	0.50	8427488	<0.50	0.50	8427488
Alkalinity (Total as CaCO3)	mg/L	187	0.50	8427376	186	0.50	8427376	<0.50	0.50	8427376
Acidity (pH 8.3)	mg/L	0.97	0.50	8427488	1.88	0.50	8427488	<0.50	0.50	8427488
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8427376	<0.50	0.50	8427376	<0.50	0.50	8427376
Bicarbonate (HCO3)	mg/L	228	0.50	8427376	227	0.50	8427376	<0.50	0.50	8427376
Carbonate (CO3)	mg/L	<0.50	0.50	8427376	<0.50	0.50	8427376	<0.50	0.50	8427376
Hydroxide (OH)	mg/L	<0.50	0.50	8427376	<0.50	0.50	8427376	<0.50	0.50	8427376

<b>Anions</b>										
Dissolved Sulphate (SO4)	mg/L	58.8	0.50	8429137	77.0	0.50	8429137	0.58	0.50	8429137
Dissolved Chloride (Cl)	mg/L	0.88	0.50	8429135	0.64	0.50	8429135	0.64	0.50	8429135

<b>Nutrients</b>										
Dissolved Phosphorus (P)	mg/L	<0.0020 (2)	0.0020	8429710	0.172 (2)	0.0020	8429710	<0.0020 (2)	0.0020	8429710
Total Ammonia (N)	mg/L	0.0079	0.0050	8429579	0.0086	0.0050	8429579	0.015	0.0050	8429579
Nitrate plus Nitrite (N)	mg/L	0.224 (2)	0.0020	8430710	0.169 (2)	0.0020	8430710	<0.0020 (2)	0.0020	8430710
Nitrite (N)	mg/L	<0.0020 (2)	0.0020	8430712	0.0041 (2)	0.0020	8430712	<0.0020 (2)	0.0020	8430712
Total Phosphorus (P)	mg/L	0.0026 (2)	0.0020	8429711	0.209 (2)	0.0020	8429711	<0.0020 (2)	0.0020	8429711

<b>Physical Properties</b>										
Conductivity	uS/cm	463	1.0	8427375	476	1.0	8427375	<1.0	1.0	8427375
pH	pH	8.01		8427374	7.91		8427374	5.33		8427374

RDL = Reportable Detection Limit  
N/A = Not Applicable  
(1) Ion balance out of optimal range due to high measurement uncertainty at this level (Ion Sum < 0.4 meq/L for both cations and anions).  
(2) Sample analysed past recommended hold time.

Maxxam Job #: B688874  
Report Date: 2016/10/19

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		PS5237			PS5238			PS5239		
<b>Sampling Date</b>		2016/10/04 11:04			2016/10/04 11:56			2016/10/04 08:50		
<b>COC Number</b>		08428208			08428208			08428208		
	<b>UNITS</b>	<b>MW15-02</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH95G-33D</b>	<b>RDL</b>	<b>QC Batch</b>	<b>FIELD BLANK</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Physical Properties</b>										
Total Suspended Solids	mg/L	<1.0	1.0	8428681	132 (1)	6.7	8428681	<1.0	1.0	8428681

RDL = Reportable Detection Limit

(1) RDL raised due to high concentration of solids in the sample.



Maxxam Job #: B688874  
Report Date: 2016/10/19

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		PS5240		
<b>Sampling Date</b>		2016/10/04 14:08		
<b>COC Number</b>		08428208		
	<b>UNITS</b>	<b>BH95G-129</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>				
Anion Sum	meq/L	4.1	N/A	8426132
Cation Sum	meq/L	4.2	N/A	8426132
Filter and HNO3 Preservation	N/A	LAB	N/A	8428543
Ion Balance	N/A	1.0	0.010	8426418
Nitrate (N)	mg/L	<0.0020	0.0020	8426133
<b>Misc. Inorganics</b>				
Fluoride (F)	mg/L	0.210	0.010	8429543
Dissolved Organic Carbon (C)	mg/L	1.10	0.50	8430893
Acidity (pH 4.5)	mg/L	<0.50	0.50	8427488
Alkalinity (Total as CaCO3)	mg/L	170	0.50	8427376
Acidity (pH 8.3)	mg/L	1.85	0.50	8427488
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8427376
Bicarbonate (HCO3)	mg/L	207	0.50	8427376
Carbonate (CO3)	mg/L	<0.50	0.50	8427376
Hydroxide (OH)	mg/L	<0.50	0.50	8427376
<b>Anions</b>				
Dissolved Sulphate (SO4)	mg/L	33.4	0.50	8429137
Dissolved Chloride (Cl)	mg/L	0.87	0.50	8429135
<b>Nutrients</b>				
Dissolved Phosphorus (P)	mg/L	0.0372 (1)	0.0020	8429710
Total Ammonia (N)	mg/L	0.035	0.0050	8429663
Nitrate plus Nitrite (N)	mg/L	<0.0020 (1)	0.0020	8430710
Nitrite (N)	mg/L	<0.0020 (1)	0.0020	8430712
Total Phosphorus (P)	mg/L	0.0424 (1)	0.0020	8429711
<b>Physical Properties</b>				
Conductivity	uS/cm	387	1.0	8427375
pH	pH	7.97		8427374
<b>Physical Properties</b>				
Total Suspended Solids	mg/L	3.0	1.0	8428681
RDL = Reportable Detection Limit N/A = Not Applicable (1) Sample analysed past recommended hold time.				

Maxxam Job #: B688874  
Report Date: 2016/10/19

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PS5227	PS5228	PS5229		PS5230		
Sampling Date		2016/10/03 09:06	2016/10/03 11:56	2016/10/03 13:10		2016/10/03 15:12		
COC Number		08428207	08428207	08428207		08428207		
	UNITS	MW15-09S	MW16-12S	MW16-12D	QC Batch	BH95G-15D	RDL	QC Batch

Misc. Inorganics								
Dissolved Hardness (CaCO3)	mg/L	207	746	766	8427077	194	0.50	8427077
Elements								
Dissolved Mercury (Hg)	mg/L	<0.000020	<0.000020	<0.000020	8429108	<0.000020	0.000020	8429108
Dissolved Metals by ICPMS								
Dissolved Aluminum (Al)	mg/L	<0.00050	0.00118	0.00169	8429179	0.00071	0.00050	8429179
Dissolved Antimony (Sb)	mg/L	0.000082	0.000076	<0.000020	8429179	0.000103	0.000020	8429179
Dissolved Arsenic (As)	mg/L	0.000465	0.000209	<0.000020	8429179	0.000187	0.000020	8429179
Dissolved Barium (Ba)	mg/L	0.153	1.40	2.55	8429179	0.0829	0.000020	8429179
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	0.000055	8429179	<0.000010	0.000010	8429179
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	8429179	<0.0000050	0.0000050	8429179
Dissolved Boron (B)	mg/L	<0.010	0.018	0.015	8429179	<0.010	0.010	8429179
Dissolved Cadmium (Cd)	mg/L	0.0000420	0.0000160	0.0000070	8429179	0.0000290	0.0000050	8429179
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	<0.00010	8429179	<0.00010	0.00010	8429179
Dissolved Cobalt (Co)	mg/L	0.000217	0.0570	0.0000700	8429179	<0.0000050	0.0000050	8429179
Dissolved Copper (Cu)	mg/L	<0.000050	<0.000050	0.000124	8429179	0.000128	0.000050	8429179
Dissolved Iron (Fe)	mg/L	<0.0010	0.294	0.0032	8429179	<0.0010	0.0010	8429179
Dissolved Lead (Pb)	mg/L	<0.0000050	<0.0000050	<0.0000050	8429179	0.0000080	0.0000050	8429179
Dissolved Lithium (Li)	mg/L	0.00276	0.416	0.386	8429179	0.00275	0.00050	8429179
Dissolved Manganese (Mn)	mg/L	0.101	0.968	0.257	8429179	<0.000050	0.000050	8429179
Dissolved Molybdenum (Mo)	mg/L	0.00378	0.00149	<0.000050	8429179	0.00292	0.000050	8431837
Dissolved Nickel (Ni)	mg/L	0.000426	0.0567	0.000249	8429179	0.000328	0.000020	8429179
Dissolved Phosphorus (P)	mg/L	<0.0020	0.0039	0.0034	8429179	0.0054	0.0020	8429179
Dissolved Selenium (Se)	mg/L	0.000971	<0.000040	<0.000040	8429179	0.00377	0.000040	8429179
Dissolved Silicon (Si)	mg/L	4.33	12.5	15.9	8429179	3.14	0.050	8429179
Dissolved Silver (Ag)	mg/L	<0.0000050	0.0000050	0.0000670	8429179	<0.0000050	0.0000050	8429179
Dissolved Strontium (Sr)	mg/L	0.228	1.97	2.05	8429179	0.203	0.000050	8429179
Dissolved Thallium (Tl)	mg/L	0.0000020	0.0000070	0.0000050	8429179	0.0000040	0.0000020	8429179
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	8429179	<0.00020	0.00020	8429179
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	0.00091	8429179	<0.00050	0.00050	8429179
Dissolved Uranium (U)	mg/L	0.00312	0.000740	0.000315	8429179	0.00310	0.0000020	8429179
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	8429179	<0.00020	0.00020	8429179
RDL = Reportable Detection Limit								

Maxxam Job #: B688874  
Report Date: 2016/10/19

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PS5227	PS5228	PS5229		PS5230		
Sampling Date		2016/10/03 09:06	2016/10/03 11:56	2016/10/03 13:10		2016/10/03 15:12		
COC Number		08428207	08428207	08428207		08428207		
	UNITS	MW15-09S	MW16-12S	MW16-12D	QC Batch	BH95G-15D	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	0.00097	0.0994	0.242	8429179	0.00094	0.00010	8429179
Dissolved Zirconium (Zr)	mg/L	<0.00010	0.00120	0.0290	8429179	<0.00010	0.00010	8429179
Dissolved Calcium (Ca)	mg/L	66.3	160	164	8425829	68.5	0.050	8425829
Dissolved Magnesium (Mg)	mg/L	10.1	84.3	86.4	8425829	5.69	0.050	8425829
Dissolved Potassium (K)	mg/L	1.96	10.8	11.7	8425829	1.72	0.050	8425829
Dissolved Sodium (Na)	mg/L	2.50	36.6	30.5	8425829	0.829	0.050	8425829
Dissolved Sulphur (S)	mg/L	6.1	<3.0	<3.0	8425829	4.9	3.0	8425829
RDL = Reportable Detection Limit								

Maxxam Job #: B688874  
Report Date: 2016/10/19

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PS5231		PS5232		PS5233		
Sampling Date		2016/10/03 16:20		2016/10/03 17:36		2016/10/03		
COC Number		08428207		08428207		08428207		
	UNITS	MW15-10D	RDL	MW15-06	RDL	DUP3	RDL	QC Batch
<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO3)	mg/L	2130	0.50	218	0.50	2110	0.50	8427077
<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	<0.0000020	0.0000020	<0.0000020	0.0000020	<0.0000020	0.0000020	8429108
<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	0.0333	0.0025	0.00098	0.00050	0.0284	0.0025	8429179
Dissolved Antimony (Sb)	mg/L	<0.00010	0.00010	<0.000020	0.000020	<0.00010	0.00010	8429179
Dissolved Arsenic (As)	mg/L	0.00011	0.00010	0.000037	0.000020	0.00015	0.00010	8429179
Dissolved Barium (Ba)	mg/L	0.277	0.00010	0.0725	0.000020	0.271	0.00010	8429179
Dissolved Beryllium (Be)	mg/L	0.000452	0.000050	<0.000010	0.000010	0.000473	0.000050	8429179
Dissolved Bismuth (Bi)	mg/L	<0.000025	0.000025	<0.0000050	0.0000050	<0.000025	0.000025	8429179
Dissolved Boron (B)	mg/L	<0.050	0.050	<0.010	0.010	<0.050	0.050	8429179
Dissolved Cadmium (Cd)	mg/L	0.000032	0.000025	0.000167	0.0000050	0.000030	0.000025	8429179
Dissolved Chromium (Cr)	mg/L	<0.00050	0.00050	0.00010	0.00010	<0.00050	0.00050	8429179
Dissolved Cobalt (Co)	mg/L	0.000173	0.000025	0.0000110	0.0000050	0.000199	0.000025	8429179
Dissolved Copper (Cu)	mg/L	0.00031	0.00025	0.000370	0.000050	<0.00025	0.00025	8429179
Dissolved Iron (Fe)	mg/L	0.176	0.0050	<0.0010	0.0010	0.172	0.0050	8429179
Dissolved Lead (Pb)	mg/L	0.000032	0.000025	<0.0000050	0.0000050	<0.000025	0.000025	8429179
Dissolved Lithium (Li)	mg/L	0.248	0.0025	0.00140	0.00050	0.256	0.0025	8429179
Dissolved Manganese (Mn)	mg/L	5.67	0.00025	0.000152	0.000050	5.55	0.00025	8429179
Dissolved Molybdenum (Mo)	mg/L	<0.00025	0.00025	0.00305	0.000050	<0.00025	0.00025	8429179
Dissolved Nickel (Ni)	mg/L	0.00079	0.00010	0.000484	0.000020	0.00069	0.00010	8429179
Dissolved Phosphorus (P)	mg/L	<0.010	0.010	0.0033	0.0020	<0.010	0.010	8429179
Dissolved Selenium (Se)	mg/L	<0.00020	0.00020	0.00285	0.000040	<0.00020	0.00020	8429179
Dissolved Silicon (Si)	mg/L	37.4	0.25	3.25	0.050	37.8	0.25	8429179
Dissolved Silver (Ag)	mg/L	<0.000025	0.000025	<0.0000050	0.0000050	<0.000025	0.000025	8429179
Dissolved Strontium (Sr)	mg/L	2.81	0.00025	0.270	0.000050	2.87	0.00025	8429179
Dissolved Thallium (Tl)	mg/L	<0.000010	0.000010	<0.0000020	0.0000020	<0.000010	0.000010	8429179
Dissolved Tin (Sn)	mg/L	<0.0010	0.0010	<0.00020	0.00020	<0.0010	0.0010	8429179
Dissolved Titanium (Ti)	mg/L	<0.0025	0.0025	<0.00050	0.00050	<0.0025	0.0025	8429179
Dissolved Uranium (U)	mg/L	0.000343	0.000010	0.00296	0.0000020	0.000303	0.000010	8429179
Dissolved Vanadium (V)	mg/L	<0.0010	0.0010	<0.00020	0.00020	<0.0010	0.0010	8429179
RDL = Reportable Detection Limit								

Maxxam Job #: B688874  
Report Date: 2016/10/19

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PS5231		PS5232		PS5233		
Sampling Date		2016/10/03 16:20		2016/10/03 17:36		2016/10/03		
COC Number		08428207		08428207		08428207		
	UNITS	MW15-10D	RDL	MW15-06	RDL	DUP3	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	0.00269	0.00050	0.00390	0.00010	0.00301	0.00050	8429179
Dissolved Zirconium (Zr)	mg/L	0.00157	0.00050	<0.00010	0.00010	0.00177	0.00050	8429179
Dissolved Calcium (Ca)	mg/L	713	0.25	75.4	0.050	708	0.25	8425829
Dissolved Magnesium (Mg)	mg/L	84.1	0.25	7.23	0.050	82.2	0.25	8425829
Dissolved Potassium (K)	mg/L	8.88	0.25	1.99	0.050	9.00	0.25	8425829
Dissolved Sodium (Na)	mg/L	23.1	0.25	1.45	0.050	23.4	0.25	8425829
Dissolved Sulphur (S)	mg/L	<15	15	9.4	3.0	<15	15	8425829
RDL = Reportable Detection Limit								

Maxxam Job #: B688874  
Report Date: 2016/10/19

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		PS5234	PS5235	PS5236		PS5237		
<b>Sampling Date</b>		2016/10/04 08:30	2016/10/04 09:17	2016/10/04 09:36		2016/10/04 11:04		
<b>COC Number</b>		08428207	08428207	08428207		08428208		
	<b>UNITS</b>	<b>BH95G-21</b>	<b>BH96G-25S</b>	<b>BH95G-25D</b>	<b>QC Batch</b>	<b>MW15-02</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO3)	mg/L	208	575	597	8427077	247	0.50	8427077
<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	<0.000020	<0.000020	<0.000020	8429108	<0.000020	0.000020	8429108
<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	0.00052	<0.00050	<0.00050	8429179	0.00089	0.00050	8429706
Dissolved Antimony (Sb)	mg/L	0.000132	<0.000020	0.000133	8429179	<0.000020	0.000020	8429706
Dissolved Arsenic (As)	mg/L	0.000831	0.00145	0.000578	8429179	0.000875	0.000020	8429706
Dissolved Barium (Ba)	mg/L	0.0454	0.0488	0.0271	8429179	0.0944	0.000020	8429706
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	8429179	<0.000010	0.000010	8429706
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	8429179	<0.0000050	0.0000050	8429706
Dissolved Boron (B)	mg/L	<0.010	<0.010	<0.010	8429179	<0.010	0.010	8429706
Dissolved Cadmium (Cd)	mg/L	0.0000060	<0.0000050	0.0000090	8429179	<0.0000050	0.0000050	8429706
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	<0.00010	8429179	<0.00010	0.00010	8429706
Dissolved Cobalt (Co)	mg/L	0.0000350	0.000227	0.000585	8429179	0.0000370	0.0000050	8429706
Dissolved Copper (Cu)	mg/L	0.000125	<0.000050	0.000093	8429179	0.000065	0.000050	8429706
Dissolved Iron (Fe)	mg/L	<0.0010	<0.0010	<0.0010	8429179	<0.0010	0.0010	8429706
Dissolved Lead (Pb)	mg/L	<0.0000050	<0.0000050	<0.0000050	8429179	<0.0000050	0.0000050	8429706
Dissolved Lithium (Li)	mg/L	0.00500	0.0106	0.0120	8429179	0.00164	0.00050	8429706
Dissolved Manganese (Mn)	mg/L	0.0494	0.383	0.305	8429179	0.000053	0.000050	8429706
Dissolved Molybdenum (Mo)	mg/L	0.000320	0.00162	0.000414	8429179	0.000749	0.000050	8429706
Dissolved Nickel (Ni)	mg/L	0.000096	0.000466	0.00103	8429179	0.000156	0.000020	8429706
Dissolved Phosphorus (P)	mg/L	<0.0020	0.0036	<0.0020	8429179	<0.0020	0.0020	8429706
Dissolved Selenium (Se)	mg/L	0.000066	<0.000040	<0.000040	8429179	0.00196	0.000040	8429706
Dissolved Silicon (Si)	mg/L	3.42	4.83	4.94	8429179	2.28	0.050	8429706
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	<0.0000050	8429179	<0.0000050	0.0000050	8429706
Dissolved Strontium (Sr)	mg/L	0.194	0.449	0.513	8429179	0.304	0.000050	8429706
Dissolved Thallium (Tl)	mg/L	0.0000020	0.0000020	0.0000050	8429179	<0.0000020	0.0000020	8429706
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	8429179	<0.00020	0.00020	8429706
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	<0.00050	8429179	<0.00050	0.00050	8429706
Dissolved Uranium (U)	mg/L	0.00455	0.00329	0.00701	8429179	0.00337	0.0000020	8429706
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	8429179	<0.00020	0.00020	8429706

RDL = Reportable Detection Limit

Maxxam Job #: B688874  
Report Date: 2016/10/19

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PS5234	PS5235	PS5236		PS5237		
Sampling Date		2016/10/04 08:30	2016/10/04 09:17	2016/10/04 09:36		2016/10/04 11:04		
COC Number		08428207	08428207	08428207		08428208		
	UNITS	BH95G-21	BH96G-25S	BH95G-25D	QC Batch	MW15-02	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	0.00020	0.00023	0.0192	8429179	0.00048	0.00010	8429706
Dissolved Zirconium (Zr)	mg/L	<0.00010	<0.00010	0.00049	8429179	<0.00010	0.00010	8429706
Dissolved Calcium (Ca)	mg/L	64.0	166	149	8425829	79.8	0.050	8425829
Dissolved Magnesium (Mg)	mg/L	11.7	38.9	54.7	8425829	11.5	0.050	8425829
Dissolved Potassium (K)	mg/L	1.33	5.57	4.44	8425829	2.24	0.050	8425829
Dissolved Sodium (Na)	mg/L	0.929	2.69	2.29	8425829	0.713	0.050	8425829
Dissolved Sulphur (S)	mg/L	15.6	62.1	83.6	8425829	20.5	3.0	8425829
RDL = Reportable Detection Limit								

Maxxam Job #: B688874  
Report Date: 2016/10/19

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PS5238	PS5239	PS5240		
Sampling Date		2016/10/04 11:56	2016/10/04 08:50	2016/10/04 14:08		
COC Number		08428208	08428208	08428208		
	<b>UNITS</b>	<b>BH95G-33D</b>	<b>FIELD BLANK</b>	<b>BH95G-129</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Misc. Inorganics</b>						
Dissolved Hardness (CaCO3)	mg/L	245	<0.50	199	0.50	8427077
<b>Elements</b>						
Dissolved Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	0.0000020	8429108
<b>Dissolved Metals by ICPMS</b>						
Dissolved Aluminum (Al)	mg/L	0.00082	<0.00050	0.00421	0.00050	8429706
Dissolved Antimony (Sb)	mg/L	0.000020	<0.000020	0.000144	0.000020	8429706
Dissolved Arsenic (As)	mg/L	0.000451	<0.000020	0.000904	0.000020	8429706
Dissolved Barium (Ba)	mg/L	0.0912	<0.000020	0.0688	0.000020	8429706
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	0.000010	8429706
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	0.0000050	8429706
Dissolved Boron (B)	mg/L	<0.010	<0.010	<0.010	0.010	8429706
Dissolved Cadmium (Cd)	mg/L	<0.0000050	<0.0000050	0.0000090	0.0000050	8429706
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	<0.00010	0.00010	8429706
Dissolved Cobalt (Co)	mg/L	<0.0000050	<0.0000050	0.0000360	0.0000050	8429706
Dissolved Copper (Cu)	mg/L	0.000068	<0.000050	0.000273	0.000050	8429706
Dissolved Iron (Fe)	mg/L	<0.0010	<0.0010	<0.0010	0.0010	8429706
Dissolved Lead (Pb)	mg/L	<0.0000050	<0.0000050	<0.0000050	0.0000050	8429706
Dissolved Lithium (Li)	mg/L	0.00069	<0.00050	0.00924	0.00050	8429706
Dissolved Manganese (Mn)	mg/L	0.000171	<0.000050	0.0598	0.000050	8429706
Dissolved Molybdenum (Mo)	mg/L	0.00125	<0.000050	0.000778	0.000050	8429706
Dissolved Nickel (Ni)	mg/L	0.000901	<0.000020	0.000174	0.000020	8429706
Dissolved Phosphorus (P)	mg/L	0.0042	<0.0020	0.0022	0.0020	8429706
Dissolved Selenium (Se)	mg/L	0.00693	<0.000040	<0.000040	0.000040	8429706
Dissolved Silicon (Si)	mg/L	2.87	<0.050	5.67	0.050	8429706
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	<0.0000050	0.0000050	8429706
Dissolved Strontium (Sr)	mg/L	0.237	<0.000050	0.199	0.000050	8429706
Dissolved Thallium (Tl)	mg/L	0.0000060	<0.0000020	0.0000060	0.0000020	8429706
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	0.00020	8429706
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	<0.00050	0.00050	8429706
Dissolved Uranium (U)	mg/L	0.00443	<0.0000020	0.00827	0.0000020	8429706
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	0.00020	8429706
RDL = Reportable Detection Limit						



Maxxam Job #: B688874  
Report Date: 2016/10/19

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		PS5238	PS5239	PS5240		
Sampling Date		2016/10/04 11:56	2016/10/04 08:50	2016/10/04 14:08		
COC Number		08428208	08428208	08428208		
	UNITS	BH95G-33D	FIELD BLANK	BH95G-129	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	0.00036	<0.00010	0.00410	0.00010	8429706
Dissolved Zirconium (Zr)	mg/L	<0.00010	<0.00010	<0.00010	0.00010	8429706
Dissolved Calcium (Ca)	mg/L	82.9	<0.050	57.6	0.050	8425829
Dissolved Magnesium (Mg)	mg/L	9.31	<0.050	13.5	0.050	8425829
Dissolved Potassium (K)	mg/L	0.926	<0.050	2.09	0.050	8425829
Dissolved Sodium (Na)	mg/L	0.751	<0.050	2.54	0.050	8425829
Dissolved Sulphur (S)	mg/L	21.4	<3.0	11.0	3.0	8425829
RDL = Reportable Detection Limit						

Maxxam Job #: B688874  
Report Date: 2016/10/19

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		PS5227	PS5232		PS5239		
Sampling Date		2016/10/03 09:06	2016/10/03 17:36		2016/10/04 08:50		
COC Number		08428207	08428207		08428208		
	UNITS	MW15-09S	MW15-06	QC Batch	FIELD BLANK	RDL	QC Batch
<b>Calculated Parameters</b>							
Total Hardness (CaCO3)	mg/L	222	205	8425781	<0.50	0.50	8427151
<b>Elements</b>							
Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	8429284	<0.0000020	0.0000020	8429284
<b>Total Metals by ICPMS</b>							
Total Aluminum (Al)	mg/L	0.113	0.00098	8429745	<0.00050	0.00050	8429745
Total Antimony (Sb)	mg/L	0.000101	<0.000020	8429745	<0.000020	0.000020	8429745
Total Arsenic (As)	mg/L	0.00159	0.000034	8429745	<0.000020	0.000020	8429745
Total Barium (Ba)	mg/L	0.173	0.0672	8429745	<0.000020	0.000020	8429745
Total Beryllium (Be)	mg/L	0.000015	<0.000010	8429745	<0.000010	0.000010	8429745
Total Bismuth (Bi)	mg/L	0.0000090	<0.0000050	8429745	<0.0000050	0.0000050	8429745
Total Boron (B)	mg/L	<0.010	<0.010	8429745	<0.010	0.010	8429745
Total Cadmium (Cd)	mg/L	0.000111	0.000156	8429745	<0.0000050	0.0000050	8429745
Total Chromium (Cr)	mg/L	0.00038	<0.00010	8429745	<0.00010	0.00010	8429745
Total Cobalt (Co)	mg/L	0.000551	0.0000090	8429745	<0.0000050	0.0000050	8429745
Total Copper (Cu)	mg/L	0.00169	0.000381	8429745	<0.000050	0.000050	8429745
Total Iron (Fe)	mg/L	2.11	<0.0010	8429745	<0.0010	0.0010	8429745
Total Lead (Pb)	mg/L	0.00134	0.0000050	8429745	<0.0000050	0.0000050	8429745
Total Lithium (Li)	mg/L	0.00349	0.00150	8429745	<0.00050	0.00050	8429745
Total Manganese (Mn)	mg/L	0.131	<0.000050	8429745	<0.000050	0.000050	8429745
Total Molybdenum (Mo)	mg/L	0.00383	0.00285	8429745	<0.000050	0.000050	8429745
Total Nickel (Ni)	mg/L	0.000900	0.000407	8429745	<0.000020	0.000020	8429745
Total Phosphorus (P)	mg/L	0.0155	0.0070	8429745	<0.0020	0.0020	8429745
Total Selenium (Se)	mg/L	0.00103	0.00256	8429745	<0.000040	0.000040	8429745
Total Silicon (Si)	mg/L	4.57	3.04	8429745	<0.050	0.050	8429745
Total Silver (Ag)	mg/L	0.0000080	<0.0000050	8429745	<0.0000050	0.0000050	8429745
Total Strontium (Sr)	mg/L	0.253	0.226	8429745	<0.000050	0.000050	8429745
Total Thallium (Tl)	mg/L	0.0000020	<0.0000020	8429745	<0.0000020	0.0000020	8429745
Total Tin (Sn)	mg/L	<0.00020	<0.00020	8429745	<0.00020	0.00020	8429745
Total Titanium (Ti)	mg/L	0.00445	<0.00050	8429745	<0.00050	0.00050	8429745
Total Uranium (U)	mg/L	0.00330	0.00278	8429745	<0.0000020	0.0000020	8429745
Total Vanadium (V)	mg/L	0.00102	<0.00020	8429745	<0.00020	0.00020	8429745
RDL = Reportable Detection Limit							

Maxxam Job #: B688874  
Report Date: 2016/10/19

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		PS5227	PS5232		PS5239		
Sampling Date		2016/10/03 09:06	2016/10/03 17:36		2016/10/04 08:50		
COC Number		08428207	08428207		08428208		
	UNITS	MW15-09S	MW15-06	QC Batch	FIELD BLANK	RDL	QC Batch
Total Zinc (Zn)	mg/L	0.00490	0.00328	8429745	<0.00010	0.00010	8429745
Total Zirconium (Zr)	mg/L	0.00026	<0.00010	8429745	<0.00010	0.00010	8429745
Total Calcium (Ca)	mg/L	71.8	72.0	8425830	<0.050	0.050	8425830
Total Magnesium (Mg)	mg/L	10.5	6.14	8425830	<0.050	0.050	8425830
Total Potassium (K)	mg/L	2.11	1.70	8425830	<0.050	0.050	8425830
Total Sodium (Na)	mg/L	2.56	1.22	8425830	<0.050	0.050	8425830
Total Sulphur (S)	mg/L	6.0	7.1	8425830	<3.0	3.0	8425830
RDL = Reportable Detection Limit							

Maxxam Job #: B688874  
Report Date: 2016/10/19

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PS5228		PS5229		PS5230		
Sampling Date		2016/10/03 11:56		2016/10/03 13:10		2016/10/03 15:12		
COC Number		08428207		08428207		08428207		
	UNITS	MW16-12S	RDL	MW16-12D	RDL	BH95G-15D	RDL	QC Batch
<b>Calculated Parameters</b>								
Total Hardness (CaCO3)	mg/L	922	0.50	830	0.50	450	0.50	8425781
<b>Elements</b>								
Total Mercury (Hg)	mg/L	<0.000020	0.000020	<0.000020	0.000020	<0.000020	0.000020	8429284
<b>Total Metals by ICPMS</b>								
Total Aluminum (Al)	mg/L	22.3	0.015	0.655	0.0030	30.8	0.015	8430881
Total Antimony (Sb)	mg/L	0.00070	0.00010	0.000032	0.000020	0.00036	0.00010	8430881
Total Arsenic (As)	mg/L	0.0171	0.00010	0.000070	0.000020	0.0267	0.00010	8430881
Total Barium (Ba)	mg/L	3.94	0.00025	2.96	0.000050	0.906	0.00025	8430881
Total Beryllium (Be)	mg/L	0.00126	0.000050	0.000118	0.000010	0.00622	0.000050	8430881
Total Bismuth (Bi)	mg/L	0.000828	0.000050	<0.000010	0.000010	0.00281	0.000050	8430881
Total Boron (B)	mg/L	<0.050	0.050	0.017	0.010	<0.050	0.050	8430881
Total Cadmium (Cd)	mg/L	0.000972	0.000025	0.0000310	0.0000050	0.00345	0.000025	8430881
Total Chromium (Cr)	mg/L	0.0618	0.00050	0.00210	0.00010	0.0394	0.00050	8430881
Total Cobalt (Co)	mg/L	0.104	0.000050	0.000404	0.000010	0.0274	0.000050	8430881
Total Copper (Cu)	mg/L	0.131	0.00050	0.00282	0.00010	0.214	0.00050	8430881
Total Iron (Fe)	mg/L	138	0.025	7.67	0.0050	53.2	0.025	8430881
Total Lead (Pb)	mg/L	0.0337	0.00010	0.000432	0.000020	0.151	0.00010	8430881
Total Lithium (Li)	mg/L	0.455	0.0025	0.411	0.00050	0.0404	0.0025	8430881
Total Manganese (Mn)	mg/L	1.52	0.00050	0.327	0.00010	1.59	0.00050	8430881
Total Molybdenum (Mo)	mg/L	0.00447	0.00025	0.000127	0.000050	0.00245	0.00025	8430881
Total Nickel (Ni)	mg/L	0.162	0.00050	0.00139	0.00010	0.0777	0.00050	8430881
Total Phosphorus (P)	mg/L	0.997	0.025	0.148	0.0050	3.27	0.025	8430881
Total Selenium (Se)	mg/L	0.00039	0.00020	<0.000040	0.000040	0.00643	0.00020	8430881
Total Silicon (Si)	mg/L	51.1	0.25	17.6	0.050	54.2	0.25	8430881
Total Silver (Ag)	mg/L	0.000177	0.000050	0.000290	0.000010	0.000394	0.000050	8430881
Total Strontium (Sr)	mg/L	2.39	0.00025	2.36	0.000050	0.560	0.00025	8430881
Total Thallium (Tl)	mg/L	0.000385	0.000010	0.0000130	0.0000020	0.000558	0.000010	8430881
Total Tin (Sn)	mg/L	0.0014	0.0010	0.00021	0.00020	0.0011	0.0010	8430881
Total Titanium (Ti)	mg/L	1.46	0.010	0.0267	0.0020	0.268	0.010	8430881
Total Uranium (U)	mg/L	0.00341	0.000025	0.000777	0.0000050	0.0311	0.000025	8430881
Total Vanadium (V)	mg/L	0.0810	0.0010	0.00308	0.00020	0.0578	0.0010	8430881
RDL = Reportable Detection Limit								

Maxxam Job #: B688874  
Report Date: 2016/10/19

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PS5228		PS5229		PS5230		
Sampling Date		2016/10/03 11:56		2016/10/03 13:10		2016/10/03 15:12		
COC Number		08428207		08428207		08428207		
	UNITS	MW16-12S	RDL	MW16-12D	RDL	BH95G-15D	RDL	QC Batch
Total Zinc (Zn)	mg/L	0.565	0.0050	0.268	0.0010	0.442	0.0050	8430881
Total Zirconium (Zr)	mg/L	0.0282	0.00050	0.0425	0.00010	0.00242	0.00050	8430881
Total Calcium (Ca)	mg/L	189	1.3	184	0.25	141	1.3	8425830
Total Magnesium (Mg)	mg/L	109	1.3	90.3	0.25	23.5	1.3	8425830
Total Potassium (K)	mg/L	20.3	1.3	12.0	0.25	10.3	1.3	8425830
Total Sodium (Na)	mg/L	40.2	1.3	30.7	0.25	1.4	1.3	8425830
Total Sulphur (S)	mg/L	<15	15	<3.0	3.0	<15	15	8425830
RDL = Reportable Detection Limit								

Maxxam Job #: B688874  
Report Date: 2016/10/19

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PS5231	PS5233			PS5234		
Sampling Date		2016/10/03 16:20	2016/10/03			2016/10/04 08:30		
COC Number		08428207	08428207			08428207		
	UNITS	MW15-10D	DUP3	RDL	QC Batch	BH95G-21	RDL	QC Batch
<b>Calculated Parameters</b>								
Total Hardness (CaCO3)	mg/L	2180	2210	0.50	8425781	241	0.50	8427151
<b>Elements</b>								
Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	0.0000020	8429284	<0.0000020	0.0000020	8429284
<b>Total Metals by ICPMS</b>								
Total Aluminum (Al)	mg/L	1.17	0.869	0.015	8430881	3.73	0.0030	8430881
Total Antimony (Sb)	mg/L	<0.00010	<0.00010	0.00010	8430881	0.000429	0.000020	8430881
Total Arsenic (As)	mg/L	0.00086	0.00070	0.00010	8430881	0.00738	0.000020	8430881
Total Barium (Ba)	mg/L	0.441	0.434	0.00025	8430881	0.992	0.000050	8430881
Total Beryllium (Be)	mg/L	0.00118	0.00119	0.000050	8430881	0.000415	0.000010	8430881
Total Bismuth (Bi)	mg/L	0.000079	0.000069	0.000050	8430881	0.000420	0.000010	8430881
Total Boron (B)	mg/L	<0.050	<0.050	0.050	8430881	<0.010	0.010	8430881
Total Cadmium (Cd)	mg/L	0.000683	0.000725	0.000025	8430881	0.000210	0.0000050	8430881
Total Chromium (Cr)	mg/L	0.00224	0.00197	0.00050	8430881	0.00544	0.00010	8430881
Total Cobalt (Co)	mg/L	0.00110	0.000905	0.000050	8430881	0.00323	0.000010	8430881
Total Copper (Cu)	mg/L	0.00386	0.00292	0.00050	8430881	0.0350	0.00010	8430881
Total Iron (Fe)	mg/L	32.1	32.7	0.025	8430881	14.0	0.0050	8430881
Total Lead (Pb)	mg/L	0.00777	0.00667	0.00010	8430881	0.0226	0.000020	8430881
Total Lithium (Li)	mg/L	0.258	0.255	0.0025	8430881	0.00872	0.00050	8430881
Total Manganese (Mn)	mg/L	5.80	5.89	0.00050	8430881	0.182	0.00010	8430881
Total Molybdenum (Mo)	mg/L	0.00037	0.00058	0.00025	8430881	0.000309	0.000050	8430881
Total Nickel (Ni)	mg/L	0.00185	0.00151	0.00050	8430881	0.00643	0.00010	8430881
Total Phosphorus (P)	mg/L	0.076	0.035	0.025	8430881	0.346	0.0050	8430881
Total Selenium (Se)	mg/L	<0.00020	<0.00020	0.00020	8430881	0.000304	0.000040	8430881
Total Silicon (Si)	mg/L	41.6	41.2	0.25	8430881	9.37	0.050	8430881
Total Silver (Ag)	mg/L	0.000093	0.000063	0.000050	8430881	0.000194	0.000010	8430881
Total Strontium (Sr)	mg/L	2.99	3.05	0.00025	8430881	0.267	0.000050	8430881
Total Thallium (Tl)	mg/L	<0.000010	<0.000010	0.000010	8430881	0.0000400	0.0000020	8430881
Total Tin (Sn)	mg/L	<0.0010	<0.0010	0.0010	8430881	<0.00020	0.00020	8430881
Total Titanium (Ti)	mg/L	0.056	0.096	0.010	8430881	0.0934	0.0020	8430881
Total Uranium (U)	mg/L	0.000344	0.000348	0.000025	8430881	0.00611	0.0000050	8430881
Total Vanadium (V)	mg/L	0.0042	0.0041	0.0010	8430881	0.00915	0.00020	8430881
RDL = Reportable Detection Limit								

Maxxam Job #: B688874  
Report Date: 2016/10/19

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PS5231	PS5233			PS5234		
Sampling Date		2016/10/03 16:20	2016/10/03			2016/10/04 08:30		
COC Number		08428207	08428207			08428207		
	UNITS	MW15-10D	DUP3	RDL	QC Batch	BH95G-21	RDL	QC Batch
Total Zinc (Zn)	mg/L	0.0080	0.0067	0.0050	8430881	0.0890	0.0010	8430881
Total Zirconium (Zr)	mg/L	0.00345	0.00217	0.00050	8430881	0.00318	0.00010	8430881
Total Calcium (Ca)	mg/L	731	746	1.3	8425830	72.7	0.25	8425830
Total Magnesium (Mg)	mg/L	85.0	85.1	1.3	8425830	14.4	0.25	8425830
Total Potassium (K)	mg/L	9.5	9.5	1.3	8425830	2.53	0.25	8425830
Total Sodium (Na)	mg/L	24.4	23.6	1.3	8425830	1.08	0.25	8425830
Total Sulphur (S)	mg/L	<15	<15	15	8425830	17.6	3.0	8425830
RDL = Reportable Detection Limit								

Maxxam Job #: B688874  
Report Date: 2016/10/19

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

<b>Maxxam ID</b>		PS5235	PS5236	PS5237	PS5238	PS5240		
<b>Sampling Date</b>		2016/10/04 09:17	2016/10/04 09:36	2016/10/04 11:04	2016/10/04 11:56	2016/10/04 14:08		
<b>COC Number</b>		08428207	08428207	08428208	08428208	08428208		
	<b>UNITS</b>	<b>BH96G-25S</b>	<b>BH95G-25D</b>	<b>MW15-02</b>	<b>BH95G-33D</b>	<b>BH95G-129</b>	<b>RDL</b>	<b>QC Batch</b>

**Calculated Parameters**

Total Hardness (CaCO3)	mg/L	552	650	260	277	206	0.50	8427151
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**Elements**

Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000020	8429284
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**Total Metals by ICPMS**

Total Aluminum (Al)	mg/L	1.74	4.37	0.0037	2.33	0.0553	0.0030	8430881
Total Antimony (Sb)	mg/L	0.000057	0.000388	0.000062	0.000098	0.000361	0.000020	8430881
Total Arsenic (As)	mg/L	0.00862	0.00540	0.000934	0.0106	0.00400	0.000020	8430881
Total Barium (Ba)	mg/L	0.0879	0.480	0.0998	0.160	0.0745	0.000050	8430881
Total Beryllium (Be)	mg/L	0.000120	0.000703	<0.000010	0.000142	<0.000010	0.000010	8430881
Total Bismuth (Bi)	mg/L	0.000060	0.000419	<0.000010	0.000060	<0.000010	0.000010	8430881
Total Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	8430881
Total Cadmium (Cd)	mg/L	0.0000820	0.000377	0.0000090	0.0000930	0.0000210	0.0000050	8430881
Total Chromium (Cr)	mg/L	0.00368	0.00379	<0.00010	0.00346	0.00030	0.00010	8430881
Total Cobalt (Co)	mg/L	0.00192	0.00480	0.000041	0.00821	0.000109	0.000010	8430881
Total Copper (Cu)	mg/L	0.00412	0.0117	0.00046	0.0164	0.00259	0.00010	8430881
Total Iron (Fe)	mg/L	12.0	14.3	0.0061	8.20	0.799	0.0050	8430881
Total Lead (Pb)	mg/L	0.00526	0.0268	0.000151	0.00536	0.000596	0.000020	8430881
Total Lithium (Li)	mg/L	0.0135	0.0163	0.00151	0.00219	0.00939	0.00050	8430881
Total Manganese (Mn)	mg/L	0.474	0.732	0.00014	1.18	0.0866	0.00010	8430881
Total Molybdenum (Mo)	mg/L	0.00176	0.000515	0.000819	0.00141	0.000812	0.000050	8430881
Total Nickel (Ni)	mg/L	0.00347	0.00609	0.00020	0.0338	0.00036	0.00010	8430881
Total Phosphorus (P)	mg/L	0.231	0.546	<0.0050	0.262	0.0422	0.0050	8430881
Total Selenium (Se)	mg/L	<0.000040	0.000103	0.00187	0.00736	<0.000040	0.000040	8430881
Total Silicon (Si)	mg/L	8.76	11.8	2.38	6.28	6.00	0.050	8430881
Total Silver (Ag)	mg/L	0.000046	0.000081	<0.000010	0.000079	<0.000010	0.000010	8430881
Total Strontium (Sr)	mg/L	0.524	0.638	0.328	0.281	0.216	0.000050	8430881
Total Thallium (Tl)	mg/L	0.0000210	0.0000690	<0.0000020	0.0000170	<0.0000020	0.0000020	8430881
Total Tin (Sn)	mg/L	<0.00020	0.00040	<0.00020	<0.00020	0.00050	0.00020	8430881
Total Titanium (Ti)	mg/L	0.140	0.0687	<0.0020	0.0829	0.0023	0.0020	8430881
Total Uranium (U)	mg/L	0.00412	0.0112	0.00344	0.00532	0.00865	0.0000050	8430881
Total Vanadium (V)	mg/L	0.00547	0.00780	<0.00020	0.00899	<0.00020	0.00020	8430881

RDL = Reportable Detection Limit



Maxxam Job #: B688874  
Report Date: 2016/10/19

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PS5235	PS5236	PS5237	PS5238	PS5240		
Sampling Date		2016/10/04 09:17	2016/10/04 09:36	2016/10/04 11:04	2016/10/04 11:56	2016/10/04 14:08		
COC Number		08428207	08428207	08428208	08428208	08428208		
	UNITS	BH96G-25S	BH95G-25D	MW15-02	BH95G-33D	BH95G-129	RDL	QC Batch
Total Zinc (Zn)	mg/L	0.0155	0.284	0.0013	0.0339	0.0092	0.0010	8430881
Total Zirconium (Zr)	mg/L	0.00036	0.00183	<0.00010	0.00106	0.00027	0.00010	8430881
Total Calcium (Ca)	mg/L	149	163	83.6	93.3	59.7	0.25	8425830
Total Magnesium (Mg)	mg/L	43.6	58.9	12.4	10.7	13.9	0.25	8425830
Total Potassium (K)	mg/L	6.41	5.98	2.47	1.39	2.13	0.25	8425830
Total Sodium (Na)	mg/L	2.78	2.43	0.77	0.84	2.47	0.25	8425830
Total Sulphur (S)	mg/L	67.2	87.8	21.0	24.0	11.9	3.0	8425830
RDL = Reportable Detection Limit								

Maxxam Job #: B688874  
Report Date: 2016/10/19

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PS5227  
**Sample ID:** MW15-09S  
**Matrix:** Water

**Collected:** 2016/10/03  
**Shipped:**  
**Received:** 2016/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8427488	N/A	2016/10/13	Maria Maclean
Alkalinity - Water	AT/ALK	8427378	2016/10/08	2016/10/08	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8429138	N/A	2016/10/11	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8430899	N/A	2016/10/12	Diana Cruz
Conductance - water	AT/ALK	8427379	N/A	2016/10/08	Maria Maclean
Fluoride	ISE/ISE	8429543	N/A	2016/10/11	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8425781	N/A	2016/10/12	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8427077	N/A	2016/10/12	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8429108	N/A	2016/10/11	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8429284	2016/10/11	2016/10/11	Rob McClelland
Ion Balance	CALC	8426418	N/A	2016/10/12	Automated Statchk
Sum of cations, anions	CALC	8426132	N/A	2016/10/12	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8425829	N/A	2016/10/12	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8429179	N/A	2016/10/12	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8425830	N/A	2016/10/12	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8429745	N/A	2016/10/12	Andrew An
Ammonia-N (Preserved)	KONE/COL	8429579	N/A	2016/10/11	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8430715	N/A	2016/10/08	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8430717	N/A	2016/10/08	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8426133	N/A	2016/10/12	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8428543	N/A	2016/10/11	Lucy Luo
pH Water	AT/ALK	8427380	N/A	2016/10/08	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8429141	N/A	2016/10/11	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8429710	2016/10/11	2016/10/12	Clare Kwok
Total Phosphorus - unpreserved	KONE/COL	8429711	N/A	2016/10/12	Clare Kwok
Total Suspended Solids-Low Level	BAL/BAL	8427448	2016/10/08	2016/10/11	Wendy Fong

**Maxxam ID:** PS5228  
**Sample ID:** MW16-12S  
**Matrix:** Water

**Collected:** 2016/10/03  
**Shipped:**  
**Received:** 2016/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8427488	N/A	2016/10/13	Maria Maclean
Alkalinity - Water	AT/ALK	8427378	2016/10/08	2016/10/08	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8429138	N/A	2016/10/11	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8430899	N/A	2016/10/12	Diana Cruz
Conductance - water	AT/ALK	8427379	N/A	2016/10/08	Maria Maclean
Fluoride	ISE/ISE	8429543	N/A	2016/10/11	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8425781	N/A	2016/10/12	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8427077	N/A	2016/10/12	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8429108	N/A	2016/10/11	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8429284	2016/10/11	2016/10/11	Rob McClelland
Ion Balance	CALC	8426418	N/A	2016/10/12	Automated Statchk
Sum of cations, anions	CALC	8426132	N/A	2016/10/12	Automated Statchk

Maxxam Job #: B688874  
Report Date: 2016/10/19

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PS5228  
**Sample ID:** MW16-12S  
**Matrix:** Water

**Collected:** 2016/10/03  
**Shipped:**  
**Received:** 2016/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8425829	N/A	2016/10/12	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8429179	N/A	2016/10/12	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8430881	2016/10/12	2016/10/12	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8425830	N/A	2016/10/12	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8429663	N/A	2016/10/11	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8430715	N/A	2016/10/08	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8430717	N/A	2016/10/08	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8426133	N/A	2016/10/12	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8428543	N/A	2016/10/11	Lucy Luo
pH Water	AT/ALK	8427380	N/A	2016/10/08	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8429141	N/A	2016/10/11	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8429710	2016/10/11	2016/10/12	Clare Kwok
Total Phosphorus - unpreserved	KONE/COL	8429711	N/A	2016/10/12	Clare Kwok
Total Suspended Solids-Low Level	BAL/BAL	8427448	2016/10/08	2016/10/11	Wendy Fong

**Maxxam ID:** PS5229  
**Sample ID:** MW16-12D  
**Matrix:** Water

**Collected:** 2016/10/03  
**Shipped:**  
**Received:** 2016/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8427488	N/A	2016/10/13	Maria Maclean
Alkalinity - Water	AT/ALK	8427378	2016/10/08	2016/10/08	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8429138	N/A	2016/10/11	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8430893	N/A	2016/10/12	Diana Cruz
Conductance - water	AT/ALK	8427379	N/A	2016/10/08	Maria Maclean
Fluoride	ISE/ISE	8429543	N/A	2016/10/11	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8425781	N/A	2016/10/12	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8427077	N/A	2016/10/12	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8429108	N/A	2016/10/11	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8429284	2016/10/11	2016/10/11	Rob McClelland
Ion Balance	CALC	8426418	N/A	2016/10/12	Automated Statchk
Sum of cations, anions	CALC	8426132	N/A	2016/10/12	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8425829	N/A	2016/10/12	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8429179	N/A	2016/10/12	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8430881	2016/10/12	2016/10/12	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8425830	N/A	2016/10/12	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8429663	N/A	2016/10/11	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8430715	N/A	2016/10/08	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8430717	N/A	2016/10/08	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8426133	N/A	2016/10/12	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8428543	N/A	2016/10/11	Lucy Luo
pH Water	AT/ALK	8427380	N/A	2016/10/08	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8429141	N/A	2016/10/11	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8429710	2016/10/11	2016/10/12	Clare Kwok

Maxxam Job #: B688874  
Report Date: 2016/10/19

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PS5229  
**Sample ID:** MW16-12D  
**Matrix:** Water

**Collected:** 2016/10/03  
**Shipped:**  
**Received:** 2016/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Phosphorus - unpreserved	KONE/COL	8429711	N/A	2016/10/12	Clare Kwok
Total Suspended Solids-Low Level	BAL/BAL	8427448	2016/10/08	2016/10/11	Wendy Fong

**Maxxam ID:** PS5229 Dup  
**Sample ID:** MW16-12D  
**Matrix:** Water

**Collected:** 2016/10/03  
**Shipped:**  
**Received:** 2016/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbon (DOC) - field filtered/preserved	TRAA/COL	8430893	N/A	2016/10/12	Diana Cruz

**Maxxam ID:** PS5230  
**Sample ID:** BH95G-15D  
**Matrix:** Water

**Collected:** 2016/10/03  
**Shipped:**  
**Received:** 2016/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8427488	N/A	2016/10/13	Maria Maclean
Alkalinity - Water	AT/ALK	8427378	2016/10/08	2016/10/08	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8429138	N/A	2016/10/11	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8430893	N/A	2016/10/12	Diana Cruz
Conductance - water	AT/ALK	8427379	N/A	2016/10/08	Maria Maclean
Fluoride	ISE/ISE	8429543	N/A	2016/10/11	Balwinder Bassi
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8425781	N/A	2016/10/12	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8427077	N/A	2016/10/12	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8429108	N/A	2016/10/11	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8429284	2016/10/11	2016/10/11	Rob McClelland
Ion Balance	CALC	8426418	N/A	2016/10/12	Automated Statchk
Sum of cations, anions	CALC	8426132	N/A	2016/10/12	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8425829	N/A	2016/10/12	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8429179	N/A	2016/10/12	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8430881	2016/10/12	2016/10/12	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8425830	N/A	2016/10/12	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8429663	N/A	2016/10/11	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8430715	N/A	2016/10/08	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8430717	N/A	2016/10/08	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8426133	N/A	2016/10/12	Automated Statchk
Filter and HNO <sub>3</sub> Preserve for Metals	ICP	8428543	N/A	2016/10/11	Lucy Luo
pH Water	AT/ALK	8427380	N/A	2016/10/08	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8429141	N/A	2016/10/11	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8429710	2016/10/11	2016/10/12	Clare Kwok
Total Phosphorus - unpreserved	KONE/COL	8429711	N/A	2016/10/12	Clare Kwok
Total Suspended Solids-Low Level	BAL/BAL	8427448	2016/10/08	2016/10/11	Wendy Fong

Maxxam Job #: B688874  
Report Date: 2016/10/19

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**TEST SUMMARY**

**Maxxam ID:** PS5230 Dup  
**Sample ID:** BH95G-15D  
**Matrix:** Water

**Collected:** 2016/10/03  
**Shipped:**  
**Received:** 2016/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Water	AT/ALK	8427378	2016/10/08	2016/10/08	Maria Maclean
Conductance - water	AT/ALK	8427379	N/A	2016/10/08	Maria Maclean
pH Water	AT/ALK	8427380	N/A	2016/10/08	Maria Maclean

**Maxxam ID:** PS5231  
**Sample ID:** MW15-10D  
**Matrix:** Water

**Collected:** 2016/10/03  
**Shipped:**  
**Received:** 2016/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8427488	N/A	2016/10/13	Maria Maclean
Alkalinity - Water	AT/ALK	8427378	2016/10/08	2016/10/08	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8429138	N/A	2016/10/11	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8430893	N/A	2016/10/12	Diana Cruz
Conductance - water	AT/ALK	8427379	N/A	2016/10/08	Maria Maclean
Fluoride	ISE/ISE	8429543	N/A	2016/10/11	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8425781	N/A	2016/10/12	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8427077	N/A	2016/10/12	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8429108	N/A	2016/10/11	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8429284	2016/10/11	2016/10/11	Rob McClelland
Ion Balance	CALC	8426418	N/A	2016/10/12	David Huang
Sum of cations, anions	CALC	8426132	N/A	2016/10/12	David Huang
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8425829	N/A	2016/10/12	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8429179	N/A	2016/10/12	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8430881	2016/10/12	2016/10/12	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8425830	N/A	2016/10/12	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8429663	N/A	2016/10/11	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8430715	N/A	2016/10/08	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8430717	N/A	2016/10/08	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8426133	N/A	2016/10/12	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8428543	N/A	2016/10/11	Lucy Luo
pH Water	AT/ALK	8427380	N/A	2016/10/08	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8429141	N/A	2016/10/11	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8429710	2016/10/11	2016/10/12	Clare Kwok
Total Phosphorus - unpreserved	KONE/COL	8429711	N/A	2016/10/12	Clare Kwok
Total Suspended Solids-Low Level	BAL/BAL	8427448	2016/10/08	2016/10/11	Wendy Fong

**Maxxam ID:** PS5231 Dup  
**Sample ID:** MW15-10D  
**Matrix:** Water

**Collected:** 2016/10/03  
**Shipped:**  
**Received:** 2016/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Ammonia-N (Preserved)	KONE/COL	8429663	N/A	2016/10/11	Diana Cruz

Maxxam Job #: B688874  
Report Date: 2016/10/19

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PS5232  
**Sample ID:** MW15-06  
**Matrix:** Water

**Collected:** 2016/10/03  
**Shipped:**  
**Received:** 2016/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8427488	N/A	2016/10/13	Maria Maclean
Alkalinity - Water	AT/ALK	8427376	2016/10/08	2016/10/08	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8429135	N/A	2016/10/11	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8430899	N/A	2016/10/12	Diana Cruz
Conductance - water	AT/ALK	8427375	N/A	2016/10/08	Maria Maclean
Fluoride	ISE/ISE	8429543	N/A	2016/10/11	Balwinder Bassi
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8425781	N/A	2016/10/12	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8427077	N/A	2016/10/12	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8429108	N/A	2016/10/11	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8429284	2016/10/11	2016/10/11	Rob McClelland
Ion Balance	CALC	8426418	N/A	2016/10/13	Automated Statchk
Sum of cations, anions	CALC	8426132	N/A	2016/10/12	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8425829	N/A	2016/10/12	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8429179	N/A	2016/10/12	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8425830	N/A	2016/10/12	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8429745	N/A	2016/10/12	Andrew An
Ammonia-N (Preserved)	KONE/COL	8429579	N/A	2016/10/11	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8430715	N/A	2016/10/08	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8430717	N/A	2016/10/08	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8426133	N/A	2016/10/12	Automated Statchk
Filter and HNO <sub>3</sub> Preserve for Metals	ICP	8428543	N/A	2016/10/11	Lucy Luo
pH Water	AT/ALK	8427374	N/A	2016/10/08	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8429137	N/A	2016/10/11	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8429710	2016/10/11	2016/10/12	Clare Kwok
Total Phosphorus - unpreserved	KONE/COL	8429711	N/A	2016/10/12	Clare Kwok
Total Suspended Solids-Low Level	BAL/BAL	8427448	2016/10/08	2016/10/11	Wendy Fong

**Maxxam ID:** PS5233  
**Sample ID:** DUP3  
**Matrix:** Water

**Collected:** 2016/10/03  
**Shipped:**  
**Received:** 2016/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8427488	N/A	2016/10/13	Maria Maclean
Alkalinity - Water	AT/ALK	8427376	2016/10/08	2016/10/08	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8429135	N/A	2016/10/11	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8430893	N/A	2016/10/12	Diana Cruz
Conductance - water	AT/ALK	8427375	N/A	2016/10/08	Maria Maclean
Fluoride	ISE/ISE	8429543	N/A	2016/10/11	Balwinder Bassi
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8425781	N/A	2016/10/12	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8427077	N/A	2016/10/12	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8429108	N/A	2016/10/11	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8429284	2016/10/11	2016/10/11	Rob McClelland
Ion Balance	CALC	8426418	N/A	2016/10/12	David Huang
Sum of cations, anions	CALC	8426132	N/A	2016/10/12	David Huang

Maxxam Job #: B688874  
Report Date: 2016/10/19

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PS5233  
**Sample ID:** DUP3  
**Matrix:** Water

**Collected:** 2016/10/03  
**Shipped:**  
**Received:** 2016/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8425829	N/A	2016/10/12	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8429179	N/A	2016/10/12	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8430881	2016/10/12	2016/10/12	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8425830	N/A	2016/10/12	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8429663	N/A	2016/10/11	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8437779	N/A	2016/10/18	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8430717	N/A	2016/10/08	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8426133	N/A	2016/10/12	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8428543	N/A	2016/10/11	Lucy Luo
pH Water	AT/ALK	8427374	N/A	2016/10/08	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8429137	N/A	2016/10/11	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8429710	2016/10/11	2016/10/12	Clare Kwok
Total Phosphorus - unpreserved	KONE/COL	8429711	N/A	2016/10/12	Clare Kwok
Total Suspended Solids-Low Level	BAL/BAL	8427448	2016/10/08	2016/10/11	Wendy Fong

**Maxxam ID:** PS5234  
**Sample ID:** BH95G-21  
**Matrix:** Water

**Collected:** 2016/10/04  
**Shipped:**  
**Received:** 2016/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8427488	N/A	2016/10/13	Maria Maclean
Alkalinity - Water	AT/ALK	8427376	2016/10/08	2016/10/08	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8429135	N/A	2016/10/11	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8430893	N/A	2016/10/12	Diana Cruz
Conductance - water	AT/ALK	8427375	N/A	2016/10/08	Maria Maclean
Fluoride	ISE/ISE	8429543	N/A	2016/10/11	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8427151	N/A	2016/10/12	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8427077	N/A	2016/10/12	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8429108	N/A	2016/10/11	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8429284	2016/10/11	2016/10/11	Rob McClelland
Ion Balance	CALC	8426418	N/A	2016/10/12	Automated Statchk
Sum of cations, anions	CALC	8426132	N/A	2016/10/12	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8425829	N/A	2016/10/12	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8429179	N/A	2016/10/12	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8430881	2016/10/12	2016/10/12	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8425830	N/A	2016/10/12	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8429579	N/A	2016/10/11	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8430715	N/A	2016/10/08	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8430717	N/A	2016/10/08	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8426133	N/A	2016/10/12	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8428543	N/A	2016/10/11	Lucy Luo
pH Water	AT/ALK	8427374	N/A	2016/10/08	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8429137	N/A	2016/10/11	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8429710	2016/10/11	2016/10/12	Clare Kwok



Maxxam Job #: B688874  
Report Date: 2016/10/19

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PS5234  
**Sample ID:** BH95G-21  
**Matrix:** Water

**Collected:** 2016/10/04  
**Shipped:**  
**Received:** 2016/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Phosphorus - unpreserved	KONE/COL	8429711	N/A	2016/10/12	Clare Kwok
Total Suspended Solids-Low Level	BAL/BAL	8427448	2016/10/08	2016/10/11	Wendy Fong

**Maxxam ID:** PS5235  
**Sample ID:** BH96G-25S  
**Matrix:** Water

**Collected:** 2016/10/04  
**Shipped:**  
**Received:** 2016/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8427488	N/A	2016/10/13	Maria Maclean
Alkalinity - Water	AT/ALK	8427376	2016/10/08	2016/10/08	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8429135	N/A	2016/10/11	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8430893	N/A	2016/10/12	Diana Cruz
Conductance - water	AT/ALK	8427375	N/A	2016/10/08	Maria Maclean
Fluoride	ISE/ISE	8429543	N/A	2016/10/11	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8427151	N/A	2016/10/12	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8427077	N/A	2016/10/12	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8429108	N/A	2016/10/11	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8429284	2016/10/11	2016/10/11	Rob McClelland
Ion Balance	CALC	8426418	N/A	2016/10/12	Automated Statchk
Sum of cations, anions	CALC	8426132	N/A	2016/10/12	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8425829	N/A	2016/10/12	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8429179	N/A	2016/10/12	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8430881	2016/10/12	2016/10/12	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8425830	N/A	2016/10/12	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8429579	N/A	2016/10/11	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8430715	N/A	2016/10/08	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8430717	N/A	2016/10/08	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8426133	N/A	2016/10/12	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8428543	N/A	2016/10/11	Lucy Luo
pH Water	AT/ALK	8427374	N/A	2016/10/08	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8429137	N/A	2016/10/11	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8429710	2016/10/11	2016/10/12	Clare Kwok
Total Phosphorus - unpreserved	KONE/COL	8429711	N/A	2016/10/12	Clare Kwok
Total Suspended Solids-Low Level	BAL/BAL	8427448	2016/10/08	2016/10/11	Wendy Fong

**Maxxam ID:** PS5235 Dup  
**Sample ID:** BH96G-25S  
**Matrix:** Water

**Collected:** 2016/10/04  
**Shipped:**  
**Received:** 2016/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chloride by Automated Colourimetry	KONE/COL	8429135	N/A	2016/10/11	Balwinder Bassi
Fluoride	ISE/ISE	8429543	N/A	2016/10/11	Balwinder Bassi
Nitrate+Nitrite (N) (low level)	TRAA/COL	8430715	N/A	2016/10/08	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8430717	N/A	2016/10/08	Isaac Wang



Maxxam Job #: B688874  
Report Date: 2016/10/19

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PS5235 Dup  
**Sample ID:** BH96G-25S  
**Matrix:** Water

**Collected:** 2016/10/04  
**Shipped:**  
**Received:** 2016/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Sulphate by Automated Colourimetry	KONE/COL	8429137	N/A	2016/10/11	Balwinder Bassi

**Maxxam ID:** PS5236  
**Sample ID:** BH95G-25D  
**Matrix:** Water

**Collected:** 2016/10/04  
**Shipped:**  
**Received:** 2016/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8427488	N/A	2016/10/13	Maria Maclean
Alkalinity - Water	AT/ALK	8427376	2016/10/08	2016/10/08	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8429135	N/A	2016/10/11	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8430893	N/A	2016/10/12	Diana Cruz
Conductance - water	AT/ALK	8427375	N/A	2016/10/08	Maria Maclean
Fluoride	ISE/ISE	8429543	N/A	2016/10/11	Balwinder Bassi
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8427151	N/A	2016/10/12	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8427077	N/A	2016/10/12	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8429108	N/A	2016/10/11	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8429284	2016/10/11	2016/10/11	Rob McClelland
Ion Balance	CALC	8426418	N/A	2016/10/12	Automated Statchk
Sum of cations, anions	CALC	8426132	N/A	2016/10/12	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8425829	N/A	2016/10/12	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8429179	N/A	2016/10/12	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8430881	2016/10/12	2016/10/12	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8425830	N/A	2016/10/12	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8429579	N/A	2016/10/11	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8430710	N/A	2016/10/08	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8430712	N/A	2016/10/08	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8426133	N/A	2016/10/12	Automated Statchk
Filter and HNO <sub>3</sub> Preserve for Metals	ICP	8428543	N/A	2016/10/11	Lucy Luo
pH Water	AT/ALK	8427374	N/A	2016/10/08	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8429137	N/A	2016/10/11	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8429710	2016/10/11	2016/10/12	Clare Kwok
Total Phosphorus - unpreserved	KONE/COL	8429711	N/A	2016/10/12	Clare Kwok
Total Suspended Solids-Low Level	BAL/BAL	8427448	2016/10/08	2016/10/11	Wendy Fong

**Maxxam ID:** PS5237  
**Sample ID:** MW15-02  
**Matrix:** Water

**Collected:** 2016/10/04  
**Shipped:**  
**Received:** 2016/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8427488	N/A	2016/10/13	Maria Maclean
Alkalinity - Water	AT/ALK	8427376	2016/10/08	2016/10/08	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8429135	N/A	2016/10/11	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8430893	N/A	2016/10/12	Diana Cruz
Conductance - water	AT/ALK	8427375	N/A	2016/10/08	Maria Maclean

Maxxam Job #: B688874  
Report Date: 2016/10/19

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PS5237  
**Sample ID:** MW15-02  
**Matrix:** Water

**Collected:** 2016/10/04  
**Shipped:**  
**Received:** 2016/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Fluoride	ISE/ISE	8429543	N/A	2016/10/11	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8427151	N/A	2016/10/12	David Huang
Hardness (calculated as CaCO3)	CALC	8427077	N/A	2016/10/12	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8429108	N/A	2016/10/11	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8429284	2016/10/11	2016/10/11	Rob McClelland
Ion Balance	CALC	8426418	N/A	2016/10/12	Automated Statchk
Sum of cations, anions	CALC	8426132	N/A	2016/10/12	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8425829	N/A	2016/10/12	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8429706	N/A	2016/10/12	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8430881	2016/10/12	2016/10/12	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8425830	N/A	2016/10/12	David Huang
Ammonia-N (Preserved)	KONE/COL	8429579	N/A	2016/10/11	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8430710	N/A	2016/10/08	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8430712	N/A	2016/10/08	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8426133	N/A	2016/10/12	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8428543	N/A	2016/10/11	Lucy Luo
pH Water	AT/ALK	8427374	N/A	2016/10/08	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8429137	N/A	2016/10/11	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8429710	2016/10/11	2016/10/12	Clare Kwok
Total Phosphorus - unpreserved	KONE/COL	8429711	N/A	2016/10/12	Clare Kwok
Total Suspended Solids-Low Level	BAL/BAL	8428681	2016/10/11	2016/10/12	Minsoo Choi

**Maxxam ID:** PS5237 Dup  
**Sample ID:** MW15-02  
**Matrix:** Water

**Collected:** 2016/10/04  
**Shipped:**  
**Received:** 2016/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chloride by Automated Colourimetry	KONE/COL	8429135	N/A	2016/10/11	Balwinder Bassi
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8429706	N/A	2016/10/12	Andrew An
Sulphate by Automated Colourimetry	KONE/COL	8429137	N/A	2016/10/11	Balwinder Bassi

**Maxxam ID:** PS5238  
**Sample ID:** BH95G-33D  
**Matrix:** Water

**Collected:** 2016/10/04  
**Shipped:**  
**Received:** 2016/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8427488	N/A	2016/10/13	Maria Maclean
Alkalinity - Water	AT/ALK	8427376	2016/10/08	2016/10/08	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8429135	N/A	2016/10/11	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8430893	N/A	2016/10/12	Diana Cruz
Conductance - water	AT/ALK	8427375	N/A	2016/10/08	Maria Maclean
Fluoride	ISE/ISE	8429541	N/A	2016/10/11	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8427151	N/A	2016/10/12	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8427077	N/A	2016/10/12	Automated Statchk

Maxxam Job #: B688874  
Report Date: 2016/10/19

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**TEST SUMMARY**

**Maxxam ID:** PS5238  
**Sample ID:** BH95G-33D  
**Matrix:** Water

**Collected:** 2016/10/04  
**Shipped:**  
**Received:** 2016/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8429108	N/A	2016/10/11	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8429284	2016/10/11	2016/10/11	Rob McClelland
Ion Balance	CALC	8426418	N/A	2016/10/12	Automated Statchk
Sum of cations, anions	CALC	8426132	N/A	2016/10/12	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8425829	N/A	2016/10/12	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8429706	N/A	2016/10/12	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8430881	2016/10/12	2016/10/12	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8425830	N/A	2016/10/12	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8429579	N/A	2016/10/11	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8430710	N/A	2016/10/08	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8430712	N/A	2016/10/08	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8426133	N/A	2016/10/12	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8428543	N/A	2016/10/11	Lucy Luo
pH Water	AT/ALK	8427374	N/A	2016/10/08	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8429137	N/A	2016/10/11	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8429710	2016/10/11	2016/10/12	Clare Kwok
Total Phosphorus - unpreserved	KONE/COL	8429711	N/A	2016/10/12	Clare Kwok
Total Suspended Solids-Low Level	BAL/BAL	8428681	2016/10/11	2016/10/12	Minsoo Choi

**Maxxam ID:** PS5238 Dup  
**Sample ID:** BH95G-33D  
**Matrix:** Water

**Collected:** 2016/10/04  
**Shipped:**  
**Received:** 2016/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8429710	2016/10/11	2016/10/12	Clare Kwok
Total Phosphorus - unpreserved	KONE/COL	8429711	N/A	2016/10/12	Clare Kwok

**Maxxam ID:** PS5239  
**Sample ID:** FIELD BLANK  
**Matrix:** Water

**Collected:** 2016/10/04  
**Shipped:**  
**Received:** 2016/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8427488	N/A	2016/10/13	Maria Maclean
Alkalinity - Water	AT/ALK	8427376	2016/10/08	2016/10/08	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8429135	N/A	2016/10/11	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8430893	N/A	2016/10/12	Diana Cruz
Conductance - water	AT/ALK	8427375	N/A	2016/10/08	Maria Maclean
Fluoride	ISE/ISE	8429543	N/A	2016/10/11	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8427151	N/A	2016/10/12	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8427077	N/A	2016/10/12	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8429108	N/A	2016/10/11	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8429284	2016/10/11	2016/10/11	Rob McClelland
Ion Balance	CALC	8426418	N/A	2016/10/12	Automated Statchk
Sum of cations, anions	CALC	8426132	N/A	2016/10/12	Automated Statchk

Maxxam Job #: B688874  
Report Date: 2016/10/19

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**TEST SUMMARY**

**Maxxam ID:** PS5239  
**Sample ID:** FIELD BLANK  
**Matrix:** Water

**Collected:** 2016/10/04  
**Shipped:**  
**Received:** 2016/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8425829	N/A	2016/10/12	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8429706	N/A	2016/10/12	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8425830	N/A	2016/10/12	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8429745	N/A	2016/10/12	Andrew An
Ammonia-N (Preserved)	KONE/COL	8429579	N/A	2016/10/11	Diana Cruz
Nitrate+Nitrite (N) (low level)	TRAA/COL	8430710	N/A	2016/10/08	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8430712	N/A	2016/10/08	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8426133	N/A	2016/10/12	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8428543	N/A	2016/10/11	Lucy Luo
pH Water	AT/ALK	8427374	N/A	2016/10/08	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8429137	N/A	2016/10/11	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8429710	2016/10/11	2016/10/12	Clare Kwok
Total Phosphorus - unpreserved	KONE/COL	8429711	N/A	2016/10/12	Clare Kwok
Total Suspended Solids-Low Level	BAL/BAL	8428681	2016/10/11	2016/10/12	Minsoo Choi

**Maxxam ID:** PS5239 Dup  
**Sample ID:** FIELD BLANK  
**Matrix:** Water

**Collected:** 2016/10/04  
**Shipped:**  
**Received:** 2016/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Elements by ICPMS Low Level (total)	ICP/CRCM	8429745	N/A	2016/10/12	Andrew An

**Maxxam ID:** PS5240  
**Sample ID:** BH95G-129  
**Matrix:** Water

**Collected:** 2016/10/04  
**Shipped:**  
**Received:** 2016/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8427488	N/A	2016/10/13	Maria Maclean
Alkalinity - Water	AT/ALK	8427376	2016/10/08	2016/10/08	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8429135	N/A	2016/10/11	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8430893	N/A	2016/10/12	Diana Cruz
Conductance - water	AT/ALK	8427375	N/A	2016/10/08	Maria Maclean
Fluoride	ISE/ISE	8429543	N/A	2016/10/11	Balwinder Bassi
Hardness Total (calculated as CaCO3)	CALC	8427151	N/A	2016/10/12	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8427077	N/A	2016/10/12	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8429108	N/A	2016/10/11	Rob McClelland
Mercury (Total-LowLevel) by CVAf	CV/AF	8429284	2016/10/11	2016/10/11	Rob McClelland
Ion Balance	CALC	8426418	N/A	2016/10/12	Automated Statchk
Sum of cations, anions	CALC	8426132	N/A	2016/10/12	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8425829	N/A	2016/10/12	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8429706	N/A	2016/10/12	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8430881	2016/10/12	2016/10/12	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8425830	N/A	2016/10/12	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8429663	N/A	2016/10/11	Diana Cruz

Maxxam Job #: B688874  
Report Date: 2016/10/19

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**TEST SUMMARY**

**Maxxam ID:** PS5240  
**Sample ID:** BH95G-129  
**Matrix:** Water

**Collected:** 2016/10/04  
**Shipped:**  
**Received:** 2016/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrate+Nitrite (N) (low level)	TRAA/COL	8430710	N/A	2016/10/08	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8430712	N/A	2016/10/08	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8426133	N/A	2016/10/12	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8428543	N/A	2016/10/11	Lucy Luo
pH Water	AT/ALK	8427374	N/A	2016/10/08	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8429137	N/A	2016/10/11	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8429710	2016/10/11	2016/10/12	Clare Kwok
Total Phosphorus - unpreserved	KONE/COL	8429711	N/A	2016/10/12	Clare Kwok
Total Suspended Solids-Low Level	BAL/BAL	8428681	2016/10/11	2016/10/12	Minsoo Choi

**Maxxam ID:** PS5240 Dup  
**Sample ID:** BH95G-129  
**Matrix:** Water

**Collected:** 2016/10/04  
**Shipped:**  
**Received:** 2016/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (Total-LowLevel) by CVAf	CV/AF	8429284	2016/10/11	2016/10/11	Rob McClelland

Maxxam Job #: B688874  
Report Date: 2016/10/19

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**GENERAL COMMENTS**

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	3.7°C
Package 2	5.0°C
Package 3	4.7°C

Samples collected on October 3rd were received at analytical lab past hold time for Nitrate, Nitrite, Total Phosphorus, and Dissolved Phosphorus. Samples collected on October 4th were received at analytical lab on date of hold time expiry, samples were analyzed past hold time for Nitrate, Nitrite, Total Phosphorus, and Dissolved Phosphorus.

Sample PS5228-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PS5229-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PS5230-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PS5231-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PS5233-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PS5234-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PS5235-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PS5236-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PS5237-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PS5238-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PS5240-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER) Comments**

Sample PS5231-04 Elements by ICPMS Low Level (dissolved): RDL raised due to sample matrix interference.

Sample PS5233-04 Elements by ICPMS Low Level (dissolved): RDL raised due to sample matrix interference.

**LL TOTAL METALS (DIGESTED) WITH CV HG Comments**

Sample PS5228-03 Elements by ICPMS Digested LL (total): RDL raised due to sample matrix interference.

Sample PS5230-03 Elements by ICPMS Digested LL (total): RDL raised due to sample matrix interference.

Sample PS5231-03 Elements by ICPMS Digested LL (total): RDL raised due to sample matrix interference.

Sample PS5233-03 Elements by ICPMS Digested LL (total): RDL raised due to sample matrix interference.

Sample PS5230, Elements by ICPMS Low Level (dissolved): Test repeated.

**Results relate only to the items tested.**

Maxxam Job #: B688874  
Report Date: 2016/10/19

**QUALITY ASSURANCE REPORT**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8427374	pH	2016/10/08			101	97 - 103			2.1	N/A
8427375	Conductivity	2016/10/08			100	80 - 120	<1.0	uS/cm	0.24	20
8427376	Alkalinity (PP as CaCO3)	2016/10/08					<0.50	mg/L	NC	20
8427376	Alkalinity (Total as CaCO3)	2016/10/08	NC	80 - 120	97	80 - 120	<0.50	mg/L	0.082	20
8427376	Bicarbonate (HCO3)	2016/10/08					<0.50	mg/L	0.082	20
8427376	Carbonate (CO3)	2016/10/08					<0.50	mg/L	NC	20
8427376	Hydroxide (OH)	2016/10/08					<0.50	mg/L	NC	20
8427378	Alkalinity (PP as CaCO3)	2016/10/08					<0.50	mg/L	NC	20
8427378	Alkalinity (Total as CaCO3)	2016/10/08	NC	80 - 120	96	80 - 120	<0.50	mg/L	1.0	20
8427378	Bicarbonate (HCO3)	2016/10/08					<0.50	mg/L	1.0	20
8427378	Carbonate (CO3)	2016/10/08					<0.50	mg/L	NC	20
8427378	Hydroxide (OH)	2016/10/08					<0.50	mg/L	NC	20
8427379	Conductivity	2016/10/08			102	80 - 120	<1.0	uS/cm	0.84	20
8427380	pH	2016/10/08			101	97 - 103			1.8	N/A
8427448	Total Suspended Solids	2016/10/11			94	80 - 120	<1.0	mg/L		
8427488	Acidity (pH 4.5)	2016/10/13			0	N/A	<0.50	mg/L	NC	20
8427488	Acidity (pH 8.3)	2016/10/13			99	80 - 120	<0.50	mg/L	NC	20
8428681	Total Suspended Solids	2016/10/12			103	80 - 120	<1.0	mg/L		
8429108	Dissolved Mercury (Hg)	2016/10/11	101	80 - 120	98	80 - 120	<0.0000020	mg/L	NC	20
8429135	Dissolved Chloride (Cl)	2016/10/11	99	80 - 120	94	80 - 120	0.56, RDL=0.50	mg/L	NC	20
8429137	Dissolved Sulphate (SO4)	2016/10/11	NC	80 - 120	92	80 - 120	<0.50	mg/L	3.7	20
8429138	Dissolved Chloride (Cl)	2016/10/11	106	80 - 120	94	80 - 120	<0.50	mg/L	NC	20
8429141	Dissolved Sulphate (SO4)	2016/10/11	NC	80 - 120	91	80 - 120	<0.50	mg/L	0.69	20
8429179	Dissolved Aluminum (Al)	2016/10/12	108	80 - 120	103	80 - 120	<0.00050	mg/L	0.50	20
8429179	Dissolved Antimony (Sb)	2016/10/12	99	80 - 120	98	80 - 120	<0.000020	mg/L	NC	20
8429179	Dissolved Arsenic (As)	2016/10/12	102	80 - 120	100	80 - 120	<0.000020	mg/L	NC	20
8429179	Dissolved Barium (Ba)	2016/10/12	NC	80 - 120	99	80 - 120	<0.000020	mg/L	1.1	20
8429179	Dissolved Beryllium (Be)	2016/10/12	100	80 - 120	99	80 - 120	<0.000010	mg/L	NC	20
8429179	Dissolved Bismuth (Bi)	2016/10/12	98	80 - 120	98	80 - 120	<0.0000050	mg/L	NC	20
8429179	Dissolved Boron (B)	2016/10/12	99	80 - 120	99	80 - 120	<0.010	mg/L	NC	20
8429179	Dissolved Cadmium (Cd)	2016/10/12	100	80 - 120	96	80 - 120	<0.0000050	mg/L	0.77	20



Maxxam Job #: B688874  
Report Date: 2016/10/19

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8429179	Dissolved Chromium (Cr)	2016/10/12	102	80 - 120	100	80 - 120	<0.00010	mg/L	NC	20
8429179	Dissolved Cobalt (Co)	2016/10/12	100	80 - 120	101	80 - 120	<0.0000050	mg/L	NC	20
8429179	Dissolved Copper (Cu)	2016/10/12	98	80 - 120	100	80 - 120	<0.000050	mg/L	2.2	20
8429179	Dissolved Iron (Fe)	2016/10/12	108	80 - 120	100	80 - 120	<0.0010	mg/L	NC	20
8429179	Dissolved Lead (Pb)	2016/10/12	99	80 - 120	99	80 - 120	<0.0000050	mg/L	NC	20
8429179	Dissolved Lithium (Li)	2016/10/12	102	80 - 120	99	80 - 120	<0.00050	mg/L	NC	20
8429179	Dissolved Manganese (Mn)	2016/10/12	102	80 - 120	99	80 - 120	<0.000050	mg/L	NC	20
8429179	Dissolved Molybdenum (Mo)	2016/10/12	NC	80 - 120	101	80 - 120	<0.000050	mg/L	0.34	20
8429179	Dissolved Nickel (Ni)	2016/10/12	99	80 - 120	101	80 - 120	<0.000020	mg/L	5.6	20
8429179	Dissolved Phosphorus (P)	2016/10/12					<0.0020	mg/L	NC	20
8429179	Dissolved Selenium (Se)	2016/10/12	102	80 - 120	99	80 - 120	<0.000040	mg/L	0.55	20
8429179	Dissolved Silicon (Si)	2016/10/12					<0.050	mg/L	1.6	20
8429179	Dissolved Silver (Ag)	2016/10/12	99	80 - 120	86	80 - 120	<0.0000050	mg/L	NC	20
8429179	Dissolved Strontium (Sr)	2016/10/12	NC	80 - 120	96	80 - 120	<0.000050	mg/L	1.6	20
8429179	Dissolved Thallium (Tl)	2016/10/12	86	80 - 120	97	80 - 120	0.0000020, RDL=0.0000020	mg/L	NC	20
8429179	Dissolved Tin (Sn)	2016/10/12	100	80 - 120	113	80 - 120	<0.00020	mg/L	NC	20
8429179	Dissolved Titanium (Ti)	2016/10/12	99	80 - 120	91	80 - 120	<0.00050	mg/L	NC	20
8429179	Dissolved Uranium (U)	2016/10/12	99	80 - 120	98	80 - 120	<0.0000020	mg/L	0.87	20
8429179	Dissolved Vanadium (V)	2016/10/12	101	80 - 120	99	80 - 120	<0.00020	mg/L	NC	20
8429179	Dissolved Zinc (Zn)	2016/10/12	NC	80 - 120	99	80 - 120	<0.00010	mg/L	0.48	20
8429179	Dissolved Zirconium (Zr)	2016/10/12					<0.00010	mg/L	NC	20
8429284	Total Mercury (Hg)	2016/10/11	97	80 - 120	97	80 - 120	<0.0000020	mg/L	NC	20
8429541	Fluoride (F)	2016/10/11	102	80 - 120	96	80 - 120	<0.010	mg/L	NC	20
8429543	Fluoride (F)	2016/10/11	102	80 - 120	100	80 - 120	<0.010	mg/L	0	20
8429579	Total Ammonia (N)	2016/10/11	NC	80 - 120	102	80 - 120	<0.0050	mg/L	9.7	20
8429663	Total Ammonia (N)	2016/10/11	NC	80 - 120	103	80 - 120	<0.0050	mg/L	0.34	20
8429706	Dissolved Aluminum (Al)	2016/10/12	105	80 - 120	103	80 - 120	<0.00050	mg/L	NC	20
8429706	Dissolved Antimony (Sb)	2016/10/12	104	80 - 120	99	80 - 120	<0.000020	mg/L	NC	20
8429706	Dissolved Arsenic (As)	2016/10/12	105	80 - 120	98	80 - 120	<0.000020	mg/L	3.3	20
8429706	Dissolved Barium (Ba)	2016/10/12	NC	80 - 120	100	80 - 120	<0.000020	mg/L	1.5	20



Maxxam Job #: B688874  
Report Date: 2016/10/19

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8429706	Dissolved Beryllium (Be)	2016/10/12	101	80 - 120	98	80 - 120	<0.000010	mg/L	NC	20
8429706	Dissolved Bismuth (Bi)	2016/10/12	100	80 - 120	102	80 - 120	<0.0000050	mg/L	NC	20
8429706	Dissolved Boron (B)	2016/10/12	98	80 - 120	97	80 - 120	<0.010	mg/L	NC	20
8429706	Dissolved Cadmium (Cd)	2016/10/12	99	80 - 120	97	80 - 120	<0.0000050	mg/L	NC	20
8429706	Dissolved Chromium (Cr)	2016/10/12	101	80 - 120	100	80 - 120	<0.00010	mg/L	NC	20
8429706	Dissolved Cobalt (Co)	2016/10/12	98	80 - 120	100	80 - 120	<0.0000050	mg/L	0	20
8429706	Dissolved Copper (Cu)	2016/10/12	95	80 - 120	99	80 - 120	<0.000050	mg/L	NC	20
8429706	Dissolved Iron (Fe)	2016/10/12	109	80 - 120	103	80 - 120	<0.0010	mg/L	NC	20
8429706	Dissolved Lead (Pb)	2016/10/12	102	80 - 120	102	80 - 120	<0.0000050	mg/L	NC	20
8429706	Dissolved Lithium (Li)	2016/10/12	100	80 - 120	100	80 - 120	<0.00050	mg/L	NC	20
8429706	Dissolved Manganese (Mn)	2016/10/12	100	80 - 120	99	80 - 120	<0.000050	mg/L	NC	20
8429706	Dissolved Molybdenum (Mo)	2016/10/12	NC	80 - 120	100	80 - 120	<0.000050	mg/L	2.8	20
8429706	Dissolved Nickel (Ni)	2016/10/12	97	80 - 120	99	80 - 120	<0.000020	mg/L	5.0	20
8429706	Dissolved Phosphorus (P)	2016/10/12					<0.0020	mg/L	NC	20
8429706	Dissolved Selenium (Se)	2016/10/12	103	80 - 120	98	80 - 120	<0.000040	mg/L	1.8	20
8429706	Dissolved Silicon (Si)	2016/10/12					<0.050	mg/L	0.43	20
8429706	Dissolved Silver (Ag)	2016/10/12	90	80 - 120	83	80 - 120	<0.0000050	mg/L	NC	20
8429706	Dissolved Strontium (Sr)	2016/10/12	NC	80 - 120	94	80 - 120	<0.000050	mg/L	1.2	20
8429706	Dissolved Thallium (Tl)	2016/10/12	88	80 - 120	101	80 - 120	0.0000030, RDL=0.0000020	mg/L	NC	20
8429706	Dissolved Tin (Sn)	2016/10/12	105	80 - 120	114	80 - 120	<0.00020	mg/L	NC	20
8429706	Dissolved Titanium (Ti)	2016/10/12	101	80 - 120	98	80 - 120	<0.00050	mg/L	NC	20
8429706	Dissolved Uranium (U)	2016/10/12	107	80 - 120	102	80 - 120	<0.0000020	mg/L	2.1	20
8429706	Dissolved Vanadium (V)	2016/10/12	102	80 - 120	98	80 - 120	<0.00020	mg/L	NC	20
8429706	Dissolved Zinc (Zn)	2016/10/12	108	80 - 120	99	80 - 120	<0.00010	mg/L	NC	20
8429706	Dissolved Zirconium (Zr)	2016/10/12					<0.00010	mg/L	NC	20
8429710	Dissolved Phosphorus (P)	2016/10/12	NC	80 - 120	106	80 - 120	<0.0020	mg/L	0.099	20
8429711	Total Phosphorus (P)	2016/10/12	NC	80 - 120	102	80 - 120	<0.0020	mg/L	0.11	20
8429745	Total Aluminum (Al)	2016/10/12	103	80 - 120	105	80 - 120	<0.00050	mg/L	NC	20
8429745	Total Antimony (Sb)	2016/10/12	98	80 - 120	97	80 - 120	<0.000020	mg/L	NC	20
8429745	Total Arsenic (As)	2016/10/12	105	80 - 120	103	80 - 120	<0.000020	mg/L	NC	20

Maxxam Job #: B688874  
Report Date: 2016/10/19

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8429745	Total Barium (Ba)	2016/10/12	94	80 - 120	100	80 - 120	<0.000020	mg/L	NC	20
8429745	Total Beryllium (Be)	2016/10/12	102	80 - 120	101	80 - 120	<0.000010	mg/L	NC	20
8429745	Total Bismuth (Bi)	2016/10/12	97	80 - 120	99	80 - 120	<0.0000050	mg/L	NC	20
8429745	Total Boron (B)	2016/10/12	98	80 - 120	101	80 - 120	<0.010	mg/L	NC	20
8429745	Total Cadmium (Cd)	2016/10/12	103	80 - 120	99	80 - 120	<0.0000050	mg/L	NC	20
8429745	Total Chromium (Cr)	2016/10/12	99	80 - 120	101	80 - 120	<0.00010	mg/L	NC	20
8429745	Total Cobalt (Co)	2016/10/12	100	80 - 120	102	80 - 120	<0.0000050	mg/L	NC	20
8429745	Total Copper (Cu)	2016/10/12	100	80 - 120	103	80 - 120	<0.000050	mg/L	NC	20
8429745	Total Iron (Fe)	2016/10/12	103	80 - 120	103	80 - 120	<0.0010	mg/L	NC	20
8429745	Total Lead (Pb)	2016/10/12	93	80 - 120	102	80 - 120	<0.0000050	mg/L	NC	20
8429745	Total Lithium (Li)	2016/10/12	98	80 - 120	98	80 - 120	<0.00050	mg/L	NC	20
8429745	Total Manganese (Mn)	2016/10/12	98	80 - 120	101	80 - 120	<0.000050	mg/L	NC	20
8429745	Total Molybdenum (Mo)	2016/10/12	99	80 - 120	97	80 - 120	<0.000050	mg/L	NC	20
8429745	Total Nickel (Ni)	2016/10/12	99	80 - 120	102	80 - 120	<0.000020	mg/L	NC	20
8429745	Total Phosphorus (P)	2016/10/12					<0.0020	mg/L	NC	20
8429745	Total Selenium (Se)	2016/10/12	107	80 - 120	100	80 - 120	<0.000040	mg/L	NC	20
8429745	Total Silicon (Si)	2016/10/12					<0.050	mg/L	NC	20
8429745	Total Silver (Ag)	2016/10/12	81	80 - 120	92	80 - 120	<0.0000050	mg/L	NC	20
8429745	Total Strontium (Sr)	2016/10/12	99	80 - 120	98	80 - 120	<0.000050	mg/L	NC	20
8429745	Total Thallium (Tl)	2016/10/12	96	80 - 120	103	80 - 120	<0.0000020	mg/L	NC	20
8429745	Total Tin (Sn)	2016/10/12	93	80 - 120	114	80 - 120	<0.00020	mg/L	NC	20
8429745	Total Titanium (Ti)	2016/10/12	100	80 - 120	92	80 - 120	<0.00050	mg/L	NC	20
8429745	Total Uranium (U)	2016/10/12	95	80 - 120	99	80 - 120	<0.0000020	mg/L	NC	20
8429745	Total Vanadium (V)	2016/10/12	99	80 - 120	101	80 - 120	<0.00020	mg/L	NC	20
8429745	Total Zinc (Zn)	2016/10/12	114	80 - 120	102	80 - 120	<0.00010	mg/L	NC	20
8429745	Total Zirconium (Zr)	2016/10/12					<0.00010	mg/L	NC	20
8430710	Nitrate plus Nitrite (N)	2016/10/08	102	80 - 120	102	80 - 120	<0.0020	mg/L	0	25
8430712	Nitrite (N)	2016/10/08	98	80 - 120	94	80 - 120	<0.0020	mg/L	NC	25
8430715	Nitrate plus Nitrite (N)	2016/10/08	103	80 - 120	101	80 - 120	<0.0020	mg/L	NC	25
8430717	Nitrite (N)	2016/10/08	97	80 - 120	95	80 - 120	<0.0020	mg/L	NC	25
8430881	Total Aluminum (Al)	2016/10/12	102	80 - 120	103	80 - 120	<0.0030	mg/L		

Maxxam Job #: B688874  
Report Date: 2016/10/19

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8430881	Total Antimony (Sb)	2016/10/12	99	80 - 120	97	80 - 120	<0.000020	mg/L		
8430881	Total Arsenic (As)	2016/10/12	102	80 - 120	102	80 - 120	<0.000020	mg/L		
8430881	Total Barium (Ba)	2016/10/12	NC	80 - 120	101	80 - 120	<0.000050	mg/L		
8430881	Total Beryllium (Be)	2016/10/12	99	80 - 120	95	80 - 120	<0.000010	mg/L		
8430881	Total Bismuth (Bi)	2016/10/12	97	80 - 120	102	80 - 120	<0.000010	mg/L		
8430881	Total Boron (B)	2016/10/12	102	80 - 120	97	80 - 120	<0.010	mg/L	NC	20
8430881	Total Cadmium (Cd)	2016/10/12	99	80 - 120	101	80 - 120	<0.0000050	mg/L		
8430881	Total Chromium (Cr)	2016/10/12	98	80 - 120	101	80 - 120	<0.00010	mg/L		
8430881	Total Cobalt (Co)	2016/10/12	95	80 - 120	99	80 - 120	<0.000010	mg/L	NC	20
8430881	Total Copper (Cu)	2016/10/12	95	80 - 120	99	80 - 120	<0.00010	mg/L		
8430881	Total Iron (Fe)	2016/10/12	NC	80 - 120	104	80 - 120	<0.0050	mg/L		
8430881	Total Lead (Pb)	2016/10/12	101	80 - 120	104	80 - 120	<0.000020	mg/L		
8430881	Total Lithium (Li)	2016/10/12	93	80 - 120	93	80 - 120	<0.00050	mg/L		
8430881	Total Manganese (Mn)	2016/10/12	NC	80 - 120	102	80 - 120	<0.00010	mg/L	0.43	20
8430881	Total Molybdenum (Mo)	2016/10/12	102	80 - 120	99	80 - 120	<0.000050	mg/L	NC	20
8430881	Total Nickel (Ni)	2016/10/12	94	80 - 120	100	80 - 120	<0.00010	mg/L	NC	20
8430881	Total Phosphorus (P)	2016/10/12					<0.0050	mg/L		
8430881	Total Selenium (Se)	2016/10/12	103	80 - 120	101	80 - 120	<0.000040	mg/L	NC	20
8430881	Total Silicon (Si)	2016/10/12					<0.050	mg/L		
8430881	Total Silver (Ag)	2016/10/12	107	80 - 120	93	80 - 120	<0.000010	mg/L		
8430881	Total Strontium (Sr)	2016/10/12	NC	80 - 120	105	80 - 120	<0.000050	mg/L	0.72	20
8430881	Total Thallium (Tl)	2016/10/12	87	80 - 120	101	80 - 120	<0.0000020	mg/L		
8430881	Total Tin (Sn)	2016/10/12	95	80 - 120	114	80 - 120	<0.00020	mg/L		
8430881	Total Titanium (Ti)	2016/10/12	96	80 - 120	89	80 - 120	<0.0020	mg/L	NC	20
8430881	Total Uranium (U)	2016/10/12	100	80 - 120	102	80 - 120	<0.0000050	mg/L		
8430881	Total Vanadium (V)	2016/10/12	99	80 - 120	100	80 - 120	<0.00020	mg/L		
8430881	Total Zinc (Zn)	2016/10/12	97	80 - 120	105	80 - 120	<0.0010	mg/L	NC	20
8430881	Total Zirconium (Zr)	2016/10/12					<0.00010	mg/L		
8430893	Dissolved Organic Carbon (C)	2016/10/12	110	80 - 120	113	80 - 120	0.55, RDL=0.50	mg/L	NC	20
8430899	Dissolved Organic Carbon (C)	2016/10/12	106	80 - 120	113	80 - 120	<0.50	mg/L	NC	20
8431837	Dissolved Molybdenum (Mo)	2016/10/13	100	80 - 120	97	80 - 120	<0.000050	mg/L	NC	20

Maxxam Job #: B688874  
Report Date: 2016/10/19

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8437779	Nitrate plus Nitrite (N)	2016/10/18			103	80 - 120	<0.0020	mg/L		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

Maxxam Job #: B688874  
Report Date: 2016/10/19

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



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David Huang, M.Sc., P.Chem., QP, Scientific Services Manager

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

**CHAIN OF CUSTODY RECORD**

08428207

Invoice Information		Report Information (if differs from invoice)				Project Information				Turnaround Time (TAT) Required							
Company Name: <b>BMC MINERALS LTD.</b>		Company Name: <b>ALEXCO ENVIRONMENTAL</b>				Quotation #: <b>B60751</b>				<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses)							
Contact Name:		Contact Name: <b>KAI WOLOSHYN</b>				P.O. #/AFE#:				PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS							
Address: <b>530-1130 WEST PENDER ST Vancouver, BC PC_VBE 4A4</b>		Address: <b>UNIT 3 151 INDUSTRIAL RD Whitehorse, YK PC_V1A 2V3</b>				Project #: <b>BMC-16-01</b>				Rush TAT (Surcharges will be applied)							
Phone:		Phone: <b>(867) 668-6463</b>				Site Location: <b>Kudz Ze Kayah</b>				<input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days							
Email:		Email: <b>kwoloshyn@alexcoresource.com</b>				Site #: _____				<input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days							
Date Required:		Sampled By: <b>Andrea Badger</b>															
Regulatory Criteria		Special Instructions		Analysis Requested						Rush Confirmation #:							
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> BC CSR Water <input type="checkbox"/> CCME (Specify) <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC Water Quality		<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify) Also send report to: ifougere@accessconsulting.ca nsoils@accessconsulting.ca		TOTAL LOW LEVEL METALS INCL. MERCURY DISSOLVED LOW LEVEL METALS INCL. MERCURY LOW LEVEL TS ANIONS (Cl, F, SO4, NO2, NO3) AMMONIA CONDUCTIVITY PH ALKALINITY & ACIDITY DOC TOTAL PHOSPHORUS - LOW LEVEL DISSOLVED PHOSPHORUS - LOW LEVEL						LABORATORY USE ONLY CUSTODY SEAL Y N Present Intact COOLING MEDIA PRESENT Y / N COMMENTS							
Sample Identification		Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix							# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	COMMENTS			
1	MW15-09S		03-Oct-16	9:06	Water	X	X	X	X	X	X	X	X	X	10	RECEIVED IN WHITE HORSE	
2	MW16-12S		03-Oct-16	11:56	Water	X	X	X	X	X	X	X	X	X	10	BY: <i>Syona @ 11630</i>	
3	MW16-12D		03-Oct-16	13:10	Water	X	X	X	X	X	X	X	X	X	10	2016-10-06	
4	BH95G-15D		03-Oct-16	15:12	Water	X	X	X	X	X	X	X	X	X	10	TEMP: 4 / 3	
5	MW15-10D		03-Oct-16	16:20	Water	X	X	X	X	X	X	X	X	X	10	4 / 5	
6	MW15-06		03-Oct-16	17:36	Water	X	X	X	X	X	X	X	X	X	10	3 / 6	
7	DUP3		03-Oct-16		Water	X	X	X	X	X	X	X	X	X	10	14 → 1	
8	BH95G-21		04-Oct-16	8:30	Water	X	X	X	X	X	X	X	X	X	10	6 → 2	
9	BH96G-25S		04-Oct-16	9:17	Water	X	X	X	X	X	X	X	X	X	10	5 → 3	
10	BH95G-25D		04-Oct-16	9:36	Water	X	X	X	X	X	X	X	X	X	10		
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #									
<i>Andrea Badger</i> ANDREA BADGER		06-OCT-16	16:30	<i>Maxwell Badger</i>		10/16/16	13:35	B688874									



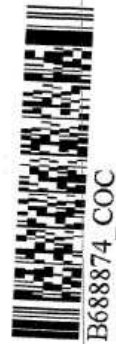
B688874\_COC

14 → 1  
6 → 2  
5 → 3



08428208

Invoice Information		Report Information (if differs from invoice)				Project Information (where applicable)				Turnaround Time (TAT) Required									
Company Name: <b>BMC MINERALS LTD.</b>		Company Name: <b>ALEXCO ENVIRONMENTAL</b>				Quotation #: <b>B60751</b>				<input checked="" type="checkbox"/> Regular TAT 5 days (Most analytes)									
Contact Name:		Contact Name: <b>KAI WOLOSHYN</b>				P.O. #/ AFE#:				PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS									
Address: <b>590-1130 WEST PENDER ST</b> <b>Vancouver, BC PC: V5E 4A4</b>		Address: <b>UNIT 3 151 INDUSTRIAL RD</b> <b>Whitehorse, YK PC: V1A 2V3</b>				Project #: <b>BMC-16-D1</b>				Rush TAT (Surcharges will be applied)									
Phone:		Phone: <b>(867) 668-6463</b>				Site Location: <b>Kudz Ze Kayah</b>				<input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days									
Email:		Email: <b>kwoloshyn@alexcoresource.com</b>				Site #:				<input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days									
Sampled By: <b>Andrea Badger</b>		Date Required:																	
Regulatory Criteria		Special Instructions		Analysis Requested								Rush Confirmation #:							
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> BC CSR Water <input type="checkbox"/> CCME (Specify) <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC Water Quality		<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify) <b>Also send report to:</b> <b>ffaugere@accessconsulting.ca</b> <b>ffaugere@accessconsulting.ca</b>		TOTAL LOW LEVEL METALS INCL. MERCURY DISSOLVED LOW LEVEL METALS INCL. MERCURY LOW LEVEL TSS ANIONS (Cl, F, SO4, NO3, NO3) AMMONIA CONDUCTIVITY pH ALKALINITY & ACIDITY DOC TOTAL PHOSPHORUS - LOW LEVEL DISSOLVED PHOSPHORUS - LOW LEVEL # OF CONTAINERS SUBMITTED HOLD - DO NOT ANALYZE								LABORATORY USE ONLY CUSTODY SEAL Y/N Present Intact COOLING MEDIA PRESENT Y/N COMMENTS							
Sample Identification		Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	TOTAL LOW LEVEL METALS INCL. MERCURY	DISSOLVED LOW LEVEL METALS INCL. MERCURY	LOW LEVEL TSS	ANIONS (Cl, F, SO4, NO3, NO3)	AMMONIA	CONDUCTIVITY	pH	ALKALINITY & ACIDITY	DOC	TOTAL PHOSPHORUS - LOW LEVEL	DISSOLVED PHOSPHORUS - LOW LEVEL	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	COMMENTS
1	MW15-02		04-Oct-16	11:04	Water	X	X	X	X	X	X	X	X	X	X	X		10	
2	BH95G-33D		04-Oct-16	11:56	Water	X	X	X	X	X	X	X	X	X	X	X		10	
3	FIELD BLANK		04-Oct-16	8:50	Water	X	X	X	X	X	X	X	X	X	X	X		10	
4	MW15-11S		05-Oct-16	9:08	Water	X	X	X	X	X	X	X	X	X	X	X		10	
5	MW16-17		05-Oct-16	10:53	Water	X	X	X	X	X	X	X	X	X	X	X		10	
6	BH95G-22		05-Oct-16	10:59	Water	X	X	X	X	X	X	X	X	X	X	X		10	
7	BH95G-129		05-Oct-16	14:08	Water	X	X	X	X	X	X	X	X	X	X	X		10	
8	TRIP BLANK		05-Oct-16		Water	X	X	X	X	X	X	X	X	X	X	X		10	
9																			
10																			
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)				DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #									
				<i>Laurel Beathner</i>				2016/10/07	13:35	B688874									



B688874\_COC



Your Project #: BMC-16-01  
 Site Location: KUDZ ZE KAYAH  
 Your C.O.C. #: 08428353

**Attention: KAI WOLOSHYN**

ALEXCO ENVIRONMENTAL GROUP INC.  
 Unit 3 Calcite Business Centre  
 151 Industrial Road  
 WHITEHORSE, YT  
 Canada Y1A 2V3

**Report Date: 2016/10/18**  
 Report #: R2284908  
 Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B690408**

**Received: 2016/10/12, 10:54**

Sample Matrix: Water  
 # Samples Received: 4

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	4	N/A	2016/10/15	BBY6SOP-00037	SM 22 2310 B m
Alkalinity - Water	4	2016/10/14	2016/10/14	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry	4	N/A	2016/10/14	BBY6SOP-00011	SM 22 4500-Cl- E m
Carbon (DOC) - field filtered/preserved (1)	4	N/A	2016/10/17	BBY6SOP-00003	SM 22 5310 C m
Conductance - water	4	N/A	2016/10/14	BBY6SOP-00026	SM 22 2510 B m
Fluoride	4	N/A	2016/10/14	BBY6SOP-00048	SM 22 4500-F C m
Hardness Total (calculated as CaCO <sub>3</sub> )	4	N/A	2016/10/17	BBY WI-00033	Auto Calc
Mercury (Dissolved-LowLevel) by CVAf	4	N/A	2016/10/17	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total-LowLevel) by CVAf	4	2016/10/17	2016/10/17	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Elements by ICPMS Digested LL (total)	2	2016/10/14	2016/10/14	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Na, K, Ca, Mg, S by CRC ICPMS (total)	4	N/A	2016/10/17	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Elements by ICPMS Low Level (total)	2	N/A	2016/10/17	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Ammonia-N (Preserved)	4	N/A	2016/10/14	BBY6SOP-00009	SM 22 4500-NH3- G m
Nitrate+Nitrite (N) (low level)	4	N/A	2016/10/14	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) (low level)	4	N/A	2016/10/14	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N)	4	N/A	2016/10/15	BBY6SOP-00010	SM 22 4500-NO3- I m
Filter and HNO <sub>3</sub> Preserve for Metals	2	N/A	2016/10/14	BBY7 WI-00004	BCMOE Reqs 08/14
Filter and HNO <sub>3</sub> Preserve for Metals	2	N/A	2016/10/15	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (2)	4	N/A	2016/10/14	BBY6SOP-00026	SM 22 4500-H+ B m
Sulphate by Automated Colourimetry	4	N/A	2016/10/14	BBY6SOP-00017	SM 22 4500-SO42- E m
Total Phosphorus - unpreserved	4	N/A	2016/10/14	BBY6SOP-00013	SM 22 4500-P E m
Total Suspended Solids-Low Level	4	2016/10/14	2016/10/15	BBY6SOP-00034	SM 22 2540 D

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) DOC present in the sample should be considered as non-purgeable DOC.

(2) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.



Your Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Your C.O.C. #: 08428353

**Attention:KAI WOLOSHYN**

ALEXCO ENVIRONMENTAL GROUP INC.  
Unit 3 Calcite Business Centre  
151 Industrial Road  
WHITEHORSE, YT  
Canada Y1A 2V3

**Report Date: 2016/10/18**  
Report #: R2284908  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B690408**  
**Received: 2016/10/12, 10:54**

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.  
Megan Smith, Project Manager  
Email: msmith@maxxam.ca  
Phone# (604) 734 7276

=====  
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B690408  
Report Date: 2016/10/18

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		PT4054			PT4055		PT4056		PT4057		
Sampling Date		2016/10/05 09:08			2016/10/05 10:53		2016/10/05 10:59		2016/10/12 10:45		
COC Number		08428353			08428353		08428353		08428353		
	UNITS	MW15-11S	RDL	QC Batch	MW16-17	RDL	BH95G-22	RDL	TRIP BLANK	RDL	QC Batch

#### Calculated Parameters

Filter and HNO3 Preservation	N/A	FIELD	N/A	ONSITE	FIELD	N/A	FIELD	N/A	FIELD	N/A	ONSITE
Nitrate (N)	mg/L	0.0808	0.0020	8431629	0.0025	0.0020	0.768	0.020	<0.0020	0.0020	8431629

#### Misc. Inorganics

Fluoride (F)	mg/L	0.130	0.010	8434245	0.490	0.010	0.047	0.010	<0.010	0.010	8434245
Dissolved Organic Carbon (C)	mg/L	2.14	0.50	8436129	<0.50	0.50	3.14	0.50	<0.50	0.50	8436129
Acidity (pH 4.5)	mg/L	<0.50	0.50	8436278	<0.50	0.50	<0.50	0.50	<0.50	0.50	8436278
Alkalinity (Total as CaCO3)	mg/L	245	0.50	8433421	164	0.50	130	0.50	<0.50	0.50	8433421
Acidity (pH 8.3)	mg/L	<0.50	0.50	8436278	<0.50	0.50	<0.50	0.50	<0.50	0.50	8436278
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8433421	<0.50	0.50	<0.50	0.50	<0.50	0.50	8433421
Bicarbonate (HCO3)	mg/L	299	0.50	8433421	200	0.50	158	0.50	<0.50	0.50	8433421
Carbonate (CO3)	mg/L	<0.50	0.50	8433421	<0.50	0.50	<0.50	0.50	<0.50	0.50	8433421
Hydroxide (OH)	mg/L	<0.50	0.50	8433421	<0.50	0.50	<0.50	0.50	<0.50	0.50	8433421

#### Anions

Dissolved Sulphate (SO4)	mg/L	100	0.50	8433781	33.0	0.50	38.9	0.50	0.74	0.50	8433781
Dissolved Chloride (Cl)	mg/L	1.2	0.50	8433773	0.54	0.50	<0.50	0.50	<0.50	0.50	8433773

#### Nutrients

Total Ammonia (N)	mg/L	0.062	0.0050	8434187	0.053	0.0050	0.040	0.0050	<0.0050	0.0050	8434190
Nitrate plus Nitrite (N)	mg/L	0.0839 (1)	0.0020	8434895	0.0025 (1)	0.0020	0.794 (2)	0.020	<0.0020	0.0020	8434895
Nitrite (N)	mg/L	0.0031 (1)	0.0020	8434897	<0.0020 (1)	0.0020	0.026 (2)	0.020	<0.0020	0.0020	8434897
Total Phosphorus (P)	mg/L	0.0168 (1)	0.0020	8433876	0.273 (1)	0.0020	0.244 (1)	0.0020	<0.0020	0.0020	8433876

#### Physical Properties

Conductivity	uS/cm	613	1.0	8433431	361	1.0	326	1.0	<1.0	1.0	8433431
pH	pH	7.83		8433436	8.02		7.66		5.23		8433436

#### Physical Properties

Total Suspended Solids	mg/L	14.0 (3)	4.0	8433307	409 (4)	10	612 (4)	20	<1.0	1.0	8433307
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RDL = Reportable Detection Limit

N/A = Not Applicable

(1) Sample arrived to laboratory past recommended hold time.

(2) RDL raised due to sample matrix interference. Sample arrived to laboratory past recommended hold time.

(3) Sample analysed past recommended hold time. RDL raised due to sample matrix interference.

(4) Sample analysed past recommended hold time. RDL raised due to high concentration of solids in the sample.

Maxxam Job #: B690408  
Report Date: 2016/10/18

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**MERCURY BY COLD VAPOR (WATER)**

<b>Maxxam ID</b>		PT4054	PT4055	PT4056	PT4057		
<b>Sampling Date</b>		2016/10/05 09:08	2016/10/05 10:53	2016/10/05 10:59	2016/10/12 10:45		
<b>COC Number</b>		08428353	08428353	08428353	08428353		
	<b>UNITS</b>	<b>MW15-11S</b>	<b>MW16-17</b>	<b>BH95G-22</b>	<b>TRIP BLANK</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Elements</b>							
Dissolved Mercury (Hg)	mg/L	0.0000029	<0.0000020	<0.0000020	<0.0000020	0.0000020	8435731
RDL = Reportable Detection Limit							

Maxxam Job #: B690408  
Report Date: 2016/10/18

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		PT4054	PT4057		
Sampling Date		2016/10/05 09:08	2016/10/12 10:45		
COC Number		08428353	08428353		
	UNITS	MW15-11S	TRIP BLANK	RDL	QC Batch
<b>Calculated Parameters</b>					
Total Hardness (CaCO3)	mg/L	343	<0.50	0.50	8431584
<b>Elements</b>					
Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	0.0000020	8435711
<b>Total Metals by ICPMS</b>					
Total Aluminum (Al)	mg/L	0.333	<0.00050	0.00050	8436137
Total Antimony (Sb)	mg/L	0.000118	<0.000020	0.000020	8436137
Total Arsenic (As)	mg/L	0.00173	0.000032	0.000020	8436137
Total Barium (Ba)	mg/L	0.0612	<0.000020	0.000020	8436137
Total Beryllium (Be)	mg/L	0.000022	<0.000010	0.000010	8436137
Total Bismuth (Bi)	mg/L	0.0000130	<0.0000050	0.0000050	8436137
Total Boron (B)	mg/L	<0.010	<0.010	0.010	8436137
Total Cadmium (Cd)	mg/L	0.000285	<0.0000050	0.0000050	8436137
Total Chromium (Cr)	mg/L	0.00110	<0.00010	0.00010	8436137
Total Cobalt (Co)	mg/L	0.000717	<0.0000050	0.0000050	8436137
Total Copper (Cu)	mg/L	0.00293	<0.000050	0.000050	8436137
Total Iron (Fe)	mg/L	2.72	<0.0010	0.0010	8436137
Total Lead (Pb)	mg/L	0.00125	<0.0000050	0.0000050	8436137
Total Lithium (Li)	mg/L	0.0109	<0.00050	0.00050	8436137
Total Manganese (Mn)	mg/L	0.417	<0.000050	0.000050	8436137
Total Molybdenum (Mo)	mg/L	0.000949	<0.000050	0.000050	8436137
Total Nickel (Ni)	mg/L	0.00262	<0.000020	0.000020	8436137
Total Phosphorus (P)	mg/L	0.0418	<0.0020	0.0020	8436137
Total Selenium (Se)	mg/L	0.000059	<0.000040	0.000040	8436137
Total Silicon (Si)	mg/L	4.74	<0.050	0.050	8436137
Total Silver (Ag)	mg/L	0.000952	<0.0000050	0.0000050	8436137
Total Strontium (Sr)	mg/L	0.536	<0.000050	0.000050	8436137
Total Thallium (Tl)	mg/L	0.0000070	<0.0000020	0.0000020	8436137
Total Tin (Sn)	mg/L	<0.00020	<0.00020	0.00020	8436137
Total Titanium (Ti)	mg/L	0.0319	<0.00050	0.00050	8436137
Total Uranium (U)	mg/L	0.0141	0.0000020	0.0000020	8436137
Total Vanadium (V)	mg/L	0.00134	<0.00020	0.00020	8436137
RDL = Reportable Detection Limit					

Maxxam Job #: B690408  
Report Date: 2016/10/18

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		PT4054	PT4057		
Sampling Date		2016/10/05 09:08	2016/10/12 10:45		
COC Number		08428353	08428353		
	UNITS	MW15-11S	TRIP BLANK	RDL	QC Batch
Total Zinc (Zn)	mg/L	0.00996	<0.00010	0.00010	8436137
Total Zirconium (Zr)	mg/L	0.00164	<0.00010	0.00010	8436137
Total Calcium (Ca)	mg/L	92.2	<0.050	0.050	8431906
Total Magnesium (Mg)	mg/L	27.5	<0.050	0.050	8431906
Total Potassium (K)	mg/L	4.31	<0.050	0.050	8431906
Total Sodium (Na)	mg/L	3.28	<0.050	0.050	8431906
Total Sulphur (S)	mg/L	30.5	<3.0	3.0	8431906
RDL = Reportable Detection Limit					

Maxxam Job #: B690408  
Report Date: 2016/10/18

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PT4055	PT4056		
Sampling Date		2016/10/05 10:53	2016/10/05 10:59		
COC Number		08428353	08428353		
	UNITS	MW16-17	BH95G-22	RDL	QC Batch
<b>Calculated Parameters</b>					
Total Hardness (CaCO3)	mg/L	214	185	0.50	8431584
<b>Elements</b>					
Total Mercury (Hg)	mg/L	0.0000027	0.0000050	0.0000020	8435711
<b>Total Metals by ICPMS</b>					
Total Aluminum (Al)	mg/L	0.812	2.17	0.0030	8433768
Total Antimony (Sb)	mg/L	0.000130	0.000422	0.000020	8433768
Total Arsenic (As)	mg/L	0.000605	0.00765	0.000020	8433768
Total Barium (Ba)	mg/L	0.110	0.204	0.000050	8433768
Total Beryllium (Be)	mg/L	0.000072	0.000166	0.000010	8433768
Total Bismuth (Bi)	mg/L	<0.000010	0.000518	0.000010	8433768
Total Boron (B)	mg/L	<0.010	<0.010	0.010	8433768
Total Cadmium (Cd)	mg/L	0.0000420	0.00227	0.0000050	8433768
Total Chromium (Cr)	mg/L	0.00120	0.00422	0.00010	8433768
Total Cobalt (Co)	mg/L	0.00118	0.00898	0.000010	8433768
Total Copper (Cu)	mg/L	0.00253	0.0720	0.00010	8433768
Total Iron (Fe)	mg/L	3.14	18.7	0.0050	8433768
Total Lead (Pb)	mg/L	0.00101	0.0659	0.000020	8433768
Total Lithium (Li)	mg/L	0.00357	0.00400	0.00050	8433768
Total Manganese (Mn)	mg/L	0.226	0.660	0.00010	8433768
Total Molybdenum (Mo)	mg/L	0.000751	0.000187	0.000050	8433768
Total Nickel (Ni)	mg/L	0.00408	0.0152	0.00010	8433768
Total Phosphorus (P)	mg/L	0.111	0.155	0.0050	8433768
Total Selenium (Se)	mg/L	0.000155	0.000889	0.000040	8433768
Total Silicon (Si)	mg/L	4.98	6.86	0.050	8433768
Total Silver (Ag)	mg/L	0.000078	0.000685	0.000010	8433768
Total Strontium (Sr)	mg/L	0.199	0.164	0.000050	8433768
Total Thallium (Tl)	mg/L	0.0000100	0.0000520	0.0000020	8433768
Total Tin (Sn)	mg/L	<0.00020	0.00043	0.00020	8433768
Total Titanium (Ti)	mg/L	0.0119	0.0841	0.0020	8433768
Total Uranium (U)	mg/L	0.00396	0.00227	0.0000050	8433768
Total Vanadium (V)	mg/L	0.00151	0.00718	0.00020	8433768
RDL = Reportable Detection Limit					

Maxxam Job #: B690408  
Report Date: 2016/10/18

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		PT4055	PT4056		
Sampling Date		2016/10/05 10:53	2016/10/05 10:59		
COC Number		08428353	08428353		
	UNITS	MW16-17	BH95G-22	RDL	QC Batch
Total Zinc (Zn)	mg/L	0.0855	0.276	0.0010	8433768
Total Zirconium (Zr)	mg/L	0.00188	0.00063	0.00010	8433768
Total Calcium (Ca)	mg/L	70.1	58.8	0.25	8431906
Total Magnesium (Mg)	mg/L	9.45	9.15	0.25	8431906
Total Potassium (K)	mg/L	1.94	1.87	0.25	8431906
Total Sodium (Na)	mg/L	1.45	0.97	0.25	8431906
Total Sulphur (S)	mg/L	11.5	13.1	3.0	8431906
RDL = Reportable Detection Limit					

Maxxam Job #: B690408  
Report Date: 2016/10/18

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PT4054  
**Sample ID:** MW15-11S  
**Matrix:** Water

**Collected:** 2016/10/05  
**Shipped:**  
**Received:** 2016/10/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8436278	N/A	2016/10/15	Tatyana Serzhanova
Alkalinity - Water	AT/ALK	8433421	2016/10/14	2016/10/14	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8433773	N/A	2016/10/14	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8436129	N/A	2016/10/17	Diana Cruz
Conductance - water	AT/ALK	8433431	N/A	2016/10/14	Maria Maclean
Fluoride	ISE/ISE	8434245	N/A	2016/10/14	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8431584	N/A	2016/10/17	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8435731	N/A	2016/10/17	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8435711	2016/10/17	2016/10/17	Edwin Lamigo
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8431906	N/A	2016/10/17	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8436137	N/A	2016/10/17	Andrew An
Ammonia-N (Preserved)	KONE/COL	8434187	N/A	2016/10/14	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8434895	N/A	2016/10/14	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8434897	N/A	2016/10/14	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8431629	N/A	2016/10/15	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2016/10/16	Megan Smith
pH Water	AT/ALK	8433436	N/A	2016/10/14	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8433781	N/A	2016/10/14	Balwinder Bassi
Total Phosphorus - unpreserved	KONE/COL	8433876	N/A	2016/10/14	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8433307	2016/10/14	2016/10/15	Coco Guo

**Maxxam ID:** PT4054 Dup  
**Sample ID:** MW15-11S  
**Matrix:** Water

**Collected:** 2016/10/05  
**Shipped:**  
**Received:** 2016/10/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8435731	N/A	2016/10/17	Edwin Lamigo

**Maxxam ID:** PT4055  
**Sample ID:** MW16-17  
**Matrix:** Water

**Collected:** 2016/10/05  
**Shipped:**  
**Received:** 2016/10/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8436278	N/A	2016/10/15	Tatyana Serzhanova
Alkalinity - Water	AT/ALK	8433421	2016/10/14	2016/10/14	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8433773	N/A	2016/10/14	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8436129	N/A	2016/10/17	Diana Cruz
Conductance - water	AT/ALK	8433431	N/A	2016/10/14	Maria Maclean
Fluoride	ISE/ISE	8434245	N/A	2016/10/14	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8431584	N/A	2016/10/17	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8435731	N/A	2016/10/17	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8435711	2016/10/17	2016/10/17	Edwin Lamigo
Elements by ICPMS Digested LL (total)	ICP/CRCM	8433768	2016/10/14	2016/10/14	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8431906	N/A	2016/10/17	Automated Statchk



Maxxam Job #: B690408  
Report Date: 2016/10/18

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** PT4055  
**Sample ID:** MW16-17  
**Matrix:** Water

**Collected:** 2016/10/05  
**Shipped:**  
**Received:** 2016/10/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Ammonia-N (Preserved)	KONE/COL	8434190	N/A	2016/10/14	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8434895	N/A	2016/10/14	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8434897	N/A	2016/10/14	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8431629	N/A	2016/10/15	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2016/10/16	Megan Smith
pH Water	AT/ALK	8433436	N/A	2016/10/14	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8433781	N/A	2016/10/14	Balwinder Bassi
Total Phosphorus - unpreserved	KONE/COL	8433876	N/A	2016/10/14	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8433307	2016/10/14	2016/10/15	Coco Guo

**Maxxam ID:** PT4055 Dup  
**Sample ID:** MW16-17  
**Matrix:** Water

**Collected:** 2016/10/05  
**Shipped:**  
**Received:** 2016/10/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrate+Nitrite (N) (low level)	TRAA/COL	8434895	N/A	2016/10/14	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8434897	N/A	2016/10/14	Isaac Wang

**Maxxam ID:** PT4056  
**Sample ID:** BH95G-22  
**Matrix:** Water

**Collected:** 2016/10/05  
**Shipped:**  
**Received:** 2016/10/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8436278	N/A	2016/10/15	Tatyana Serzhanova
Alkalinity - Water	AT/ALK	8433421	2016/10/14	2016/10/14	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8433773	N/A	2016/10/14	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8436129	N/A	2016/10/17	Diana Cruz
Conductance - water	AT/ALK	8433431	N/A	2016/10/14	Maria Maclean
Fluoride	ISE/ISE	8434245	N/A	2016/10/14	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8431584	N/A	2016/10/17	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8435731	N/A	2016/10/17	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8435711	2016/10/17	2016/10/17	Edwin Lamigo
Elements by ICPMS Digested LL (total)	ICP/CRCM	8433768	2016/10/14	2016/10/14	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8431906	N/A	2016/10/17	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8434190	N/A	2016/10/14	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8434895	N/A	2016/10/14	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8434897	N/A	2016/10/14	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8431629	N/A	2016/10/15	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2016/10/16	Megan Smith
pH Water	AT/ALK	8433436	N/A	2016/10/14	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8433781	N/A	2016/10/14	Balwinder Bassi
Total Phosphorus - unpreserved	KONE/COL	8433876	N/A	2016/10/14	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8433307	2016/10/14	2016/10/15	Coco Guo

Maxxam Job #: B690408  
Report Date: 2016/10/18

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**TEST SUMMARY**

**Maxxam ID:** PT4057  
**Sample ID:** TRIP BLANK  
**Matrix:** Water

**Collected:** 2016/10/12  
**Shipped:**  
**Received:** 2016/10/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8436278	N/A	2016/10/15	Tatyana Serzhanova
Alkalinity - Water	AT/ALK	8433421	2016/10/14	2016/10/14	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8433773	N/A	2016/10/14	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8436129	N/A	2016/10/17	Diana Cruz
Conductance - water	AT/ALK	8433431	N/A	2016/10/14	Maria Maclean
Fluoride	ISE/ISE	8434245	N/A	2016/10/14	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8431584	N/A	2016/10/17	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8435731	N/A	2016/10/17	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8435711	2016/10/17	2016/10/17	Edwin Lamigo
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8431906	N/A	2016/10/17	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8436137	N/A	2016/10/17	Andrew An
Ammonia-N (Preserved)	KONE/COL	8434190	N/A	2016/10/14	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8434895	N/A	2016/10/14	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8434897	N/A	2016/10/14	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8431629	N/A	2016/10/15	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	ONSITE	N/A	2016/10/16	Megan Smith
pH Water	AT/ALK	8433436	N/A	2016/10/14	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8433781	N/A	2016/10/14	Balwinder Bassi
Total Phosphorus - unpreserved	KONE/COL	8433876	N/A	2016/10/14	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8433307	2016/10/14	2016/10/15	Coco Guo

**Maxxam ID:** PT4057 Dup  
**Sample ID:** TRIP BLANK  
**Matrix:** Water

**Collected:** 2016/10/12  
**Shipped:**  
**Received:** 2016/10/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Ammonia-N (Preserved)	KONE/COL	8434190	N/A	2016/10/14	Clare Kwok

Maxxam Job #: B690408  
Report Date: 2016/10/18

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	10.0°C
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All samples were received at analytical lab past hold time for Nitrate, Nitrite, Total Phosphorus, and Total Suspended Solids.

Sample PT4055-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample PT4056-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

**Results relate only to the items tested.**

Maxxam Job #: B690408  
Report Date: 2016/10/18

**QUALITY ASSURANCE REPORT**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8433307	Total Suspended Solids	2016/10/14			103	80 - 120	<1.0	mg/L		
8433421	Alkalinity (PP as CaCO3)	2016/10/14					<0.50	mg/L	NC	20
8433421	Alkalinity (Total as CaCO3)	2016/10/14	NC	80 - 120	94	80 - 120	<0.50	mg/L	1.9	20
8433421	Bicarbonate (HCO3)	2016/10/14					<0.50	mg/L	1.9	20
8433421	Carbonate (CO3)	2016/10/14					<0.50	mg/L	NC	20
8433421	Hydroxide (OH)	2016/10/14					<0.50	mg/L	NC	20
8433431	Conductivity	2016/10/14			100	80 - 120	<1.0	uS/cm	0	20
8433436	pH	2016/10/14			101	97 - 103			1.3	N/A
8433768	Total Aluminum (Al)	2016/10/14	NC	80 - 120	100	80 - 120	<0.0030	mg/L	2.7	20
8433768	Total Antimony (Sb)	2016/10/14	93	80 - 120	100	80 - 120	<0.000020	mg/L	0.89	20
8433768	Total Arsenic (As)	2016/10/14	85	80 - 120	99	80 - 120	<0.000020	mg/L	0.38	20
8433768	Total Barium (Ba)	2016/10/14	NC	80 - 120	101	80 - 120	<0.000050	mg/L	4.0	20
8433768	Total Beryllium (Be)	2016/10/14	91	80 - 120	94	80 - 120	<0.000010	mg/L	NC	20
8433768	Total Bismuth (Bi)	2016/10/14	94	80 - 120	98	80 - 120	<0.000010	mg/L	NC	20
8433768	Total Boron (B)	2016/10/14	87	80 - 120	90	80 - 120	<0.010	mg/L	NC	20
8433768	Total Cadmium (Cd)	2016/10/14	101	80 - 120	103	80 - 120	<0.0000050	mg/L	4.5	20
8433768	Total Chromium (Cr)	2016/10/14	95	80 - 120	99	80 - 120	<0.00010	mg/L	2.1	20
8433768	Total Cobalt (Co)	2016/10/14	94	80 - 120	97	80 - 120	<0.000010	mg/L	0.53	20
8433768	Total Copper (Cu)	2016/10/14	NC	80 - 120	101	80 - 120	<0.00010	mg/L	0.59	20
8433768	Total Iron (Fe)	2016/10/14	NC	80 - 120	104	80 - 120	<0.0050	mg/L	1.6	20
8433768	Total Lead (Pb)	2016/10/14	NC	80 - 120	101	80 - 120	<0.000020	mg/L	2.8	20
8433768	Total Lithium (Li)	2016/10/14	91	80 - 120	91	80 - 120	<0.00050	mg/L	NC	20
8433768	Total Manganese (Mn)	2016/10/14	NC	80 - 120	96	80 - 120	<0.00010	mg/L	0.20	20
8433768	Total Molybdenum (Mo)	2016/10/14	75 (1)	80 - 120	101	80 - 120	<0.000050	mg/L	NC	20
8433768	Total Nickel (Ni)	2016/10/14	97	80 - 120	98	80 - 120	<0.00010	mg/L	2.0	20
8433768	Total Phosphorus (P)	2016/10/14					<0.0050	mg/L		
8433768	Total Selenium (Se)	2016/10/14	83	80 - 120	103	80 - 120	<0.000040	mg/L	NC	20
8433768	Total Silicon (Si)	2016/10/14					<0.050	mg/L	0.42	20
8433768	Total Silver (Ag)	2016/10/14	104	80 - 120	99	80 - 120	<0.000010	mg/L	NC	20
8433768	Total Strontium (Sr)	2016/10/14	91	80 - 120	94	80 - 120	<0.000050	mg/L	2.5	20
8433768	Total Thallium (Tl)	2016/10/14	90	80 - 120	88	80 - 120	<0.0000020	mg/L	NC	20

Maxxam Job #: B690408  
Report Date: 2016/10/18

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8433768	Total Tin (Sn)	2016/10/14	88	80 - 120	98	80 - 120	<0.00020	mg/L	NC	20
8433768	Total Titanium (Ti)	2016/10/14	87	80 - 120	100	80 - 120	<0.0020	mg/L	NC	20
8433768	Total Uranium (U)	2016/10/14	99	80 - 120	100	80 - 120	<0.0000050	mg/L	0	20
8433768	Total Vanadium (V)	2016/10/14	95	80 - 120	98	80 - 120	<0.00020	mg/L	NC	20
8433768	Total Zinc (Zn)	2016/10/14	NC	80 - 120	105	80 - 120	<0.0010	mg/L	0.55	20
8433768	Total Zirconium (Zr)	2016/10/14					<0.00010	mg/L	NC	20
8433773	Dissolved Chloride (Cl)	2016/10/14	110	80 - 120	100	80 - 120	<0.50	mg/L	NC	20
8433781	Dissolved Sulphate (SO4)	2016/10/14	NC	80 - 120	98	80 - 120	0.64, RDL=0.50	mg/L	2.0	20
8433876	Total Phosphorus (P)	2016/10/14			95	80 - 120	<0.0020	mg/L	NC	20
8434187	Total Ammonia (N)	2016/10/14	106	80 - 120	103	80 - 120	<0.0050	mg/L	NC	20
8434190	Total Ammonia (N)	2016/10/14	119	80 - 120	103	80 - 120	<0.0050	mg/L	NC	20
8434245	Fluoride (F)	2016/10/14	89	80 - 120	96	80 - 120	<0.010	mg/L	NC	20
8434895	Nitrate plus Nitrite (N)	2016/10/14	106	80 - 120	102	80 - 120	<0.0020	mg/L	NC	25
8434897	Nitrite (N)	2016/10/14	99	80 - 120	96	80 - 120	<0.0020	mg/L	NC	25
8435711	Total Mercury (Hg)	2016/10/17	100	80 - 120	97	80 - 120	<0.0000020	mg/L	NC	20
8435731	Dissolved Mercury (Hg)	2016/10/17	95	80 - 120	98	80 - 120	<0.0000020	mg/L	NC	20
8436129	Dissolved Organic Carbon (C)	2016/10/17	NC	80 - 120	112	80 - 120	<0.50	mg/L	6.9	20
8436137	Total Aluminum (Al)	2016/10/17	105	80 - 120	108	80 - 120	<0.00050	mg/L	NC	20
8436137	Total Antimony (Sb)	2016/10/17	101	80 - 120	98	80 - 120	<0.000020	mg/L	NC	20
8436137	Total Arsenic (As)	2016/10/17	100	80 - 120	98	80 - 120	0.000036, RDL=0.000020	mg/L	NC	20
8436137	Total Barium (Ba)	2016/10/17	103	80 - 120	98	80 - 120	<0.000020	mg/L	NC	20
8436137	Total Beryllium (Be)	2016/10/17	102	80 - 120	102	80 - 120	<0.000010	mg/L	NC	20
8436137	Total Bismuth (Bi)	2016/10/17	102	80 - 120	99	80 - 120	<0.0000050	mg/L	NC	20
8436137	Total Boron (B)	2016/10/17	105	80 - 120	105	80 - 120	<0.010	mg/L	NC	20
8436137	Total Cadmium (Cd)	2016/10/17	101	80 - 120	99	80 - 120	<0.0000050	mg/L	NC	20
8436137	Total Chromium (Cr)	2016/10/17	105	80 - 120	102	80 - 120	<0.00010	mg/L	NC	20
8436137	Total Cobalt (Co)	2016/10/17	101	80 - 120	100	80 - 120	<0.0000050	mg/L	NC	20
8436137	Total Copper (Cu)	2016/10/17	106	80 - 120	104	80 - 120	<0.000050	mg/L	NC	20
8436137	Total Iron (Fe)	2016/10/17	105	80 - 120	106	80 - 120	<0.0010	mg/L	NC	20
8436137	Total Lead (Pb)	2016/10/17	105	80 - 120	99	80 - 120	<0.0000050	mg/L	NC	20

Maxxam Job #: B690408  
Report Date: 2016/10/18

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8436137	Total Lithium (Li)	2016/10/17	102	80 - 120	100	80 - 120	<0.00050	mg/L	NC	20
8436137	Total Manganese (Mn)	2016/10/17	103	80 - 120	101	80 - 120	<0.000050	mg/L	NC	20
8436137	Total Molybdenum (Mo)	2016/10/17	106	80 - 120	102	80 - 120	<0.000050	mg/L	NC	20
8436137	Total Nickel (Ni)	2016/10/17	106	80 - 120	104	80 - 120	<0.000020	mg/L	NC	20
8436137	Total Phosphorus (P)	2016/10/17					<0.0020	mg/L		
8436137	Total Selenium (Se)	2016/10/17	100	80 - 120	99	80 - 120	<0.000040	mg/L	NC	20
8436137	Total Silicon (Si)	2016/10/17					<0.050	mg/L	NC	20
8436137	Total Silver (Ag)	2016/10/17	107	80 - 120	99	80 - 120	<0.0000050	mg/L	NC	20
8436137	Total Strontium (Sr)	2016/10/17	94	80 - 120	96	80 - 120	<0.000050	mg/L	NC	20
8436137	Total Thallium (Tl)	2016/10/17	103	80 - 120	98	80 - 120	<0.0000020	mg/L	NC	20
8436137	Total Tin (Sn)	2016/10/17	101	80 - 120	113	80 - 120	<0.00020	mg/L	NC	20
8436137	Total Titanium (Ti)	2016/10/17	100	80 - 120	100	80 - 120	<0.00050	mg/L	NC	20
8436137	Total Uranium (U)	2016/10/17	106	80 - 120	99	80 - 120	0.0000020, RDL=0.0000020	mg/L	NC	20
8436137	Total Vanadium (V)	2016/10/17	104	80 - 120	100	80 - 120	<0.00020	mg/L	NC	20
8436137	Total Zinc (Zn)	2016/10/17	105	80 - 120	106	80 - 120	<0.00010	mg/L	NC	20
8436137	Total Zirconium (Zr)	2016/10/17					<0.00010	mg/L	NC	20
8436278	Acidity (pH 4.5)	2016/10/15					<0.50	mg/L	NC	20
8436278	Acidity (pH 8.3)	2016/10/15			101	80 - 120	<0.50	mg/L	0.15	20

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

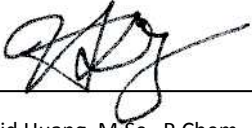
(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Maxxam Job #: B690408  
Report Date: 2016/10/18

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



David Huang, M.Sc., P.Chem., QP, Scientific Services Manager



Megan Smith, Project Manager

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

**CHAIN OF CUSTODY RECORD**



Invoice Information		Report Information (if differs from invoice)				Project Information (where different from invoice)				Time (TAT) Required						
Company Name: <b>BMC MINERALS LTD.</b>		Company Name: <b>ALEXCO ENVIRONMENTAL</b>				Quotation #: <b>860751</b>				<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses)						
Contact Name:		Contact Name: <b>KAI WOLOSZYHN</b>				P.O. #/ AFE#:				PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS						
Address: <b>530-1130 WEST PENDER ST</b> <b>Vancouver, BC PC: V6E 4A4</b>		Address: <b>UNIT 3 151 INDUSTRIAL RD</b> <b>Whitehorse, YK PC: V1A 2V3</b>				Project #: <b>BMC-16-01</b>				Rush TAT (Surcharges will be applied)						
Phone:		Phone: <b>(867) 668-6463</b>				Site Location: <b>Kudz Ze Kayah</b>				<input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days						
Email:		Email: <b>kwoloszyn@alexcoresource.com</b>				Site #:				<input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days						
Sampled By: <b>Andrea Badger</b>		Date Required:				Rush Confirmation #:										
Regulatory Criteria		Special Instructions		Analysis Requested								LABORATORY USE ONLY				
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> CCME (Specify) <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC CSR Water <input type="checkbox"/> Other (Specify) <input type="checkbox"/> BC Water Quality		<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify) Also send report to: Hougere@accessconsulting.ca ngp@ss@accessconsulting.ca		TOTAL LOW LEVEL METALS (incl. MERCURY) DISSOLVED LOW LEVEL MERCURY LOW LEVEL TSS ANIONS (Cl, F, SO4, NO2, NO3) AMMONIA CONDUCTIVITY pH ALKALINITY & ACIDITY DOC TOTAL PHOSPHORUS - LOW LEVEL DISSOLVED PHOSPHORUS - LOW LEVEL # OF CONTAINERS SUBMITTED								CUSTODY SEAL Y/N Present Intact COOLING MEDIA PRESENT: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N COMMENTS				
Sample Identification		Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix									# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	
1	MW15-115		05-Oct-16	9:08	Water	X	X	X	X	X	X	X	X	X	X	10
2	MW16-17		05-Oct-16	10:53	Water	X	X	X	X	X	X	X	X	X	X	10
3	BH95G-22		05-Oct-16	10:59	Water	X	X	X	X	X	X	X	X	X	X	10
4	TRIP BLANK		05-Oct-16		Water	X	X	X	X	X	X	X	X	X	X	10
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)									
ANDREA BADGER		12-OCT-16	10:45	Maurel Berthier		2016/10/13	13:05									

RECEIVED IN WHITEHORSE  
BY: Styano 1045

2016-10-12

TEMP: 10 / 10 / 10



B690408\_COC



Your Project #: BMC-16-01  
 Site Location: KUDZ ZE KAYAH  
 Your C.O.C. #: 08431187, 08431186, 08431185

**Attention: KAI WOLOSHYN**

ALEXCO ENVIRONMENTAL GROUP INC.  
 Unit 3 Calcite Business Centre  
 151 Industrial Road  
 WHITEHORSE, YT  
 Canada Y1A 2V3

**Report Date: 2016/11/28**  
 Report #: R2307876  
 Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B6A4208**

**Received: 2016/11/18, 10:00**

Sample Matrix: Water  
 # Samples Received: 24

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
Acidity pH 4.5 & pH 8.3 (as CaCO3)	24	N/A	2016/11/22	BBY6SOP-00037	SM 22 2310 B m
Alkalinity - Water	24	2016/11/22	2016/11/22	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry	24	N/A	2016/11/22	BBY6SOP-00011	SM 22 4500-Cl- E m
Carbon (DOC) - field filtered/preserved (1)	24	N/A	2016/11/23	BBY6SOP-00003	SM 22 5310 C m
Conductance - water	24	N/A	2016/11/22	BBY6SOP-00026	SM 22 2510 B m
Fluoride	24	N/A	2016/11/22	BBY6SOP-00048	SM 22 4500-F C m
Hardness Total (calculated as CaCO3)	1	N/A	2016/11/22	BBY WI-00033	Auto Calc
Hardness Total (calculated as CaCO3)	23	N/A	2016/11/23	BBY WI-00033	Auto Calc
Hardness (calculated as CaCO3)	23	N/A	2016/11/23	BBY WI-00033	Auto Calc
Hardness (calculated as CaCO3)	1	N/A	2016/11/24	BBY WI-00033	Auto Calc
Mercury (Dissolved-LowLevel) by CVAF	24	N/A	2016/11/23	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total-LowLevel) by CVAF	24	2016/11/23	2016/11/23	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Ion Balance	24	N/A	2016/11/23	BBY WI-00033	Auto Calc
Sum of cations, anions	24	N/A	2016/11/23	Calc	
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	23	N/A	2016/11/23	BBY7SOP-00002	EPA 6020B R2 m
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	1	N/A	2016/11/24	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Low Level (dissolved)	20	N/A	2016/11/22	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Low Level (dissolved)	4	N/A	2016/11/23	BBY7SOP-00002	EPA 6020B R2 m
Elements by ICPMS Digested LL (total)	8	2016/11/22	2016/11/22	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Elements by ICPMS Digested LL (total)	12	2016/11/22	2016/11/23	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Na, K, Ca, Mg, S by CRC ICPMS (total)	1	N/A	2016/11/22	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Na, K, Ca, Mg, S by CRC ICPMS (total)	23	N/A	2016/11/23	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Elements by ICPMS Low Level (total)	3	N/A	2016/11/22	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Elements by ICPMS Low Level (total)	1	N/A	2016/11/23	BBY7SOP-00003,	BCLM2005,EPA6020bR2m
Ammonia-N (Preserved)	24	N/A	2016/11/22	BBY6SOP-00009	SM 22 4500-NH3- G m
Nitrate+Nitrite (N) (low level)	24	N/A	2016/11/22	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) (low level)	24	N/A	2016/11/22	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N)	24	N/A	2016/11/23	BBY6SOP-00010	SM 22 4500-NO3- I m
Filter and HNO3 Preserve for Metals	23	N/A	2016/11/22	BBY7 WI-00004	BCMOE Reqs 08/14

Your Project #: BMC-16-01  
 Site Location: KUDZ ZE KAYAH  
 Your C.O.C. #: 08431187, 08431186, 08431185

**Attention: KAI WOLOSHYN**

ALEXCO ENVIRONMENTAL GROUP INC.  
 Unit 3 Calcite Business Centre  
 151 Industrial Road  
 WHITEHORSE, YT  
 Canada Y1A 2V3

**Report Date: 2016/11/28**  
 Report #: R2307876  
 Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B6A4208**

**Received: 2016/11/18, 10:00**

Sample Matrix: Water  
 # Samples Received: 24

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
pH Water (2)	24	N/A	2016/11/22	BBY6SOP-00026	SM 22 4500-H+ B m
Sulphate by Automated Colourimetry	24	N/A	2016/11/22	BBY6SOP-00017	SM 22 4500-SO42- E m
Phosphorus-P (LL Tot, dissolved) - UF/UP	23	2016/11/22	2016/11/22	BBY6SOP-00013	SM 22 4500-P E m
Phosphorus-P (LL Tot, dissolved) - UF/UP	1	2016/11/24	2016/11/24	BBY6SOP-00013	SM 22 4500-P E m
Total Phosphorus - unpreserved	23	N/A	2016/11/22	BBY6SOP-00013	SM 22 4500-P E m
Total Phosphorus - unpreserved	1	N/A	2016/11/24	BBY6SOP-00013	SM 22 4500-P E m
Total Suspended Solids-Low Level	24	2016/11/22	2016/11/23	BBY6SOP-00034	SM 22 2540 D

**Remarks:**

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods. Results relate to samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) DOC present in the sample should be considered as non-purgeable DOC.

(2) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Your Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Your C.O.C. #: 08431187, 08431186, 08431185

**Attention:KAI WOLOSHYN**

ALEXCO ENVIRONMENTAL GROUP INC.  
Unit 3 Calcite Business Centre  
151 Industrial Road  
WHITEHORSE, YT  
Canada Y1A 2V3

**Report Date: 2016/11/28**  
Report #: R2307876  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B6A4208**  
**Received: 2016/11/18, 10:00**

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.  
Megan Smith, Project Manager  
Email: msmith@maxxam.ca  
Phone# (604) 734 7276

=====  
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		QC0222			QC0223		QC0224		
Sampling Date		2016/11/15 09:16			2016/11/15 09:30		2016/11/15 10:18		
COC Number		08431187			08431187		08431187		
	UNITS	MW15-03S	RDL	QC Batch	MW15-03D	QC Batch	MW15-04D	RDL	QC Batch
<b>Calculated Parameters</b>									
Anion Sum	meq/L	3.1	N/A	8479232	4.3	8479232	3.1	N/A	8479232
Cation Sum	meq/L	2.7	N/A	8479232	4.2	8479232	3.2	N/A	8479232
Filter and HNO3 Preservation	N/A	LAB	N/A	8479659	LAB	8479659	LAB	N/A	8479659
Ion Balance	N/A	0.89	0.010	8479231	0.96	8479231	1.0	0.010	8479231
Nitrate (N)	mg/L	0.0853	0.0020	8478849	<0.0020	8478849	0.0150	0.0020	8478849
<b>Misc. Inorganics</b>									
Fluoride (F)	mg/L	0.064	0.010	8481740	0.160	8481740	0.210	0.010	8481740
Dissolved Organic Carbon (C)	mg/L	0.51	0.50	8481790	0.63	8481791	<0.50	0.50	8481791
Acidity (pH 4.5)	mg/L	<0.50	0.50	8480151	<0.50	8480151	<0.50	0.50	8480151
Alkalinity (Total as CaCO3)	mg/L	140	0.50	8480127	193	8480127	135	0.50	8480127
Acidity (pH 8.3)	mg/L	1.14	0.50	8480151	2.54	8480151	1.02	0.50	8480151
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8480127	<0.50	8480127	<0.50	0.50	8480127
Bicarbonate (HCO3)	mg/L	171	0.50	8480127	236	8480127	164	0.50	8480127
Carbonate (CO3)	mg/L	<0.50	0.50	8480127	<0.50	8480127	<0.50	0.50	8480127
Hydroxide (OH)	mg/L	<0.50	0.50	8480127	<0.50	8480127	<0.50	0.50	8480127
<b>Anions</b>									
Dissolved Sulphate (SO4)	mg/L	11.6	0.50	8480681	21.7	8480681	17.8	0.50	8480681
Dissolved Chloride (Cl)	mg/L	0.55	0.50	8480679	<0.50	8480679	0.56	0.50	8480679
<b>Nutrients</b>									
Dissolved Phosphorus (P)	mg/L	0.419 (1)	0.0020	8480235	0.0030 (1)	8480235	0.0095 (1)	0.0020	8480235
Total Ammonia (N)	mg/L	0.028	0.0050	8480385	0.077	8480387	0.026	0.0050	8480385
Nitrate plus Nitrite (N)	mg/L	0.0853 (1)	0.0020	8481541	<0.0020 (1)	8481541	0.0150 (1)	0.0020	8481541
Nitrite (N)	mg/L	<0.0020 (1)	0.0020	8481544	<0.0020 (1)	8481544	<0.0020 (1)	0.0020	8481544
Total Phosphorus (P)	mg/L	1.83 (2)	0.020	8480243	0.0030 (1)	8480243	0.0231 (1)	0.0020	8480243
<b>Physical Properties</b>									
Conductivity	uS/cm	281	1.0	8480142	389	8480142	288	1.0	8480142
pH	pH	7.97		8480143	7.98	8480143	7.96		8480143
RDL = Reportable Detection Limit N/A = Not Applicable (1) Sample analysed past recommended hold time. (2) Detection limits raised due to dilution to bring analyte within the calibrated range. Sample analysed past recommended hold time.									

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		QC0222			QC0223		QC0224		
<b>Sampling Date</b>		2016/11/15 09:16			2016/11/15 09:30		2016/11/15 10:18		
<b>COC Number</b>		08431187			08431187		08431187		
	<b>UNITS</b>	<b>MW15-03S</b>	<b>RDL</b>	<b>QC Batch</b>	<b>MW15-03D</b>	<b>QC Batch</b>	<b>MW15-04D</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Physical Properties</b>									
Total Suspended Solids	mg/L	3530 (1)	20	8479536	2.3	8479536	542	1.0	8479536
RDL = Reportable Detection Limit (1) RDL raised due to high concentration of solids in the sample.									

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		QC0225			QC0226			QC0227		
Sampling Date		2016/11/15 10:35			2016/11/15 11:35			2016/11/15 13:18		
COC Number		08431187			08431187			08431187		
	UNITS	MW15-04S	RDL	QC Batch	MW15-05D	RDL	QC Batch	MW16-16D	RDL	QC Batch
<b>Calculated Parameters</b>										
Anion Sum	meq/L	2.5	N/A	8479232	4.3	N/A	8479232	4.8	N/A	8479232
Cation Sum	meq/L	2.5	N/A	8479232	4.2	N/A	8479232	4.3	N/A	8479232
Filter and HNO3 Preservation	N/A	LAB	N/A	8479659	LAB	N/A	8479659	LAB	N/A	8479659
Ion Balance	N/A	0.98	0.010	8479231	0.98	0.010	8479231	0.90	0.010	8479231
Nitrate (N)	mg/L	0.232	0.0020	8478849	0.245	0.0020	8478849	0.0023	0.0020	8478849
<b>Misc. Inorganics</b>										
Fluoride (F)	mg/L	0.083	0.010	8481740	0.130	0.010	8481740	0.180	0.010	8481740
Dissolved Organic Carbon (C)	mg/L	0.74	0.50	8481790	0.54	0.50	8481792	<0.50	0.50	8481791
Acidity (pH 4.5)	mg/L	<0.50	0.50	8480151	<0.50	0.50	8480151	<0.50	0.50	8480151
Alkalinity (Total as CaCO3)	mg/L	116	0.50	8480127	182	0.50	8480127	200	0.50	8480127
Acidity (pH 8.3)	mg/L	<0.50	0.50	8480151	2.38	0.50	8480151	2.97	0.50	8480151
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8480127	<0.50	0.50	8480127	<0.50	0.50	8480127
Bicarbonate (HCO3)	mg/L	141	0.50	8480127	222	0.50	8480127	245	0.50	8480127
Carbonate (CO3)	mg/L	<0.50	0.50	8480127	<0.50	0.50	8480127	<0.50	0.50	8480127
Hydroxide (OH)	mg/L	<0.50	0.50	8480127	<0.50	0.50	8480127	<0.50	0.50	8480127
<b>Anions</b>										
Dissolved Sulphate (SO4)	mg/L	8.81	0.50	8480681	29.0	0.50	8480681	36.3	0.50	8480681
Dissolved Chloride (Cl)	mg/L	<0.50	0.50	8480679	<0.50	0.50	8480679	<0.50	0.50	8480679
<b>Nutrients</b>										
Dissolved Phosphorus (P)	mg/L	0.138 (1)	0.0020	8480235	0.0185 (1)	0.0020	8480235	0.0625 (1)	0.0020	8480235
Total Ammonia (N)	mg/L	0.022	0.0050	8480387	0.032	0.0050	8480387	0.019	0.0050	8480387
Nitrate plus Nitrite (N)	mg/L	0.232 (1)	0.0020	8481541	0.245 (1)	0.0020	8481541	0.0023 (1)	0.0020	8481541
Nitrite (N)	mg/L	<0.0020 (1)	0.0020	8481544	<0.0020 (1)	0.0020	8481544	<0.0020 (1)	0.0020	8481544
Total Phosphorus (P)	mg/L	0.958 (2)	0.020	8480243	0.109 (1)	0.0020	8480243	0.0668 (1)	0.0020	8480243
<b>Physical Properties</b>										
Conductivity	uS/cm	234	1.0	8480142	387	1.0	8480142	438	1.0	8480142
pH	pH	7.99		8480143	7.94		8480143	7.96		8480143
RDL = Reportable Detection Limit N/A = Not Applicable (1) Sample analysed past recommended hold time. (2) Detection limits raised due to dilution to bring analyte within the calibrated range. Sample analysed past recommended hold time.										

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		QC0225			QC0226			QC0227		
<b>Sampling Date</b>		2016/11/15 10:35			2016/11/15 11:35			2016/11/15 13:18		
<b>COC Number</b>		08431187			08431187			08431187		
	<b>UNITS</b>	<b>MW15-04S</b>	<b>RDL</b>	<b>QC Batch</b>	<b>MW15-05D</b>	<b>RDL</b>	<b>QC Batch</b>	<b>MW16-16D</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Physical Properties</b>										
Total Suspended Solids	mg/L	965 (1)	10	8479536	924 (1)	10	8479536	64.2	1.0	8479536
RDL = Reportable Detection Limit										
(1) RDL raised due to high concentration of solids in the sample.										

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		QC0228			QC0229			QC0230		
<b>Sampling Date</b>		2016/11/15 14:02			2016/11/15			2016/11/16 09:22		
<b>COC Number</b>		08431187			08431187			08431187		
	<b>UNITS</b>	<b>MW16-17</b>	<b>RDL</b>	<b>QC Batch</b>	<b>DUP 1</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH95G-15D</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Calculated Parameters</b>										
Anion Sum	meq/L	4.0	N/A	8479232	3.1	N/A	8479232	3.8	N/A	8479232
Cation Sum	meq/L	3.7	N/A	8479232	3.1	N/A	8479232	3.6	N/A	8479232
Filter and HNO3 Preservation	N/A	LAB	N/A	8479659	LAB	N/A	8479659	LAB	N/A	8479659
Ion Balance	N/A	0.92	0.010	8479231	0.99	0.010	8479231	0.95	0.010	8479231
Nitrate (N)	mg/L	<0.0020	0.0020	8478849	0.0076	0.0020	8478849	0.603	0.0020	8478849

<b>Misc. Inorganics</b>										
Fluoride (F)	mg/L	0.550	0.010	8481740	0.220	0.010	8481740	0.150	0.010	8481748
Dissolved Organic Carbon (C)	mg/L	0.67	0.50	8481790	<0.50	0.50	8481792	0.89	0.50	8481790
Acidity (pH 4.5)	mg/L	<0.50	0.50	8480151	<0.50	0.50	8480151	<0.50	0.50	8480155
Alkalinity (Total as CaCO3)	mg/L	167	0.50	8480148	137	0.50	8480148	173	0.50	8480148
Acidity (pH 8.3)	mg/L	0.96	0.50	8480151	0.60	0.50	8480151	2.23	0.50	8480155
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8480148	<0.50	0.50	8480148	<0.50	0.50	8480148
Bicarbonate (HCO3)	mg/L	204	0.50	8480148	168	0.50	8480148	211	0.50	8480148
Carbonate (CO3)	mg/L	<0.50	0.50	8480148	<0.50	0.50	8480148	<0.50	0.50	8480148
Hydroxide (OH)	mg/L	<0.50	0.50	8480148	<0.50	0.50	8480148	<0.50	0.50	8480148

<b>Anions</b>										
Dissolved Sulphate (SO4)	mg/L	31.3	0.50	8480681	18.1	0.50	8480681	14.1	0.50	8480684
Dissolved Chloride (Cl)	mg/L	<0.50	0.50	8480679	<0.50	0.50	8480679	<0.50	0.50	8480682

<b>Nutrients</b>										
Dissolved Phosphorus (P)	mg/L	0.0607 (1)	0.0020	8480235	0.0189 (2)	0.0020	8483715	0.0505 (1)	0.0020	8480247
Total Ammonia (N)	mg/L	0.049	0.0050	8480387	0.021	0.0050	8480387	0.023	0.0050	8480387
Nitrate plus Nitrite (N)	mg/L	<0.0020 (1)	0.0020	8481541	0.0076 (1)	0.0020	8481541	0.605 (1)	0.0020	8481548
Nitrite (N)	mg/L	<0.0020 (1)	0.0020	8481544	<0.0020 (1)	0.0020	8481544	0.0020 (1)	0.0020	8481550
Total Phosphorus (P)	mg/L	0.537 (3)	0.020	8480243	0.0132 (1)	0.0020	8483722	0.420 (1)	0.0020	8480253

<b>Physical Properties</b>										
Conductivity	uS/cm	364	1.0	8480153	294	1.0	8480153	353	1.0	8480153

RDL = Reportable Detection Limit  
 N/A = Not Applicable  
 (1) Sample analysed past recommended hold time.  
 (2) Sample analysed past recommended hold time.  
 Dissolved greater than total. Reanalysis yields similar results.  
 (3) Detection limits raised due to dilution to bring analyte within the calibrated range. Sample analysed past recommended hold time.



Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		QC0228			QC0229			QC0230		
<b>Sampling Date</b>		2016/11/15 14:02			2016/11/15			2016/11/16 09:22		
<b>COC Number</b>		08431187			08431187			08431187		
	<b>UNITS</b>	<b>MW16-17</b>	<b>RDL</b>	<b>QC Batch</b>	<b>DUP 1</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH95G-15D</b>	<b>RDL</b>	<b>QC Batch</b>
pH	pH	8.06		8480154	8.03		8480154	7.98		8480154
<b>Physical Properties</b>										
Total Suspended Solids	mg/L	530 (1)	10	8479536	488	1.0	8479536	518 (1)	4.0	8479539
RDL = Reportable Detection Limit (1) RDL raised due to high concentration of solids in the sample.										

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		QC0231			QC0233			QC0234		
Sampling Date		2016/11/16 11:25			2016/11/16 11:40			2016/11/16 12:20		
COC Number		08431187			08431186			08431186		
	UNITS	MW16-15D	RDL	QC Batch	MW16-15S	RDL	QC Batch	MW15-11S	RDL	QC Batch
<b>Calculated Parameters</b>										
Anion Sum	meq/L	4.0	N/A	8479232	2.8	N/A	8479232	6.7	N/A	8479232
Cation Sum	meq/L	3.8	N/A	8479232	2.5	N/A	8479232	6.4	N/A	8479232
Filter and HNO3 Preservation	N/A	LAB	N/A	8479659	LAB	N/A	8479659	LAB	N/A	8479659
Ion Balance	N/A	0.96	0.010	8479231	0.91	0.010	8479231	0.97	0.010	8479231
Nitrate (N)	mg/L	<0.0020	0.0020	8478849	0.409	0.0020	8478849	<0.0020	0.0020	8478849
<b>Misc. Inorganics</b>										
Fluoride (F)	mg/L	0.099	0.010	8481740	0.052	0.010	8481740	0.150	0.010	8481748
Dissolved Organic Carbon (C)	mg/L	0.64	0.50	8481790	0.68	0.50	8481792	1.62	0.50	8481790
Acidity (pH 4.5)	mg/L	<0.50	0.50	8480151	<0.50	0.50	8480151	<0.50	0.50	8480155
Alkalinity (Total as CaCO3)	mg/L	129	0.50	8480148	90.2	0.50	8480148	247	0.50	8480148
Acidity (pH 8.3)	mg/L	0.95	0.50	8480151	4.98	0.50	8480151	3.44	0.50	8480155
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8480148	<0.50	0.50	8480148	<0.50	0.50	8480148
Bicarbonate (HCO3)	mg/L	157	0.50	8480148	110	0.50	8480148	301	0.50	8480148
Carbonate (CO3)	mg/L	<0.50	0.50	8480148	<0.50	0.50	8480148	<0.50	0.50	8480148
Hydroxide (OH)	mg/L	<0.50	0.50	8480148	<0.50	0.50	8480148	<0.50	0.50	8480148
<b>Anions</b>										
Dissolved Sulphate (SO4)	mg/L	69.3	0.50	8480681	44.6	0.50	8480681	80.9	0.50	8480684
Dissolved Chloride (Cl)	mg/L	<0.50	0.50	8480679	<0.50	0.50	8480679	1.0	0.50	8480682
<b>Nutrients</b>										
Dissolved Phosphorus (P)	mg/L	0.0223 (1)	0.0020	8480235	0.127 (1)	0.0020	8480235	0.0384 (1)	0.0020	8480247
Total Ammonia (N)	mg/L	0.043	0.0050	8480387	0.034	0.0050	8480387	0.10	0.0050	8480387
Nitrate plus Nitrite (N)	mg/L	<0.0020 (1)	0.0020	8481548	0.409 (1)	0.0020	8481541	<0.0020 (1)	0.0020	8481548
Nitrite (N)	mg/L	<0.0020 (1)	0.0020	8481550	<0.0020 (1)	0.0020	8481544	<0.0020 (1)	0.0020	8481550
Total Phosphorus (P)	mg/L	0.159 (1)	0.0020	8480243	0.603 (2)	0.020	8480243	0.0517 (1)	0.0020	8480253
<b>Physical Properties</b>										
Conductivity	uS/cm	379	1.0	8480153	274	1.0	8480153	594	1.0	8480153
pH	pH	7.99		8480154	7.38		8480154	7.97		8480154
RDL = Reportable Detection Limit N/A = Not Applicable (1) Sample analysed past recommended hold time. (2) Detection limits raised due to dilution to bring analyte within the calibrated range. Sample analysed past recommended hold time.										

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		QC0231			QC0233			QC0234		
<b>Sampling Date</b>		2016/11/16 11:25			2016/11/16 11:40			2016/11/16 12:20		
<b>COC Number</b>		08431187			08431186			08431186		
	<b>UNITS</b>	<b>MW16-15D</b>	<b>RDL</b>	<b>QC Batch</b>	<b>MW16-15S</b>	<b>RDL</b>	<b>QC Batch</b>	<b>MW15-11S</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Physical Properties</b>										
Total Suspended Solids	mg/L	185 (1)	2.9	8479539	970 (1)	5.0	8479539	57.7	1.0	8479539
RDL = Reportable Detection Limit										
(1) RDL raised due to high concentration of solids in the sample.										

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		QC0235			QC0236			QC0237		
Sampling Date		2016/11/16 13:24			2016/11/16 14:18			2016/11/16 14:48		
COC Number		08431186			08431186			08431186		
	UNITS	MW15-01	RDL	QC Batch	BH95G-32	RDL	QC Batch	BH95G-22	RDL	QC Batch
<b>Calculated Parameters</b>										
Anion Sum	meq/L	5.8	N/A	8479232	4.3	N/A	8479232	3.8	N/A	8479232
Cation Sum	meq/L	5.3	N/A	8479232	4.2	N/A	8479232	3.6	N/A	8479232
Filter and HNO3 Preservation	N/A	LAB	N/A	8479659	LAB	N/A	8479659	LAB	N/A	8479659
Ion Balance	N/A	0.91	0.010	8479231	0.98	0.010	8479231	0.96	0.010	8479231
Nitrate (N)	mg/L	0.394	0.0020	8478849	0.0755	0.0020	8478849	0.434	0.0020	8478849
<b>Misc. Inorganics</b>										
Fluoride (F)	mg/L	0.120	0.010	8481740	0.040	0.010	8481740	0.054	0.010	8481740
Dissolved Organic Carbon (C)	mg/L	0.70	0.50	8481792	0.66	0.50	8481791	1.01	0.50	8481792
Acidity (pH 4.5)	mg/L	<0.50	0.50	8480151	<0.50	0.50	8480151	<0.50	0.50	8480151
Alkalinity (Total as CaCO3)	mg/L	163	0.50	8480148	181	0.50	8480148	141	0.50	8480127
Acidity (pH 8.3)	mg/L	2.21	0.50	8480151	2.26	0.50	8480151	5.27	0.50	8480151
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8480148	<0.50	0.50	8480148	<0.50	0.50	8480127
Bicarbonate (HCO3)	mg/L	199	0.50	8480148	221	0.50	8480148	172	0.50	8480127
Carbonate (CO3)	mg/L	<0.50	0.50	8480148	<0.50	0.50	8480148	<0.50	0.50	8480127
Hydroxide (OH)	mg/L	<0.50	0.50	8480148	<0.50	0.50	8480148	<0.50	0.50	8480127
<b>Anions</b>										
Dissolved Sulphate (SO4)	mg/L	118	0.50	8480681	34.5	0.50	8480681	44.5	0.50	8480681
Dissolved Chloride (Cl)	mg/L	<0.50	0.50	8480679	<0.50	0.50	8480679	<0.50	0.50	8480679
<b>Nutrients</b>										
Dissolved Phosphorus (P)	mg/L	0.0194 (1)	0.0020	8480235	0.0098 (1)	0.0020	8480235	0.0287 (1)	0.0020	8480235
Total Ammonia (N)	mg/L	0.024	0.0050	8480387	0.015	0.0050	8480387	0.028	0.0050	8480387
Nitrate plus Nitrite (N)	mg/L	0.394 (1)	0.0020	8481548	0.0755 (1)	0.0020	8481548	0.434 (1)	0.0020	8481541
Nitrite (N)	mg/L	<0.0020 (1)	0.0020	8481550	<0.0020 (1)	0.0020	8481550	<0.0020 (1)	0.0020	8481544
Total Phosphorus (P)	mg/L	0.277 (1)	0.0020	8480243	0.0680 (1)	0.0020	8480243	0.290 (1)	0.0020	8480243
<b>Physical Properties</b>										
Conductivity	uS/cm	526	1.0	8480153	405	1.0	8480153	352	1.0	8480142
pH	pH	7.92		8480154	7.95		8480154	7.58		8480143
RDL = Reportable Detection Limit N/A = Not Applicable (1) Sample analysed past recommended hold time.										

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		QC0235			QC0236			QC0237		
<b>Sampling Date</b>		2016/11/16 13:24			2016/11/16 14:18			2016/11/16 14:48		
<b>COC Number</b>		08431186			08431186			08431186		
	<b>UNITS</b>	<b>MW15-01</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH95G-32</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH95G-22</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Physical Properties</b>										
Total Suspended Solids	mg/L	191 (1)	5.0	8479539	52.7 (2)	3.3	8479539	292 (1)	5.0	8479539

RDL = Reportable Detection Limit  
(1) RDL raised due to high concentration of solids in the sample.  
(2) RDL raised due to sample matrix interference.

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		QC0238			QC0239			QC0240		
Sampling Date		2016/11/16			2016/11/17 10:12			2016/11/17 10:30		
COC Number		08431186			08431186			08431186		
	UNITS	DUP2	RDL	QC Batch	BH95G-25D	RDL	QC Batch	BH95G-25S	RDL	QC Batch
<b>Calculated Parameters</b>										
Anion Sum	meq/L	3.8	N/A	8479232	12	N/A	8479232	10	N/A	8479232
Cation Sum	meq/L	3.7	N/A	8479232	12	N/A	8479232	9.9	N/A	8479232
Filter and HNO3 Preservation	N/A	LAB	N/A	8479659	LAB	N/A	8479659	LAB	N/A	8479659
Ion Balance	N/A	0.99	0.010	8479231	0.98	0.010	8479231	0.97	0.010	8479231
Nitrate (N)	mg/L	0.419	0.0020	8478849	<0.0020	0.0020	8478849	<0.0020	0.0020	8478849
<b>Misc. Inorganics</b>										
Fluoride (F)	mg/L	0.054	0.010	8481734	0.096	0.010	8481740	0.120	0.010	8481740
Dissolved Organic Carbon (C)	mg/L	1.18	0.50	8481791	2.08	0.50	8481792	2.22	0.50	8481791
Acidity (pH 4.5)	mg/L	<0.50	0.50	8480151	<0.50	0.50	8480151	<0.50	0.50	8480151
Alkalinity (Total as CaCO3)	mg/L	140	0.50	8480163	357	0.50	8480148	333	0.50	8480148
Acidity (pH 8.3)	mg/L	2.90	0.50	8480151	15.1	0.50	8480151	12.8	0.50	8480151
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8480163	<0.50	0.50	8480148	<0.50	0.50	8480148
Bicarbonate (HCO3)	mg/L	171	0.50	8480163	436	0.50	8480148	407	0.50	8480148
Carbonate (CO3)	mg/L	<0.50	0.50	8480163	<0.50	0.50	8480148	<0.50	0.50	8480148
Hydroxide (OH)	mg/L	<0.50	0.50	8480163	<0.50	0.50	8480148	<0.50	0.50	8480148
<b>Anions</b>										
Dissolved Sulphate (SO4)	mg/L	44.6	0.50	8480681	238 (1)	5.0	8480681	171	0.50	8480681
Dissolved Chloride (Cl)	mg/L	0.61	0.50	8480679	0.80	0.50	8480679	0.82	0.50	8480679
<b>Nutrients</b>										
Dissolved Phosphorus (P)	mg/L	0.0284 (2)	0.0020	8480235	0.0163 (2)	0.0020	8480235	0.0558 (2)	0.0020	8480235
Total Ammonia (N)	mg/L	0.023	0.0050	8480387	0.079	0.0050	8480388	0.29	0.0050	8480387
Nitrate plus Nitrite (N)	mg/L	0.419 (2)	0.0020	8481541	<0.0020 (2)	0.0020	8481541	<0.0020 (2)	0.0020	8481541
Nitrite (N)	mg/L	<0.0020 (2)	0.0020	8481544	<0.0020 (2)	0.0020	8481544	<0.0020 (2)	0.0020	8481544
Total Phosphorus (P)	mg/L	0.195 (2)	0.0020	8480243	0.0780 (2)	0.0020	8480243	0.809 (3)	0.020	8480243
<b>Physical Properties</b>										
Conductivity	uS/cm	372	1.0	8480173	1050	1.0	8480153	895	1.0	8480153
pH	pH	7.92		8480174	7.64		8480154	7.68		8480154
RDL = Reportable Detection Limit N/A = Not Applicable (1) Detection limits raised due to dilution to bring analyte within the calibrated range. (2) Sample analysed past recommended hold time. (3) Detection limits raised due to dilution to bring analyte within the calibrated range. Sample analysed past recommended hold time.										

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		QC0238			QC0239			QC0240		
Sampling Date		2016/11/16			2016/11/17 10:12			2016/11/17 10:30		
COC Number		08431186			08431186			08431186		
	UNITS	DUP2	RDL	QC Batch	BH95G-25D	RDL	QC Batch	BH95G-25S	RDL	QC Batch
<b>Physical Properties</b>										
Total Suspended Solids	mg/L	113 (1)	2.0	8479539	186 (1)	5.0	8479539	1360 (1)	20	8479539
RDL = Reportable Detection Limit (1) RDL raised due to high concentration of solids in the sample.										

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### RESULTS OF CHEMICAL ANALYSES OF WATER

<b>Maxxam ID</b>		QC0241			QC0242			QC0243		
<b>Sampling Date</b>		2016/11/17 10:40			2016/11/17 11:27			2016/11/17 13:30		
<b>COC Number</b>		08431186			08431186			08431185		
	<b>UNITS</b>	<b>FIELD BLANK</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH95G-33D</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH95G-2</b>	<b>RDL</b>	<b>QC Batch</b>

#### Calculated Parameters

Anion Sum	meq/L	0.018	N/A	8479232	5.3	N/A	8479232	6.7	N/A	8479232
Cation Sum	meq/L	0.0037	N/A	8479232	4.9	N/A	8479232	6.2	N/A	8479232
Filter and HNO3 Preservation	N/A	LAB	N/A	8479659	LAB	N/A	8479659	LAB	N/A	8479659
Ion Balance	N/A	0.20 (1)	0.010	8479231	0.93	0.010	8479231	0.93	0.010	8479231
Nitrate (N)	mg/L	<0.0020	0.0020	8478849	0.179	0.0020	8478849	0.464	0.0020	8478849

#### Misc. Inorganics

Fluoride (F)	mg/L	0.014	0.010	8481740	0.054	0.010	8481740	0.063	0.010	8481740
Dissolved Organic Carbon (C)	mg/L	<0.50	0.50	8481792	0.90	0.50	8481791	1.08	0.50	8481791
Acidity (pH 4.5)	mg/L	<0.50	0.50	8480151	<0.50	0.50	8480151	<0.50	0.50	8480151
Alkalinity (Total as CaCO3)	mg/L	<0.50	0.50	8480148	191	0.50	8480127	277	0.50	8480148
Acidity (pH 8.3)	mg/L	<0.50	0.50	8480151	3.50	0.50	8480151	3.66	0.50	8480151
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8480148	<0.50	0.50	8480127	<0.50	0.50	8480148
Bicarbonate (HCO3)	mg/L	<0.50	0.50	8480148	233	0.50	8480127	338	0.50	8480148
Carbonate (CO3)	mg/L	<0.50	0.50	8480148	<0.50	0.50	8480127	<0.50	0.50	8480148
Hydroxide (OH)	mg/L	<0.50	0.50	8480148	<0.50	0.50	8480127	<0.50	0.50	8480148

#### Anions

Dissolved Sulphate (SO4)	mg/L	0.84	0.50	8480684	68.9	0.50	8480681	52.1	0.50	8480681
Dissolved Chloride (Cl)	mg/L	<0.50	0.50	8480682	<0.50	0.50	8480679	0.64	0.50	8480679

#### Nutrients

Dissolved Phosphorus (P)	mg/L	<0.0020 (2)	0.0020	8480235	0.0105 (2)	0.0020	8480235	0.0393 (2)	0.0020	8480235
Total Ammonia (N)	mg/L	<0.0050	0.0050	8480387	0.024	0.0050	8480388	0.019	0.0050	8480387
Nitrate plus Nitrite (N)	mg/L	<0.0020 (2)	0.0020	8481548	0.179 (2)	0.0020	8481541	0.464 (2)	0.0020	8481541
Nitrite (N)	mg/L	<0.0020 (2)	0.0020	8481550	<0.0020 (2)	0.0020	8481544	<0.0020 (2)	0.0020	8481544
Total Phosphorus (P)	mg/L	<0.0020 (2)	0.0020	8480243	0.0909 (2)	0.0020	8480243	0.442 (2)	0.0020	8480243

#### Physical Properties

Conductivity	uS/cm	<1.0	1.0	8480153	480	1.0	8480142	586	1.0	8480153
pH	pH	5.43		8480154	7.89		8480143	7.95		8480154

RDL = Reportable Detection Limit

N/A = Not Applicable

(1) Ion balance out of optimal range due to higher measurement uncertainty at this level (Ion Sum < 3 meq/L for both cations and anions).

(2) Sample analysed past recommended hold time.



Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		QC0241			QC0242			QC0243		
<b>Sampling Date</b>		2016/11/17 10:40			2016/11/17 11:27			2016/11/17 13:30		
<b>COC Number</b>		08431186			08431186			08431185		
	<b>UNITS</b>	<b>FIELD BLANK</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH95G-33D</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH95G-2</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Physical Properties</b>										
Total Suspended Solids	mg/L	1.0	1.0	8479539	75.0 (1)	3.3	8479539	103 (2)	2.0	8479541

RDL = Reportable Detection Limit  
(1) RDL raised due to sample matrix interference.  
(2) RDL raised due to high concentration of solids in the sample.

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		QC0244			QC0245		QC0246		
Sampling Date		2016/11/17 15:11			2016/11/17		2016/11/18 10:00		
COC Number		08431185			08431185		08431185		
	UNITS	BH95G-21	RDL	QC Batch	DUP 3	RDL	TRIP BLANK	RDL	QC Batch
<b>Calculated Parameters</b>									
Anion Sum	meq/L	4.4	N/A	8479232	6.6	N/A	0.013	N/A	8479232
Cation Sum	meq/L	4.1	N/A	8479232	6.8	N/A	0.0027	N/A	8479232
Filter and HNO3 Preservation	N/A	LAB	N/A	8479659	LAB	N/A		N/A	8479659
Ion Balance	N/A	0.93	0.010	8479231	1.0	0.010	0.22 (1)	0.010	8479231
Nitrate (N)	mg/L	<0.0020	0.0020	8478849	0.459	0.0020	<0.0020	0.0020	8478849
<b>Misc. Inorganics</b>									
Fluoride (F)	mg/L	0.094	0.010	8481740	0.062	0.010	0.013	0.010	8481748
Dissolved Organic Carbon (C)	mg/L	1.26	0.50	8481791	0.97	0.50	<0.50	0.50	8481791
Acidity (pH 4.5)	mg/L	<0.50	0.50	8480151	<0.50	0.50	<0.50	0.50	8480155
Alkalinity (Total as CaCO3)	mg/L	170	0.50	8480148	271	0.50	<0.50	0.50	8480148
Acidity (pH 8.3)	mg/L	2.06	0.50	8480151	2.87	0.50	<0.50	0.50	8480155
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8480148	<0.50	0.50	<0.50	0.50	8480148
Bicarbonate (HCO3)	mg/L	208	0.50	8480148	331	0.50	<0.50	0.50	8480148
Carbonate (CO3)	mg/L	<0.50	0.50	8480148	<0.50	0.50	<0.50	0.50	8480148
Hydroxide (OH)	mg/L	<0.50	0.50	8480148	<0.50	0.50	<0.50	0.50	8480148
<b>Anions</b>									
Dissolved Sulphate (SO4)	mg/L	47.9	0.50	8480681	52.6	0.50	0.57	0.50	8480684
Dissolved Chloride (Cl)	mg/L	<0.50	0.50	8480679	0.70	0.50	<0.50	0.50	8480682
<b>Nutrients</b>									
Dissolved Phosphorus (P)	mg/L	0.0565 (2)	0.0020	8480235	0.0470 (2)	0.0020	<0.0020 (2)	0.0020	8480247
Total Ammonia (N)	mg/L	0.037	0.0050	8480387	0.023	0.0050	<0.0050	0.0050	8480388
Nitrate plus Nitrite (N)	mg/L	<0.0020 (2)	0.0020	8481541	0.459 (2)	0.0020	<0.0020 (2)	0.0020	8481548
Nitrite (N)	mg/L	<0.0020 (2)	0.0020	8481544	<0.0020 (2)	0.0020	<0.0020 (2)	0.0020	8481550
Total Phosphorus (P)	mg/L	0.315 (2)	0.0020	8480243	0.288 (2)	0.0020	<0.0020 (2)	0.0020	8480253
<b>Physical Properties</b>									
Conductivity	uS/cm	410	1.0	8480153	572	1.0	1.1	1.0	8480153
pH	pH	7.99		8480154	8.02		5.57		8480154
RDL = Reportable Detection Limit N/A = Not Applicable (1) Ion balance out of optimal range due to higher measurement uncertainty at this level (Ion Sum < 3 meq/L for both cations and anions). (2) Sample analysed past recommended hold time.									

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		QC0244			QC0245		QC0246		
<b>Sampling Date</b>		2016/11/17 15:11			2016/11/17		2016/11/18 10:00		
<b>COC Number</b>		08431185			08431185		08431185		
	<b>UNITS</b>	<b>BH95G-21</b>	<b>RDL</b>	<b>QC Batch</b>	<b>DUP 3</b>	<b>RDL</b>	<b>TRIP BLANK</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Physical Properties</b>									
Total Suspended Solids	mg/L	468 (1)	10	8479541	102 (1)	3.3	<1.0	1.0	8479541
RDL = Reportable Detection Limit									
(1) RDL raised due to high concentration of solids in the sample.									

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		QC0222	QC0223	QC0224	QC0225		
Sampling Date		2016/11/15 09:16	2016/11/15 09:30	2016/11/15 10:18	2016/11/15 10:35		
COC Number		08431187	08431187	08431187	08431187		
	UNITS	MW15-03S	MW15-03D	MW15-04D	MW15-04S	RDL	QC Batch
<b>Misc. Inorganics</b>							
Dissolved Hardness (CaCO3)	mg/L	134	200	154	119	0.50	8478434
<b>Elements</b>							
Dissolved Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000020	8481384
<b>Dissolved Metals by ICPMS</b>							
Dissolved Aluminum (Al)	mg/L	0.00182	0.00089	0.00091	0.00199	0.00050	8480056
Dissolved Antimony (Sb)	mg/L	<0.000020	0.000051	<0.000020	<0.000020	0.000020	8480056
Dissolved Arsenic (As)	mg/L	0.000160	0.00131	0.00118	0.000166	0.000020	8480056
Dissolved Barium (Ba)	mg/L	0.0461	0.0483	0.0586	0.0787	0.000020	8480056
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	0.000010	8480056
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8480056
Dissolved Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	0.010	8480056
Dissolved Cadmium (Cd)	mg/L	0.0000120	0.000090	0.0000270	<0.0000050	0.0000050	8480056
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	<0.00010	0.00019	0.00010	8480056
Dissolved Cobalt (Co)	mg/L	0.0000110	0.0000420	0.000254	0.0000060	0.0000050	8480056
Dissolved Copper (Cu)	mg/L	0.000229	<0.000050	0.000124	0.000093	0.000050	8480056
Dissolved Iron (Fe)	mg/L	<0.0010	0.0013	<0.0010	<0.0010	0.0010	8480056
Dissolved Lead (Pb)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8480056
Dissolved Lithium (Li)	mg/L	0.00109	0.00675	0.00133	0.00071	0.00050	8480056
Dissolved Manganese (Mn)	mg/L	0.00164	0.0613	0.163	0.000683	0.000050	8480056
Dissolved Molybdenum (Mo)	mg/L	0.00182	0.00321	0.00232	0.00129	0.000050	8480056
Dissolved Nickel (Ni)	mg/L	0.000585	0.000159	0.000948	0.000083	0.000020	8480056
Dissolved Phosphorus (P)	mg/L	0.0027	0.0035	0.0028	<0.0020	0.0020	8480056
Dissolved Selenium (Se)	mg/L	0.000208	<0.000040	0.000132	0.000773	0.000040	8480056
Dissolved Silicon (Si)	mg/L	2.96	4.33	2.74	3.23	0.050	8480056
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8480056
Dissolved Strontium (Sr)	mg/L	0.152	0.255	0.199	0.158	0.000050	8480056
Dissolved Thallium (Tl)	mg/L	0.0000030	<0.0000020	0.0000020	<0.0000020	0.0000020	8480056
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8480056
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	8480056
Dissolved Uranium (U)	mg/L	0.000731	0.00273	0.000963	0.000615	0.0000020	8480056
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	0.00021	0.00020	8480056
RDL = Reportable Detection Limit							

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		QC0222	QC0223	QC0224	QC0225		
Sampling Date		2016/11/15 09:16	2016/11/15 09:30	2016/11/15 10:18	2016/11/15 10:35		
COC Number		08431187	08431187	08431187	08431187		
	UNITS	MW15-03S	MW15-03D	MW15-04D	MW15-04S	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	0.00014	0.00117	0.00137	<0.00010	0.00010	8480056
Dissolved Zirconium (Zr)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	8480056
Dissolved Calcium (Ca)	mg/L	46.3	53.4	53.4	42.3	0.050	8478694
Dissolved Magnesium (Mg)	mg/L	4.35	16.2	5.13	3.33	0.050	8478694
Dissolved Potassium (K)	mg/L	1.09	2.61	2.35	1.31	0.050	8478694
Dissolved Sodium (Na)	mg/L	0.716	1.77	1.54	0.951	0.050	8478694
Dissolved Sulphur (S)	mg/L	3.6	7.6	5.9	<3.0	3.0	8478694
RDL = Reportable Detection Limit							

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		QC0226		QC0227		QC0228		
<b>Sampling Date</b>		2016/11/15 11:35		2016/11/15 13:18		2016/11/15 14:02		
<b>COC Number</b>		08431187		08431187		08431187		
	<b>UNITS</b>	<b>MW15-05D</b>	<b>QC Batch</b>	<b>MW16-16D</b>	<b>QC Batch</b>	<b>MW16-17</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO <sub>3</sub> )	mg/L	204	8478434	206	8482302	180	0.50	8478434
<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	<0.0000020	8481405	<0.0000020	8481405	<0.0000020	0.0000020	8481405
<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	0.00082	8480056	0.00467	8480056	0.00626	0.00050	8480056
Dissolved Antimony (Sb)	mg/L	<0.000020	8480056	<0.000020	8480056	0.000076	0.000020	8480056
Dissolved Arsenic (As)	mg/L	0.000040	8480056	0.000135	8480056	0.000383	0.000020	8480056
Dissolved Barium (Ba)	mg/L	0.0440	8480056	0.0376	8480056	0.0452	0.000020	8480056
Dissolved Beryllium (Be)	mg/L	<0.000010	8480056	<0.000010	8480056	<0.000010	0.000010	8480056
Dissolved Bismuth (Bi)	mg/L	<0.0000050	8480056	<0.0000050	8480056	<0.0000050	0.0000050	8480056
Dissolved Boron (B)	mg/L	<0.010	8480056	<0.010	8480056	<0.010	0.010	8480056
Dissolved Cadmium (Cd)	mg/L	0.0000470	8480056	<0.0000050	8480056	<0.0000050	0.0000050	8480056
Dissolved Chromium (Cr)	mg/L	<0.00010	8480056	<0.00010	8480056	<0.00010	0.00010	8480056
Dissolved Cobalt (Co)	mg/L	0.0000100	8480056	0.0000410	8480056	0.000260	0.0000050	8480056
Dissolved Copper (Cu)	mg/L	0.000117	8480056	0.000053	8480056	0.000099	0.000050	8480056
Dissolved Iron (Fe)	mg/L	<0.0010	8480056	<0.0010	8480056	<0.0010	0.0010	8480056
Dissolved Lead (Pb)	mg/L	0.0000130	8480056	0.0000060	8480056	<0.0000050	0.0000050	8480056
Dissolved Lithium (Li)	mg/L	0.00202	8480056	0.00494	8480056	0.00293	0.00050	8480056
Dissolved Manganese (Mn)	mg/L	0.00164	8480056	0.0521	8480056	0.0914	0.000050	8480056
Dissolved Molybdenum (Mo)	mg/L	0.000892 (1)	8480056	0.000979 (1)	8483493	0.000728	0.000050	8480056
Dissolved Nickel (Ni)	mg/L	0.000177	8480056	0.000244	8480056	0.00156	0.000020	8480056
Dissolved Phosphorus (P)	mg/L	0.0032	8480056	<0.0020	8480056	0.0028	0.0020	8480056
Dissolved Selenium (Se)	mg/L	0.00163 (1)	8480056	<0.000040	8480056	0.000112	0.000040	8480056
Dissolved Silicon (Si)	mg/L	2.59	8480056	3.72	8480056	4.04	0.050	8480056
Dissolved Silver (Ag)	mg/L	<0.0000050	8480056	<0.0000050	8480056	<0.0000050	0.0000050	8480056
Dissolved Strontium (Sr)	mg/L	0.260	8480056	0.294	8480056	0.182	0.000050	8480056
Dissolved Thallium (Tl)	mg/L	<0.0000020	8480056	<0.0000020	8480056	0.0000030	0.0000020	8480056
Dissolved Tin (Sn)	mg/L	<0.00020	8480056	<0.00020	8480056	<0.00020	0.00020	8480056
Dissolved Titanium (Ti)	mg/L	<0.00050	8480056	<0.00050	8480056	<0.00050	0.00050	8480056
Dissolved Uranium (U)	mg/L	0.00197	8480056	0.00379	8480056	0.00390	0.0000020	8480056

RDL = Reportable Detection Limit  
(1) Dissolved greater than total. Reanalysis yields similar results.

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		QC0226		QC0227		QC0228		
Sampling Date		2016/11/15 11:35		2016/11/15 13:18		2016/11/15 14:02		
COC Number		08431187		08431187		08431187		
	UNITS	MW15-05D	QC Batch	MW16-16D	QC Batch	MW16-17	RDL	QC Batch
Dissolved Vanadium (V)	mg/L	<0.00020	8480056	<0.00020	8480056	<0.00020	0.00020	8480056
Dissolved Zinc (Zn)	mg/L	0.00164	8480056	0.00034	8480056	0.00094	0.00010	8480056
Dissolved Zirconium (Zr)	mg/L	<0.00010	8480056	<0.00010	8480056	<0.00010	0.00010	8480056
Dissolved Calcium (Ca)	mg/L	69.5	8478694	70.2	8481324	58.1	0.050	8478694
Dissolved Magnesium (Mg)	mg/L	7.30	8478694	7.48	8481324	8.47	0.050	8478694
Dissolved Potassium (K)	mg/L	1.56	8478694	2.48	8481324	1.70	0.050	8478694
Dissolved Sodium (Na)	mg/L	1.28	8478694	2.25	8481324	1.09	0.050	8478694
Dissolved Sulphur (S)	mg/L	9.9	8478694	12.5	8481324	10.2	3.0	8478694
RDL = Reportable Detection Limit								

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		QC0229		QC0230		QC0231		
<b>Sampling Date</b>		2016/11/15		2016/11/16 09:22		2016/11/16 11:25		
<b>COC Number</b>		08431187		08431187		08431187		
	<b>UNITS</b>	<b>DUP 1</b>	<b>QC Batch</b>	<b>BH95G-15D</b>	<b>QC Batch</b>	<b>MW16-15D</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO <sub>3</sub> )	mg/L	149	8478434	177	8478434	184	0.50	8478434
<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	<0.0000020	8481405	<0.0000020	8481405	<0.0000020	0.0000020	8481405
<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	0.00092	8480056	0.00090	8480056	0.00465	0.00050	8480056
Dissolved Antimony (Sb)	mg/L	<0.000020	8480056	0.000023	8480056	0.000158	0.000020	8480056
Dissolved Arsenic (As)	mg/L	0.00110	8480056	0.000106	8480056	0.0123	0.000020	8480056
Dissolved Barium (Ba)	mg/L	0.0586	8480056	0.0871	8480056	0.0385	0.000020	8480056
Dissolved Beryllium (Be)	mg/L	<0.000010	8480056	<0.000010	8480056	<0.000010	0.000010	8480056
Dissolved Bismuth (Bi)	mg/L	<0.0000050	8480056	<0.0000050	8480056	<0.0000050	0.0000050	8480056
Dissolved Boron (B)	mg/L	<0.010	8480056	<0.010	8480056	<0.010	0.010	8480056
Dissolved Cadmium (Cd)	mg/L	0.0000360	8480056	0.0000340	8480056	0.0000120	0.0000050	8480056
Dissolved Chromium (Cr)	mg/L	<0.00010	8480056	<0.00010	8480056	<0.00010	0.00010	8480056
Dissolved Cobalt (Co)	mg/L	0.000272	8480056	<0.0000050	8480056	0.0000900	0.0000050	8480056
Dissolved Copper (Cu)	mg/L	0.000198	8480056	<0.000050	8480056	0.000055	0.000050	8480056
Dissolved Iron (Fe)	mg/L	<0.0010	8480056	<0.0010	8480056	<0.0010	0.0010	8480056
Dissolved Lead (Pb)	mg/L	<0.0000050	8480056	0.0000140	8480056	0.0000140	0.0000050	8480056
Dissolved Lithium (Li)	mg/L	0.00144	8480056	0.00290	8480056	0.00373	0.00050	8480056
Dissolved Manganese (Mn)	mg/L	0.162	8480056	0.000639	8480056	0.112	0.000050	8480056
Dissolved Molybdenum (Mo)	mg/L	0.00277	8480056	0.00295 (1)	8484993	0.000781	0.000050	8480056
Dissolved Nickel (Ni)	mg/L	0.00104	8480056	0.000246	8480056	0.000197	0.000020	8480056
Dissolved Phosphorus (P)	mg/L	0.0066	8480056	0.0134	8480056	0.0040	0.0020	8480056
Dissolved Selenium (Se)	mg/L	0.000139	8480056	0.00311	8480056	<0.000040	0.000040	8480056
Dissolved Silicon (Si)	mg/L	2.89	8480056	2.79	8480056	2.90	0.050	8480056
Dissolved Silver (Ag)	mg/L	<0.0000050	8480056	<0.0000050	8480056	<0.0000050	0.0000050	8480056
Dissolved Strontium (Sr)	mg/L	0.207	8480056	0.185	8480056	0.181	0.000050	8480056
Dissolved Thallium (Tl)	mg/L	0.0000030	8480056	0.0000030	8480056	0.0000030	0.0000020	8480056
Dissolved Tin (Sn)	mg/L	<0.00020	8480056	<0.00020	8480056	<0.00020	0.00020	8480056
Dissolved Titanium (Ti)	mg/L	<0.00050	8480056	<0.00050	8480056	<0.00050	0.00050	8480056
Dissolved Uranium (U)	mg/L	0.00106	8480056	0.00316	8480056	0.00463	0.0000020	8480056

RDL = Reportable Detection Limit  
(1) Dissolved greater than total. Reanalysis yields similar results.



Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		QC0229		QC0230		QC0231		
Sampling Date		2016/11/15		2016/11/16 09:22		2016/11/16 11:25		
COC Number		08431187		08431187		08431187		
	UNITS	DUP 1	QC Batch	BH95G-15D	QC Batch	MW16-15D	RDL	QC Batch
Dissolved Vanadium (V)	mg/L	<0.00020	8480056	<0.00020	8480056	<0.00020	0.00020	8480056
Dissolved Zinc (Zn)	mg/L	0.00134	8480056	0.00100	8480056	0.00176	0.00010	8480056
Dissolved Zirconium (Zr)	mg/L	<0.00010	8480056	<0.00010	8480056	<0.00010	0.00010	8480056
Dissolved Calcium (Ca)	mg/L	50.8	8478694	62.8	8478694	60.0	0.050	8478694
Dissolved Magnesium (Mg)	mg/L	5.29	8478694	4.85	8478694	8.42	0.050	8478694
Dissolved Potassium (K)	mg/L	2.42	8478694	1.67	8478694	2.73	0.050	8478694
Dissolved Sodium (Na)	mg/L	1.64	8478694	0.745	8478694	1.76	0.050	8478694
Dissolved Sulphur (S)	mg/L	6.5	8478694	4.5	8478694	22.2	3.0	8478694
RDL = Reportable Detection Limit								

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		QC0233	QC0234	QC0235	QC0236	QC0237		
Sampling Date		2016/11/16 11:40	2016/11/16 12:20	2016/11/16 13:24	2016/11/16 14:18	2016/11/16 14:48		
COC Number		08431186	08431186	08431186	08431186	08431186		
	<b>UNITS</b>	<b>MW16-15S</b>	<b>MW15-11S</b>	<b>MW15-01</b>	<b>BH95G-32</b>	<b>BH95G-22</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO3)	mg/L	121	310	259	205	177	0.50	8478434

<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000020	8481405

<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	0.00342	0.00080	0.00204	0.00129	0.00070	0.00050	8480056
Dissolved Antimony (Sb)	mg/L	0.000071	0.000046	0.000035	0.000034	0.000074	0.000020	8480056
Dissolved Arsenic (As)	mg/L	0.000155	0.000273	0.000075	0.000170	0.000074	0.000020	8480056
Dissolved Barium (Ba)	mg/L	0.0802	0.0425	0.0307	0.193	0.120	0.000020	8480056
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000010	8480056
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8480056
Dissolved Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	8480056
Dissolved Cadmium (Cd)	mg/L	0.00210	<0.0000050	0.0000250	0.0000490	0.000135	0.0000050	8480056
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	8480056
Dissolved Cobalt (Co)	mg/L	0.0000510	0.000140	0.0000270	0.000241	0.0000050	0.0000050	8480056
Dissolved Copper (Cu)	mg/L	0.00376	<0.000050	0.000328	0.000202	0.000675	0.000050	8480056
Dissolved Iron (Fe)	mg/L	0.0017	0.0581	0.0014	<0.0010	0.0014	0.0010	8480056
Dissolved Lead (Pb)	mg/L	0.000182	0.0000070	<0.0000050	0.0000050	0.0000100	0.0000050	8480056
Dissolved Lithium (Li)	mg/L	0.00234	0.0113	0.00308	0.00144	0.00226	0.00050	8480056
Dissolved Manganese (Mn)	mg/L	0.00654	0.218	0.00553	0.0631	0.000174	0.000050	8480056
Dissolved Molybdenum (Mo)	mg/L	0.000314	0.000498	0.000729	0.000701	0.000183	0.000050	8480056
Dissolved Nickel (Ni)	mg/L	0.00223	0.000372	0.000554	0.00106	0.000164	0.000020	8480056
Dissolved Phosphorus (P)	mg/L	0.0033	0.0034	0.0043	0.0024	0.0022	0.0020	8480056
Dissolved Selenium (Se)	mg/L	0.00248	<0.000040	0.000655	0.000757	0.000571	0.000040	8480056
Dissolved Silicon (Si)	mg/L	3.17	4.23	2.38	2.35	3.14	0.050	8480056
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8480056
Dissolved Strontium (Sr)	mg/L	0.118	0.498	0.238	0.276	0.167	0.000050	8480056
Dissolved Thallium (Tl)	mg/L	0.0000050	0.0000020	0.0000020	0.0000050	<0.0000020	0.0000020	8480056
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8480056
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	8480056
Dissolved Uranium (U)	mg/L	0.00233	0.0141	0.00418	0.00117	0.00185	0.0000020	8480056
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8480056

RDL = Reportable Detection Limit

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		QC0233	QC0234	QC0235	QC0236	QC0237		
Sampling Date		2016/11/16 11:40	2016/11/16 12:20	2016/11/16 13:24	2016/11/16 14:18	2016/11/16 14:48		
COC Number		08431186	08431186	08431186	08431186	08431186		
	UNITS	MW16-15S	MW15-11S	MW15-01	BH95G-32	BH95G-22	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	0.138	0.00037	0.00047	0.00145	0.00613	0.00010	8480056
Dissolved Zirconium (Zr)	mg/L	<0.00010	0.00030	<0.00010	<0.00010	<0.00010	0.00010	8480056
Dissolved Calcium (Ca)	mg/L	39.2	84.2	85.4	75.3	56.9	0.050	8478694
Dissolved Magnesium (Mg)	mg/L	5.57	24.2	11.2	4.15	8.56	0.050	8478694
Dissolved Potassium (K)	mg/L	2.26	4.08	0.623	4.63	1.38	0.050	8478694
Dissolved Sodium (Na)	mg/L	0.770	2.61	1.26	0.676	0.897	0.050	8478694
Dissolved Sulphur (S)	mg/L	14.0	24.5	38.6	11.4	13.4	3.0	8478694
RDL = Reportable Detection Limit								

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		QC0238	QC0239	QC0240	QC0241	QC0242		
<b>Sampling Date</b>		2016/11/16	2016/11/17 10:12	2016/11/17 10:30	2016/11/17 10:40	2016/11/17 11:27		
<b>COC Number</b>		08431186	08431186	08431186	08431186	08431186		
	<b>UNITS</b>	<b>DUP2</b>	<b>BH95G-25D</b>	<b>BH95G-25S</b>	<b>FIELD BLANK</b>	<b>BH95G-33D</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO3)	mg/L	183	582	482	<0.50	242	0.50	8478434
<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000020	8481405
<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	0.00074	0.00120	<0.00050	<0.00050	0.00135	0.00050	8480056
Dissolved Antimony (Sb)	mg/L	0.000089	0.000031	0.000032	<0.000020	0.000021	0.000020	8480056
Dissolved Arsenic (As)	mg/L	0.000084	0.000608	0.00131	<0.000020	0.000211	0.000020	8480056
Dissolved Barium (Ba)	mg/L	0.131	0.0234	0.0588	0.000038	0.101	0.000020	8480056
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000010	8480056
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8480056
Dissolved Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	8480056
Dissolved Cadmium (Cd)	mg/L	0.000134	<0.0000050	0.0000050	<0.0000050	<0.0000050	0.0000050	8480056
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	8480056
Dissolved Cobalt (Co)	mg/L	0.0000050	0.000332	0.000249	<0.0000050	<0.0000050	0.0000050	8480056
Dissolved Copper (Cu)	mg/L	0.000679	0.000069	0.000104	<0.000050	0.000076	0.000050	8480056
Dissolved Iron (Fe)	mg/L	0.0017	0.0017	0.0024	<0.0010	<0.0010	0.0010	8480056
Dissolved Lead (Pb)	mg/L	0.0000160	0.0000080	0.0000050	<0.0000050	<0.0000050	0.0000050	8480056
Dissolved Lithium (Li)	mg/L	0.00216	0.0123	0.0113	<0.00050	0.00146	0.00050	8480056
Dissolved Manganese (Mn)	mg/L	0.000165	0.390	0.382	<0.000050	0.000230	0.000050	8480056
Dissolved Molybdenum (Mo)	mg/L	0.000181	0.000333	0.00180	<0.000050	0.00121	0.000050	8480056
Dissolved Nickel (Ni)	mg/L	0.000163	0.000451	0.000537	<0.000020	0.000817	0.000020	8480056
Dissolved Phosphorus (P)	mg/L	0.0031	0.0065	0.0049	<0.0020	0.0039	0.0020	8480056
Dissolved Selenium (Se)	mg/L	0.000559	<0.000040	<0.000040	<0.000040	0.00491	0.000040	8480056
Dissolved Silicon (Si)	mg/L	3.23	5.16	5.62	<0.050	3.23	0.050	8480056
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8480056
Dissolved Strontium (Sr)	mg/L	0.169	0.546	0.463	<0.000050	0.236	0.000050	8480056
Dissolved Thallium (Tl)	mg/L	<0.0000020	0.0000020	0.0000020	<0.0000020	<0.0000020	0.0000020	8480056
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8480056
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	8480056
Dissolved Uranium (U)	mg/L	0.00197	0.00742	0.00365	<0.0000020	0.00455	0.0000020	8480056
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8480056

RDL = Reportable Detection Limit

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		QC0238	QC0239	QC0240	QC0241	QC0242		
Sampling Date		2016/11/16	2016/11/17 10:12	2016/11/17 10:30	2016/11/17 10:40	2016/11/17 11:27		
COC Number		08431186	08431186	08431186	08431186	08431186		
	UNITS	DUP2	BH95G-25D	BH95G-25S	FIELD BLANK	BH95G-33D	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	0.00656	0.00570	0.00050	<0.00010	0.00015	0.00010	8480056
Dissolved Zirconium (Zr)	mg/L	<0.00010	0.00113	<0.00010	<0.00010	<0.00010	0.00010	8480056
Dissolved Calcium (Ca)	mg/L	59.0	143	131	<0.050	82.4	0.050	8478694
Dissolved Magnesium (Mg)	mg/L	8.76	54.7	37.7	<0.050	8.73	0.050	8478694
Dissolved Potassium (K)	mg/L	1.48	4.49	6.11	<0.050	0.928	0.050	8478694
Dissolved Sodium (Na)	mg/L	0.967	2.13	2.53	<0.050	0.761	0.050	8478694
Dissolved Sulphur (S)	mg/L	14.9	85.4	59.1	<3.0	21.0	3.0	8478694
RDL = Reportable Detection Limit								

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		QC0243	QC0244	QC0245	QC0246		
Sampling Date		2016/11/17 13:30	2016/11/17 15:11	2016/11/17	2016/11/18 10:00		
COC Number		08431185	08431185	08431185	08431185		
	UNITS	BH95G-2	BH95G-21	DUP 3	TRIP BLANK	RDL	QC Batch
<b>Misc. Inorganics</b>							
Dissolved Hardness (CaCO3)	mg/L	310	200	338	<0.50	0.50	8478434
<b>Elements</b>							
Dissolved Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000020	8481405
<b>Dissolved Metals by ICPMS</b>							
Dissolved Aluminum (Al)	mg/L	0.00079	0.00069	0.00078	<0.00050	0.00050	8480657
Dissolved Antimony (Sb)	mg/L	<0.000020	0.000082	<0.000020	<0.000020	0.000020	8480657
Dissolved Arsenic (As)	mg/L	0.000118	0.000740	0.000105	<0.000020	0.000020	8480657
Dissolved Barium (Ba)	mg/L	0.0276	0.0440	0.0278	<0.000020	0.000020	8480657
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	0.000010	8480657
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8480657
Dissolved Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	0.010	8480657
Dissolved Cadmium (Cd)	mg/L	0.00155	0.0000070	0.00144	<0.0000050	0.0000050	8480657
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	8480657
Dissolved Cobalt (Co)	mg/L	<0.0000050	0.0000350	0.0000060	<0.0000050	0.0000050	8480657
Dissolved Copper (Cu)	mg/L	0.000347	0.000172	0.000412	<0.000050	0.000050	8480657
Dissolved Iron (Fe)	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	8480657
Dissolved Lead (Pb)	mg/L	0.000105	0.0000060	0.0000280	<0.0000050	0.0000050	8480657
Dissolved Lithium (Li)	mg/L	0.00135	0.00533	0.00144	<0.00050	0.00050	8480657
Dissolved Manganese (Mn)	mg/L	0.000214	0.0536	0.000214	<0.000050	0.000050	8480657
Dissolved Molybdenum (Mo)	mg/L	0.00194	0.000303	0.00190	<0.000050	0.000050	8480657
Dissolved Nickel (Ni)	mg/L	0.000432	0.000114	0.000472	<0.000020	0.000020	8480657
Dissolved Phosphorus (P)	mg/L	0.0078	0.0059	0.0145	0.0039	0.0020	8480657
Dissolved Selenium (Se)	mg/L	0.00540	<0.000040	0.00583	<0.000040	0.000040	8480657
Dissolved Silicon (Si)	mg/L	2.42	3.55	2.18	<0.050	0.050	8480657
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8480657
Dissolved Strontium (Sr)	mg/L	0.245	0.203	0.264	<0.000050	0.000050	8480657
Dissolved Thallium (Tl)	mg/L	<0.0000020	0.0000020	<0.0000020	<0.0000020	0.0000020	8480657
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8480657
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	8480657
Dissolved Uranium (U)	mg/L	0.00300	0.00448	0.00304	<0.0000020	0.0000020	8480657
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8480657
RDL = Reportable Detection Limit							

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		QC0243	QC0244	QC0245	QC0246		
Sampling Date		2016/11/17 13:30	2016/11/17 15:11	2016/11/17	2016/11/18 10:00		
COC Number		08431185	08431185	08431185	08431185		
	UNITS	BH95G-2	BH95G-21	DUP 3	TRIP BLANK	RDL	QC Batch
Dissolved Zinc (Zn)	mg/L	0.0225	0.00012	0.0237	<0.00010	0.00010	8480657
Dissolved Zirconium (Zr)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	8480657
Dissolved Calcium (Ca)	mg/L	71.8	59.5	78.0	<0.050	0.050	8478694
Dissolved Magnesium (Mg)	mg/L	31.8	12.5	34.8	<0.050	0.050	8478694
Dissolved Potassium (K)	mg/L	0.442	1.53	0.493	<0.050	0.050	8478694
Dissolved Sodium (Na)	mg/L	0.708	1.02	0.782	<0.050	0.050	8478694
Dissolved Sulphur (S)	mg/L	15.7	16.4	18.1	<3.0	3.0	8478694
RDL = Reportable Detection Limit							

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		QC0223	QC0224	QC0241		QC0246		
<b>Sampling Date</b>		2016/11/15 09:30	2016/11/15 10:18	2016/11/17 10:40		2016/11/18 10:00		
<b>COC Number</b>		08431187	08431187	08431186		08431185		
	<b>UNITS</b>	<b>MW15-03D</b>	<b>MW15-04D</b>	<b>FIELD BLANK</b>	<b>QC Batch</b>	<b>TRIP BLANK</b>	<b>RDL</b>	<b>QC Batch</b>

**Calculated Parameters**

Total Hardness (CaCO3)	mg/L	210	154	<0.50	8478433	<0.50	0.50	8478433
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**Elements**

Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	8481377	<0.0000020	0.0000020	8481364
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**Total Metals by ICPMS**

Total Aluminum (Al)	mg/L	0.0655	0.00131	<0.00050	8480609	<0.00050	0.00050	8480609
Total Antimony (Sb)	mg/L	0.000300	<0.000020	<0.000020	8480609	<0.000020	0.000020	8480609
Total Arsenic (As)	mg/L	0.00510	0.00115	<0.000020	8480609	<0.000020	0.000020	8480609
Total Barium (Ba)	mg/L	0.0596	0.0548	<0.000020	8480609	<0.000020	0.000020	8480609
Total Beryllium (Be)	mg/L	0.000021	<0.000010	<0.000010	8480609	<0.000010	0.000010	8480609
Total Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	8480609	<0.0000050	0.0000050	8480609
Total Boron (B)	mg/L	<0.010	<0.010	<0.010	8480609	<0.010	0.010	8480609
Total Cadmium (Cd)	mg/L	0.000130	0.0000270	<0.0000050	8480609	<0.0000050	0.0000050	8480609
Total Chromium (Cr)	mg/L	0.00140	<0.00010	<0.00010	8480609	<0.00010	0.00010	8480609
Total Cobalt (Co)	mg/L	0.000123	0.000233	<0.0000050	8480609	<0.0000050	0.0000050	8480609
Total Copper (Cu)	mg/L	0.00221	0.000144	<0.000050	8480609	<0.000050	0.000050	8480609
Total Iron (Fe)	mg/L	3.32	<0.0010	<0.0010	8480609	<0.0010	0.0010	8480609
Total Lead (Pb)	mg/L	0.00123	<0.0000050	<0.0000050	8480609	<0.0000050	0.0000050	8480609
Total Lithium (Li)	mg/L	0.00686	0.00102	<0.00050	8480609	<0.00050	0.00050	8480609
Total Manganese (Mn)	mg/L	0.0732	0.155	<0.000050	8480609	<0.000050	0.000050	8480609
Total Molybdenum (Mo)	mg/L	0.00361	0.00225	<0.000050	8480609	<0.000050	0.000050	8480609
Total Nickel (Ni)	mg/L	0.000497	0.000954	<0.000020	8480609	<0.000020	0.000020	8480609
Total Phosphorus (P)	mg/L	0.0392	<0.0020	<0.0020	8480609	<0.0020	0.0020	8480609
Total Selenium (Se)	mg/L	<0.000040	0.000131	<0.000040	8480609	<0.000040	0.000040	8480609
Total Silicon (Si)	mg/L	4.98	3.17	<0.050	8480609	<0.050	0.050	8480609
Total Silver (Ag)	mg/L	0.0000250	<0.0000050	<0.0000050	8480609	<0.0000050	0.0000050	8480609
Total Strontium (Sr)	mg/L	0.258	0.201	<0.000050	8480609	<0.000050	0.000050	8480609
Total Thallium (Tl)	mg/L	<0.0000020	<0.0000020	<0.0000020	8480609	<0.0000020	0.0000020	8480609
Total Tin (Sn)	mg/L	0.00046	<0.00020	<0.00020	8480609	<0.00020	0.00020	8480609
Total Titanium (Ti)	mg/L	0.00914	<0.00050	<0.00050	8480609	<0.00050	0.00050	8480609
Total Uranium (U)	mg/L	0.00306	0.000885	<0.0000020	8480609	<0.0000020	0.0000020	8480609
Total Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	8480609	<0.00020	0.00020	8480609

RDL = Reportable Detection Limit



Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		QC0223	QC0224	QC0241		QC0246		
Sampling Date		2016/11/15 09:30	2016/11/15 10:18	2016/11/17 10:40		2016/11/18 10:00		
COC Number		08431187	08431187	08431186		08431185		
	UNITS	MW15-03D	MW15-04D	FIELD BLANK	QC Batch	TRIP BLANK	RDL	QC Batch
Total Zinc (Zn)	mg/L	0.0123	0.00148	0.00012	8480609	<0.00010	0.00010	8480609
Total Zirconium (Zr)	mg/L	0.00237	<0.00010	<0.00010	8480609	<0.00010	0.00010	8480609
Total Calcium (Ca)	mg/L	57.3	53.2	<0.050	8479233	<0.050	0.050	8479233
Total Magnesium (Mg)	mg/L	16.1	5.12	<0.050	8479233	<0.050	0.050	8479233
Total Potassium (K)	mg/L	2.64	2.19	<0.050	8479233	<0.050	0.050	8479233
Total Sodium (Na)	mg/L	1.77	1.51	<0.050	8479233	<0.050	0.050	8479233
Total Sulphur (S)	mg/L	7.7	6.0	<3.0	8479233	<3.0	3.0	8479233
RDL = Reportable Detection Limit								

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		QC0222	QC0225		QC0226	QC0227		
Sampling Date		2016/11/15 09:16	2016/11/15 10:35		2016/11/15 11:35	2016/11/15 13:18		
COC Number		08431187	08431187		08431187	08431187		
	UNITS	MW15-03S	MW15-04S	RDL	MW15-05D	MW16-16D	RDL	QC Batch
<b>Calculated Parameters</b>								
Total Hardness (CaCO3)	mg/L	286	264	0.50	239	204	0.50	8478433
<b>Elements</b>								
Total Mercury (Hg)	mg/L	<0.000020	0.0000039	0.0000020	<0.0000020	<0.0000020	0.0000020	8481377
<b>Total Metals by ICPMS</b>								
Total Aluminum (Al)	mg/L	40.1	20.7	0.015	2.98	0.605	0.0030	8479895
Total Antimony (Sb)	mg/L	0.00057	0.00014	0.00010	0.000041	0.000087	0.000020	8479895
Total Arsenic (As)	mg/L	0.0595	0.0176	0.00010	0.000653	0.000368	0.000020	8479895
Total Barium (Ba)	mg/L	0.595	0.377	0.00025	0.591	0.0419	0.000050	8479895
Total Beryllium (Be)	mg/L	0.00167	0.000439	0.000050	0.000675	0.000025	0.000010	8479895
Total Bismuth (Bi)	mg/L	0.00102	0.000260	0.000050	0.000162	<0.000010	0.000010	8479895
Total Boron (B)	mg/L	<0.050	<0.050	0.050	<0.010	<0.010	0.010	8479895
Total Cadmium (Cd)	mg/L	0.00230	0.000708	0.000025	0.00354	0.0000180	0.0000050	8479895
Total Chromium (Cr)	mg/L	0.110	0.0472	0.00050	0.00301	0.00184	0.00010	8479895
Total Cobalt (Co)	mg/L	0.0537	0.0270	0.000050	0.0125	0.000517	0.000010	8479895
Total Copper (Cu)	mg/L	0.210	0.0888	0.00050	0.0225	0.00377	0.00010	8479895
Total Iron (Fe)	mg/L	83.5	63.7	0.025	10.7	1.82	0.0050	8479895
Total Lead (Pb)	mg/L	0.121	0.0263	0.00010	0.0527	0.00129	0.000020	8479895
Total Lithium (Li)	mg/L	0.0470	0.0142	0.0025	0.00264	0.00470	0.00050	8479895
Total Manganese (Mn)	mg/L	1.76	1.18	0.00050	1.36	0.0745	0.00010	8479895
Total Molybdenum (Mo)	mg/L	0.00244	0.00111	0.00025	0.000445	0.000748	0.000050	8479895
Total Nickel (Ni)	mg/L	0.143	0.0505	0.00050	0.0218	0.00149	0.00010	8479895
Total Phosphorus (P)	mg/L	3.98	1.72	0.025	0.192	0.0530	0.0050	8479895
Total Selenium (Se)	mg/L	0.00054	0.00116	0.00020	0.00103	<0.000040	0.000040	8479895
Total Silicon (Si)	mg/L	52.1	28.1	0.25	6.39	4.72	0.050	8479895
Total Silver (Ag)	mg/L	0.00125	0.000286	0.000050	0.000589	<0.000010	0.000010	8479895
Total Strontium (Sr)	mg/L	0.258	0.221	0.00025	0.313	0.269	0.000050	8479895
Total Thallium (Tl)	mg/L	0.000262	0.000085	0.000010	0.0000690	0.0000020	0.0000020	8479895
Total Tin (Sn)	mg/L	0.0015	<0.0010	0.0010	0.00022	<0.00020	0.00020	8479895
Total Titanium (Ti)	mg/L	1.78	0.998	0.010	0.0078	0.0205	0.0020	8479895
Total Uranium (U)	mg/L	0.00335	0.00134	0.000025	0.00434	0.00347	0.0000050	8479895
Total Vanadium (V)	mg/L	0.122	0.0893	0.0010	0.00335	0.00185	0.00020	8479895
RDL = Reportable Detection Limit								

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		QC0222	QC0225		QC0226	QC0227		
Sampling Date		2016/11/15 09:16	2016/11/15 10:35		2016/11/15 11:35	2016/11/15 13:18		
COC Number		08431187	08431187		08431187	08431187		
	UNITS	MW15-03S	MW15-04S	RDL	MW15-05D	MW16-16D	RDL	QC Batch
Total Zinc (Zn)	mg/L	0.366	0.147	0.0050	0.333	0.0170	0.0010	8479895
Total Zirconium (Zr)	mg/L	0.00508	0.00518	0.00050	0.00097	0.00201	0.00010	8479895
Total Calcium (Ca)	mg/L	71.5	78.8	1.3	81.6	69.6	0.25	8479233
Total Magnesium (Mg)	mg/L	26.1	16.3	1.3	8.62	7.28	0.25	8479233
Total Potassium (K)	mg/L	9.0	6.4	1.3	2.50	2.51	0.25	8479233
Total Sodium (Na)	mg/L	<1.3	<1.3	1.3	1.32	2.53	0.25	8479233
Total Sulphur (S)	mg/L	<15	<15	15	9.6	11.7	3.0	8479233
RDL = Reportable Detection Limit								

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		QC0228	QC0229	QC0230	QC0231	QC0233		
Sampling Date		2016/11/15 14:02	2016/11/15	2016/11/16 09:22	2016/11/16 11:25	2016/11/16 11:40		
COC Number		08431187	08431187	08431187	08431187	08431186		
	<b>UNITS</b>	<b>MW16-17</b>	<b>DUP 1</b>	<b>BH95G-15D</b>	<b>MW16-15D</b>	<b>MW16-15S</b>	<b>RDL</b>	<b>QC Batch</b>

**Calculated Parameters**

Total Hardness (CaCO3)	mg/L	270	175	207	201	148	0.50	8478433
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**Elements**

Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000098	0.0000020	8481377
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**Total Metals by ICPMS**

Total Aluminum (Al)	mg/L	6.18	0.145	4.67	2.46	4.28	0.0030	8479895
Total Antimony (Sb)	mg/L	0.000107	<0.000020	0.000159	0.000775	0.00643	0.000020	8479895
Total Arsenic (As)	mg/L	0.00116	0.00157	0.00433	0.0254	0.0928	0.000020	8479895
Total Barium (Ba)	mg/L	0.759	0.0656	0.227	0.0751	0.182	0.000050	8479895
Total Beryllium (Be)	mg/L	0.000372	0.000019	0.000726	0.000181	0.000247	0.000010	8479895
Total Bismuth (Bi)	mg/L	0.000064	<0.000010	0.000343	0.000246	0.000855	0.000010	8479895
Total Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	8479895
Total Cadmium (Cd)	mg/L	0.000247	0.000121	0.000435	0.00399	0.00464	0.0000050	8479895
Total Chromium (Cr)	mg/L	0.0106	0.00135	0.00548	0.00369	0.0104	0.00010	8479895
Total Cobalt (Co)	mg/L	0.00695	0.000575	0.00285	0.00178	0.00552	0.000010	8479895
Total Copper (Cu)	mg/L	0.0176	0.00245	0.0245	0.0186	0.110	0.00010	8479895
Total Iron (Fe)	mg/L	23.9	0.915	6.67	6.53	12.6	0.0050	8479895
Total Lead (Pb)	mg/L	0.00548	0.00219	0.0154	0.0213	0.346	0.000020	8479895
Total Lithium (Li)	mg/L	0.00701	0.00116	0.00684	0.00644	0.00832	0.00050	8479895
Total Manganese (Mn)	mg/L	0.700	0.279	0.191	0.304	0.320	0.00010	8479895
Total Molybdenum (Mo)	mg/L	0.000798	0.00272	0.00225	0.000815	0.00142	0.000050	8479895
Total Nickel (Ni)	mg/L	0.0163	0.00136	0.00796	0.00302	0.0136	0.00010	8479895
Total Phosphorus (P)	mg/L	0.697	0.0732	0.349	0.115	0.332	0.0050	8479895
Total Selenium (Se)	mg/L	0.000564	0.000147	0.00390	0.000185	0.00309	0.000040	8479895
Total Silicon (Si)	mg/L	14.6	2.94	10.3	6.52	9.24	0.050	8479895
Total Silver (Ag)	mg/L	0.00117	0.000019	0.000057	0.000369	0.00265	0.000010	8479895
Total Strontium (Sr)	mg/L	0.236	0.241	0.238	0.203	0.131	0.000050	8479895
Total Thallium (Tl)	mg/L	0.0000620	0.0000020	0.0000500	0.0000600	0.000116	0.0000020	8479895
Total Tin (Sn)	mg/L	0.00024	<0.00020	0.00032	0.00064	0.00054	0.00020	8479895
Total Titanium (Ti)	mg/L	0.137	0.0052	0.0782	0.115	0.256	0.0020	8479895
Total Uranium (U)	mg/L	0.00656	0.00105	0.00659	0.00545	0.00731	0.0000050	8479895
Total Vanadium (V)	mg/L	0.0135	0.00035	0.00844	0.00474	0.0118	0.00020	8479895

RDL = Reportable Detection Limit

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		QC0228	QC0229	QC0230	QC0231	QC0233		
Sampling Date		2016/11/15 14:02	2016/11/15	2016/11/16 09:22	2016/11/16 11:25	2016/11/16 11:40		
COC Number		08431187	08431187	08431187	08431187	08431186		
	UNITS	MW16-17	DUP 1	BH95G-15D	MW16-15D	MW16-15S	RDL	QC Batch
Total Zinc (Zn)	mg/L	0.117	0.0033	0.0464	0.489	0.576	0.0010	8479895
Total Zirconium (Zr)	mg/L	0.00944	0.00017	0.00019	0.00882	0.00038	0.00010	8479895
Total Calcium (Ca)	mg/L	84.6	61.5	71.1	63.9	45.0	0.25	8479233
Total Magnesium (Mg)	mg/L	14.3	5.11	7.06	10.1	8.63	0.25	8479233
Total Potassium (K)	mg/L	3.41	2.24	2.92	3.83	3.60	0.25	8479233
Total Sodium (Na)	mg/L	1.18	1.53	0.89	1.88	0.92	0.25	8479233
Total Sulphur (S)	mg/L	12.2	6.2	4.7	23.2	14.5	3.0	8479233
RDL = Reportable Detection Limit								

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		QC0234	QC0235	QC0236	QC0237	QC0238		
Sampling Date		2016/11/16 12:20	2016/11/16 13:24	2016/11/16 14:18	2016/11/16 14:48	2016/11/16		
COC Number		08431186	08431186	08431186	08431186	08431186		
	UNITS	MW15-11S	MW15-01	BH95G-32	BH95G-22	DUP2	RDL	QC Batch
<b>Calculated Parameters</b>								
Total Hardness (CaCO3)	mg/L	306	275	210	192	185	0.50	8478433
<b>Elements</b>								
Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	0.0000075	0.0000046	0.0000020	8481377
<b>Total Metals by ICPMS</b>								
Total Aluminum (Al)	mg/L	0.128	1.78	1.35	2.83	2.01	0.0030	8479895
Total Antimony (Sb)	mg/L	0.000062	0.000138	0.000096	0.000748	0.000649	0.000020	8479895
Total Arsenic (As)	mg/L	0.000584	0.00260	0.00141	0.0130	0.00979	0.000020	8479895
Total Barium (Ba)	mg/L	0.0427	0.0681	0.233	0.206	0.193	0.000050	8479895
Total Beryllium (Be)	mg/L	0.000018	0.000085	0.000101	0.000178	0.000143	0.000010	8479895
Total Bismuth (Bi)	mg/L	<0.000010	0.000054	0.000038	0.000312	0.000225	0.000010	8479895
Total Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	8479895
Total Cadmium (Cd)	mg/L	0.000108	0.000150	0.000145	0.00193	0.00143	0.000050	8479895
Total Chromium (Cr)	mg/L	0.00061	0.00426	0.00300	0.00568	0.00379	0.00010	8479895
Total Cobalt (Co)	mg/L	0.000347	0.00358	0.00147	0.00535	0.00367	0.000010	8479895
Total Copper (Cu)	mg/L	0.00156	0.0133	0.00600	0.0582	0.0447	0.00010	8479895
Total Iron (Fe)	mg/L	1.57	8.59	3.14	11.3	7.79	0.0050	8479895
Total Lead (Pb)	mg/L	0.00106	0.00257	0.00552	0.0377	0.0264	0.000020	8479895
Total Lithium (Li)	mg/L	0.00960	0.00312	0.00209	0.00474	0.00372	0.00050	8479895
Total Manganese (Mn)	mg/L	0.256	0.109	0.163	0.564	0.336	0.00010	8479895
Total Molybdenum (Mo)	mg/L	0.000592	0.000793	0.000774	0.000588	0.000464	0.000050	8479895
Total Nickel (Ni)	mg/L	0.00076	0.0126	0.00324	0.00992	0.00642	0.00010	8479895
Total Phosphorus (P)	mg/L	0.0333	0.207	0.0515	0.396	0.282	0.0050	8479895
Total Selenium (Se)	mg/L	<0.000040	0.000936	0.00105	0.000693	0.000719	0.000040	8479895
Total Silicon (Si)	mg/L	4.49	4.34	5.02	7.41	6.04	0.050	8479895
Total Silver (Ag)	mg/L	0.000244	0.00171	0.000134	0.000823	0.000643	0.000010	8479895
Total Strontium (Sr)	mg/L	0.534	0.247	0.277	0.180	0.174	0.000050	8479895
Total Thallium (Tl)	mg/L	0.0000120	0.0000230	0.0000170	0.0000420	0.0000290	0.0000020	8479895
Total Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	0.00054	0.00041	0.00020	8479895
Total Titanium (Ti)	mg/L	0.0086	0.107	0.165	0.156	0.0975	0.0020	8479895
Total Uranium (U)	mg/L	0.0120	0.00401	0.00125	0.00248	0.00236	0.0000050	8479895
Total Vanadium (V)	mg/L	0.00046	0.0105	0.00718	0.0110	0.00692	0.00020	8479895
RDL = Reportable Detection Limit								

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		QC0234	QC0235	QC0236	QC0237	QC0238		
Sampling Date		2016/11/16 12:20	2016/11/16 13:24	2016/11/16 14:18	2016/11/16 14:48	2016/11/16		
COC Number		08431186	08431186	08431186	08431186	08431186		
	UNITS	MW15-11S	MW15-01	BH95G-32	BH95G-22	DUP2	RDL	QC Batch
Total Zinc (Zn)	mg/L	0.0058	0.0518	0.0147	0.185	0.133	0.0010	8479895
Total Zirconium (Zr)	mg/L	0.00182	0.00259	0.00078	0.00075	0.00050	0.00010	8479895
Total Calcium (Ca)	mg/L	81.6	90.3	76.5	59.4	58.1	0.25	8479233
Total Magnesium (Mg)	mg/L	24.9	12.1	4.65	10.6	9.76	0.25	8479233
Total Potassium (K)	mg/L	4.19	0.98	4.71	2.21	1.95	0.25	8479233
Total Sodium (Na)	mg/L	2.70	1.30	0.74	1.03	1.03	0.25	8479233
Total Sulphur (S)	mg/L	27.2	37.0	11.1	15.2	14.6	3.0	8479233
RDL = Reportable Detection Limit								

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		QC0239	QC0240	QC0242		QC0243		
Sampling Date		2016/11/17 10:12	2016/11/17 10:30	2016/11/17 11:27		2016/11/17 13:30		
COC Number		08431186	08431186	08431186		08431185		
	<b>UNITS</b>	<b>BH95G-25D</b>	<b>BH95G-25S</b>	<b>BH95G-33D</b>	<b>QC Batch</b>	<b>BH95G-2</b>	<b>RDL</b>	<b>QC Batch</b>

**Calculated Parameters**

Total Hardness (CaCO3)	mg/L	598	514	240	8478433	327	0.50	8478433
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**Elements**

Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	8481377	<0.0000020	0.0000020	8481364
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**Total Metals by ICPMS**

Total Aluminum (Al)	mg/L	0.669	9.17	1.14	8479895	0.614	0.0030	8479895
Total Antimony (Sb)	mg/L	0.000146	0.000235	0.000056	8479895	0.000079	0.000020	8479895
Total Arsenic (As)	mg/L	0.00222	0.0180	0.00379	8479895	0.00144	0.000020	8479895
Total Barium (Ba)	mg/L	0.0832	0.257	0.119	8479895	0.0429	0.000050	8479895
Total Beryllium (Be)	mg/L	0.000128	0.00100	0.000076	8479895	0.000037	0.000010	8479895
Total Bismuth (Bi)	mg/L	0.000054	0.000482	0.000018	8479895	0.000022	0.000010	8479895
Total Boron (B)	mg/L	<0.010	<0.010	<0.010	8479895	<0.010	0.010	8479895
Total Cadmium (Cd)	mg/L	0.0000770	0.000567	0.0000310	8479895	0.00305	0.0000050	8479895
Total Chromium (Cr)	mg/L	0.00078	0.0191	0.00181	8479895	0.00152	0.00010	8479895
Total Cobalt (Co)	mg/L	0.000888	0.00730	0.00264	8479895	0.00180	0.000010	8479895
Total Copper (Cu)	mg/L	0.00271	0.0259	0.00887	8479895	0.0135	0.00010	8479895
Total Iron (Fe)	mg/L	3.43	22.7	3.14	8479895	2.03	0.0050	8479895
Total Lead (Pb)	mg/L	0.00375	0.0286	0.00151	8479895	0.00952	0.000020	8479895
Total Lithium (Li)	mg/L	0.0128	0.0236	0.00209	8479895	0.00248	0.00050	8479895
Total Manganese (Mn)	mg/L	0.431	0.629	0.111	8479895	0.0480	0.00010	8479895
Total Molybdenum (Mo)	mg/L	0.000424	0.00186	0.00121	8479895	0.00194	0.000050	8479895
Total Nickel (Ni)	mg/L	0.00140	0.0171	0.0120	8479895	0.00666	0.00010	8479895
Total Phosphorus (P)	mg/L	0.0706	0.611	0.0646	8479895	0.214	0.0050	8479895
Total Selenium (Se)	mg/L	<0.000040	0.000084	0.00456	8479895	0.00593	0.000040	8479895
Total Silicon (Si)	mg/L	6.63	20.4	4.47	8479895	3.10	0.050	8479895
Total Silver (Ag)	mg/L	0.000022	0.000095	0.000051	8479895	0.000080	0.000010	8479895
Total Strontium (Sr)	mg/L	0.576	0.546	0.239	8479895	0.261	0.000050	8479895
Total Thallium (Tl)	mg/L	0.0000110	0.000121	0.0000140	8479895	0.0000100	0.0000020	8479895
Total Tin (Sn)	mg/L	<0.00020	0.00031	<0.00020	8479895	<0.00020	0.00020	8479895
Total Titanium (Ti)	mg/L	0.0215	0.241	0.0419	8479895	0.0177	0.0020	8479895
Total Uranium (U)	mg/L	0.00800	0.00676	0.00428	8479895	0.00318	0.0000050	8479895
Total Vanadium (V)	mg/L	0.00122	0.0252	0.00406	8479895	0.00268	0.00020	8479895

RDL = Reportable Detection Limit



Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		QC0239	QC0240	QC0242		QC0243		
Sampling Date		2016/11/17 10:12	2016/11/17 10:30	2016/11/17 11:27		2016/11/17 13:30		
COC Number		08431186	08431186	08431186		08431185		
	UNITS	BH95G-25D	BH95G-25S	BH95G-33D	QC Batch	BH95G-2	RDL	QC Batch
Total Zinc (Zn)	mg/L	0.0484	0.0796	0.0185	8479895	0.136	0.0010	8479895
Total Zirconium (Zr)	mg/L	0.00128	0.00053	0.00074	8479895	0.00033	0.00010	8479895
Total Calcium (Ca)	mg/L	145	130	80.4	8479233	76.8	0.25	8479233
Total Magnesium (Mg)	mg/L	57.1	46.0	9.45	8479233	32.9	0.25	8479233
Total Potassium (K)	mg/L	4.86	9.45	1.16	8479233	0.64	0.25	8479233
Total Sodium (Na)	mg/L	2.22	2.86	0.76	8479233	0.78	0.25	8479233
Total Sulphur (S)	mg/L	90.7	63.7	20.9	8479233	17.8	3.0	8479233
RDL = Reportable Detection Limit								

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		QC0244	QC0245		
Sampling Date		2016/11/17 15:11	2016/11/17		
COC Number		08431185	08431185		
	UNITS	BH95G-21	DUP 3	RDL	QC Batch
<b>Calculated Parameters</b>					
Total Hardness (CaCO3)	mg/L	244	316	0.50	8478433
<b>Elements</b>					
Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	0.0000020	8481364
<b>Total Metals by ICPMS</b>					
Total Aluminum (Al)	mg/L	5.18	0.926	0.0030	8479895
Total Antimony (Sb)	mg/L	0.000646	0.000094	0.000020	8479895
Total Arsenic (As)	mg/L	0.0105	0.00188	0.000020	8479895
Total Barium (Ba)	mg/L	1.40	0.0456	0.000050	8479895
Total Beryllium (Be)	mg/L	0.000411	0.000044	0.000010	8479895
Total Bismuth (Bi)	mg/L	0.000503	0.000035	0.000010	8479895
Total Boron (B)	mg/L	<0.010	<0.010	0.010	8479895
Total Cadmium (Cd)	mg/L	0.000208	0.00323	0.0000050	8479895
Total Chromium (Cr)	mg/L	0.00883	0.00235	0.00010	8479895
Total Cobalt (Co)	mg/L	0.00491	0.00210	0.000010	8479895
Total Copper (Cu)	mg/L	0.0532	0.0152	0.00010	8479895
Total Iron (Fe)	mg/L	20.4	2.39	0.0050	8479895
Total Lead (Pb)	mg/L	0.0238	0.00790	0.000020	8479895
Total Lithium (Li)	mg/L	0.0104	0.00242	0.00050	8479895
Total Manganese (Mn)	mg/L	0.225	0.0562	0.00010	8479895
Total Molybdenum (Mo)	mg/L	0.000328	0.00204	0.000050	8479895
Total Nickel (Ni)	mg/L	0.00977	0.00794	0.00010	8479895
Total Phosphorus (P)	mg/L	0.417	0.188	0.0050	8479895
Total Selenium (Se)	mg/L	0.000372	0.00603	0.000040	8479895
Total Silicon (Si)	mg/L	11.1	3.81	0.050	8479895
Total Silver (Ag)	mg/L	0.000346	0.000052	0.000010	8479895
Total Strontium (Sr)	mg/L	0.256	0.254	0.000050	8479895
Total Thallium (Tl)	mg/L	0.0000680	0.0000100	0.0000020	8479895
Total Tin (Sn)	mg/L	<0.00020	<0.00020	0.00020	8479895
Total Titanium (Ti)	mg/L	0.153	0.0370	0.0020	8479895
Total Uranium (U)	mg/L	0.00644	0.00326	0.0000050	8479895
Total Vanadium (V)	mg/L	0.0142	0.00450	0.00020	8479895
RDL = Reportable Detection Limit					

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		QC0244	QC0245		
Sampling Date		2016/11/17 15:11	2016/11/17		
COC Number		08431185	08431185		
	UNITS	BH95G-21	DUP 3	RDL	QC Batch
Total Zinc (Zn)	mg/L	0.126	0.152	0.0010	8479895
Total Zirconium (Zr)	mg/L	0.00605	0.00070	0.00010	8479895
Total Calcium (Ca)	mg/L	71.9	74.1	0.25	8479233
Total Magnesium (Mg)	mg/L	15.7	31.9	0.25	8479233
Total Potassium (K)	mg/L	2.99	0.68	0.25	8479233
Total Sodium (Na)	mg/L	1.14	0.71	0.25	8479233
Total Sulphur (S)	mg/L	17.4	17.7	3.0	8479233
RDL = Reportable Detection Limit					

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**TEST SUMMARY**

**Maxxam ID:** QC0222  
**Sample ID:** MW15-03S  
**Matrix:** Water

**Collected:** 2016/11/15  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8480151	N/A	2016/11/22	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8480127	2016/11/22	2016/11/22	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8480679	N/A	2016/11/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8481790	N/A	2016/11/23	Isabel Choi
Conductance - water	AT/ALK	8480142	N/A	2016/11/22	Maria Maclean
Fluoride	ISE/ISE	8481740	N/A	2016/11/22	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8478433	N/A	2016/11/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8478434	N/A	2016/11/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8481384	N/A	2016/11/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8481377	2016/11/23	2016/11/23	Edwin Lamigo
Ion Balance	CALC	8479231	N/A	2016/11/23	Automated Statchk
Sum of cations, anions	CALC	8479232	N/A	2016/11/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8478694	N/A	2016/11/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8480056	N/A	2016/11/22	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8479895	2016/11/22	2016/11/22	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8479233	N/A	2016/11/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8480385	N/A	2016/11/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8481541	N/A	2016/11/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8481544	N/A	2016/11/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8478849	N/A	2016/11/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8479659	N/A	2016/11/22	Lucy Luo
pH Water	AT/ALK	8480143	N/A	2016/11/22	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8480681	N/A	2016/11/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8480235	2016/11/22	2016/11/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8480243	N/A	2016/11/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8479536	2016/11/22	2016/11/23	Jamie Sun

**Maxxam ID:** QC0222 Dup  
**Sample ID:** MW15-03S  
**Matrix:** Water

**Collected:** 2016/11/15  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8480056	N/A	2016/11/22	Andrew An

**Maxxam ID:** QC0223  
**Sample ID:** MW15-03D  
**Matrix:** Water

**Collected:** 2016/11/15  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8480151	N/A	2016/11/22	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8480127	2016/11/22	2016/11/22	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8480679	N/A	2016/11/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8481791	N/A	2016/11/23	Isabel Choi
Conductance - water	AT/ALK	8480142	N/A	2016/11/22	Maria Maclean

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**TEST SUMMARY**

**Maxxam ID:** QC0223  
**Sample ID:** MW15-03D  
**Matrix:** Water

**Collected:** 2016/11/15  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Fluoride	ISE/ISE	8481740	N/A	2016/11/22	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8478433	N/A	2016/11/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8478434	N/A	2016/11/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8481384	N/A	2016/11/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8481377	2016/11/23	2016/11/23	Edwin Lamigo
Ion Balance	CALC	8479231	N/A	2016/11/23	Automated Statchk
Sum of cations, anions	CALC	8479232	N/A	2016/11/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8478694	N/A	2016/11/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8480056	N/A	2016/11/22	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8479233	N/A	2016/11/23	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8480609	N/A	2016/11/22	Andrew An
Ammonia-N (Preserved)	KONE/COL	8480387	N/A	2016/11/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8481541	N/A	2016/11/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8481544	N/A	2016/11/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8478849	N/A	2016/11/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8479659	N/A	2016/11/22	Lucy Luo
pH Water	AT/ALK	8480143	N/A	2016/11/22	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8480681	N/A	2016/11/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8480235	2016/11/22	2016/11/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8480243	N/A	2016/11/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8479536	2016/11/22	2016/11/23	Jamie Sun

**Maxxam ID:** QC0224  
**Sample ID:** MW15-04D  
**Matrix:** Water

**Collected:** 2016/11/15  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8480151	N/A	2016/11/22	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8480127	2016/11/22	2016/11/22	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8480679	N/A	2016/11/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8481791	N/A	2016/11/23	Isabel Choi
Conductance - water	AT/ALK	8480142	N/A	2016/11/22	Maria Maclean
Fluoride	ISE/ISE	8481740	N/A	2016/11/22	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8478433	N/A	2016/11/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8478434	N/A	2016/11/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8481384	N/A	2016/11/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8481377	2016/11/23	2016/11/23	Edwin Lamigo
Ion Balance	CALC	8479231	N/A	2016/11/23	Automated Statchk
Sum of cations, anions	CALC	8479232	N/A	2016/11/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8478694	N/A	2016/11/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8480056	N/A	2016/11/22	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8479233	N/A	2016/11/23	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8480609	N/A	2016/11/23	Andrew An
Ammonia-N (Preserved)	KONE/COL	8480385	N/A	2016/11/22	Clare Kwok

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**TEST SUMMARY**

**Maxxam ID:** QC0224  
**Sample ID:** MW15-04D  
**Matrix:** Water

**Collected:** 2016/11/15  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrate+Nitrite (N) (low level)	TRAA/COL	8481541	N/A	2016/11/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8481544	N/A	2016/11/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8478849	N/A	2016/11/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8479659	N/A	2016/11/22	Lucy Luo
pH Water	AT/ALK	8480143	N/A	2016/11/22	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8480681	N/A	2016/11/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8480235	2016/11/22	2016/11/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8480243	N/A	2016/11/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8479536	2016/11/22	2016/11/23	Jamie Sun

**Maxxam ID:** QC0225  
**Sample ID:** MW15-04S  
**Matrix:** Water

**Collected:** 2016/11/15  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8480151	N/A	2016/11/22	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8480127	2016/11/22	2016/11/22	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8480679	N/A	2016/11/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8481790	N/A	2016/11/23	Isabel Choi
Conductance - water	AT/ALK	8480142	N/A	2016/11/22	Maria Maclean
Fluoride	ISE/ISE	8481740	N/A	2016/11/22	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8478433	N/A	2016/11/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8478434	N/A	2016/11/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8481384	N/A	2016/11/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAF	CV/AF	8481377	2016/11/23	2016/11/23	Edwin Lamigo
Ion Balance	CALC	8479231	N/A	2016/11/23	Automated Statchk
Sum of cations, anions	CALC	8479232	N/A	2016/11/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8478694	N/A	2016/11/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8480056	N/A	2016/11/22	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8479895	2016/11/22	2016/11/22	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8479233	N/A	2016/11/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8480387	N/A	2016/11/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8481541	N/A	2016/11/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8481544	N/A	2016/11/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8478849	N/A	2016/11/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8479659	N/A	2016/11/22	Lucy Luo
pH Water	AT/ALK	8480143	N/A	2016/11/22	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8480681	N/A	2016/11/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8480235	2016/11/22	2016/11/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8480243	N/A	2016/11/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8479536	2016/11/22	2016/11/23	Jamie Sun

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** QC0226  
**Sample ID:** MW15-05D  
**Matrix:** Water

**Collected:** 2016/11/15  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8480151	N/A	2016/11/22	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8480127	2016/11/22	2016/11/22	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8480679	N/A	2016/11/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8481792	N/A	2016/11/23	Isabel Choi
Conductance - water	AT/ALK	8480142	N/A	2016/11/22	Maria Maclean
Fluoride	ISE/ISE	8481740	N/A	2016/11/22	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8478433	N/A	2016/11/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8478434	N/A	2016/11/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8481405	N/A	2016/11/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8481377	2016/11/23	2016/11/23	Edwin Lamigo
Ion Balance	CALC	8479231	N/A	2016/11/23	Automated Statchk
Sum of cations, anions	CALC	8479232	N/A	2016/11/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8478694	N/A	2016/11/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8480056	N/A	2016/11/22	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8479895	2016/11/22	2016/11/22	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8479233	N/A	2016/11/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8480387	N/A	2016/11/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8481541	N/A	2016/11/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8481544	N/A	2016/11/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8478849	N/A	2016/11/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8479659	N/A	2016/11/22	Lucy Luo
pH Water	AT/ALK	8480143	N/A	2016/11/22	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8480681	N/A	2016/11/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8480235	2016/11/22	2016/11/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8480243	N/A	2016/11/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8479536	2016/11/22	2016/11/23	Jamie Sun

**Maxxam ID:** QC0227  
**Sample ID:** MW16-16D  
**Matrix:** Water

**Collected:** 2016/11/15  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8480151	N/A	2016/11/22	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8480127	2016/11/22	2016/11/22	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8480679	N/A	2016/11/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8481791	N/A	2016/11/23	Isabel Choi
Conductance - water	AT/ALK	8480142	N/A	2016/11/22	Maria Maclean
Fluoride	ISE/ISE	8481740	N/A	2016/11/22	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8478433	N/A	2016/11/22	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8482302	N/A	2016/11/24	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8481405	N/A	2016/11/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8481377	2016/11/23	2016/11/23	Edwin Lamigo
Ion Balance	CALC	8479231	N/A	2016/11/23	Rob Reinert
Sum of cations, anions	CALC	8479232	N/A	2016/11/23	Automated Statchk



Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** QC0227  
**Sample ID:** MW16-16D  
**Matrix:** Water

**Collected:** 2016/11/15  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8481324	N/A	2016/11/24	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8480056	N/A	2016/11/22	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8479895	2016/11/22	2016/11/22	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8479233	N/A	2016/11/22	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8480387	N/A	2016/11/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8481541	N/A	2016/11/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8481544	N/A	2016/11/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8478849	N/A	2016/11/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8479659	N/A	2016/11/22	Lucy Luo
pH Water	AT/ALK	8480143	N/A	2016/11/22	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8480681	N/A	2016/11/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8480235	2016/11/22	2016/11/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8480243	N/A	2016/11/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8479536	2016/11/22	2016/11/23	Jamie Sun

**Maxxam ID:** QC0227 Dup  
**Sample ID:** MW16-16D  
**Matrix:** Water

**Collected:** 2016/11/15  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Elements by ICPMS Digested LL (total)	ICP/CRCM	8479895	2016/11/22	2016/11/22	Andrew An

**Maxxam ID:** QC0228  
**Sample ID:** MW16-17  
**Matrix:** Water

**Collected:** 2016/11/15  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8480151	N/A	2016/11/22	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8480148	2016/11/22	2016/11/22	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8480679	N/A	2016/11/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8481790	N/A	2016/11/23	Isabel Choi
Conductance - water	AT/ALK	8480153	N/A	2016/11/22	Maria Maclean
Fluoride	ISE/ISE	8481740	N/A	2016/11/22	Isaac Wang
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8478433	N/A	2016/11/23	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8478434	N/A	2016/11/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8481405	N/A	2016/11/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8481377	2016/11/23	2016/11/23	Edwin Lamigo
Ion Balance	CALC	8479231	N/A	2016/11/23	Automated Statchk
Sum of cations, anions	CALC	8479232	N/A	2016/11/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8478694	N/A	2016/11/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8480056	N/A	2016/11/22	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8479895	2016/11/22	2016/11/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8479233	N/A	2016/11/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8480387	N/A	2016/11/22	Clare Kwok



Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** QC0228  
**Sample ID:** MW16-17  
**Matrix:** Water

**Collected:** 2016/11/15  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrate+Nitrite (N) (low level)	TRAA/COL	8481541	N/A	2016/11/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8481544	N/A	2016/11/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8478849	N/A	2016/11/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8479659	N/A	2016/11/22	Lucy Luo
pH Water	AT/ALK	8480154	N/A	2016/11/22	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8480681	N/A	2016/11/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8480235	2016/11/22	2016/11/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8480243	N/A	2016/11/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8479536	2016/11/22	2016/11/23	Jamie Sun

**Maxxam ID:** QC0229  
**Sample ID:** DUP 1  
**Matrix:** Water

**Collected:** 2016/11/15  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8480151	N/A	2016/11/22	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8480148	2016/11/22	2016/11/22	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8480679	N/A	2016/11/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8481792	N/A	2016/11/23	Isabel Choi
Conductance - water	AT/ALK	8480153	N/A	2016/11/22	Maria Maclean
Fluoride	ISE/ISE	8481740	N/A	2016/11/22	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8478433	N/A	2016/11/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8478434	N/A	2016/11/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8481405	N/A	2016/11/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8481377	2016/11/23	2016/11/23	Edwin Lamigo
Ion Balance	CALC	8479231	N/A	2016/11/23	Automated Statchk
Sum of cations, anions	CALC	8479232	N/A	2016/11/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8478694	N/A	2016/11/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8480056	N/A	2016/11/22	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8479895	2016/11/22	2016/11/22	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8479233	N/A	2016/11/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8480387	N/A	2016/11/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8481541	N/A	2016/11/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8481544	N/A	2016/11/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8478849	N/A	2016/11/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8479659	N/A	2016/11/22	Lucy Luo
pH Water	AT/ALK	8480154	N/A	2016/11/22	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8480681	N/A	2016/11/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8483715	2016/11/24	2016/11/24	Diana Cruz
Total Phosphorus - unpreserved	KONE/COL	8483722	N/A	2016/11/24	Diana Cruz
Total Suspended Solids-Low Level	BAL/BAL	8479536	2016/11/22	2016/11/23	Jamie Sun

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** QC0230  
**Sample ID:** BH95G-15D  
**Matrix:** Water

**Collected:** 2016/11/16  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8480155	N/A	2016/11/22	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8480148	2016/11/22	2016/11/22	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8480682	N/A	2016/11/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8481790	N/A	2016/11/23	Isabel Choi
Conductance - water	AT/ALK	8480153	N/A	2016/11/22	Maria Maclean
Fluoride	ISE/ISE	8481748	N/A	2016/11/22	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8478433	N/A	2016/11/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8478434	N/A	2016/11/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8481405	N/A	2016/11/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8481377	2016/11/23	2016/11/23	Edwin Lamigo
Ion Balance	CALC	8479231	N/A	2016/11/23	Automated Statchk
Sum of cations, anions	CALC	8479232	N/A	2016/11/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8478694	N/A	2016/11/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8480056	N/A	2016/11/22	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8479895	2016/11/22	2016/11/22	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8479233	N/A	2016/11/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8480387	N/A	2016/11/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8481548	N/A	2016/11/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8481550	N/A	2016/11/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8478849	N/A	2016/11/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8479659	N/A	2016/11/22	Lucy Luo
pH Water	AT/ALK	8480154	N/A	2016/11/22	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8480684	N/A	2016/11/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8480247	2016/11/22	2016/11/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8480253	N/A	2016/11/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8479539	2016/11/22	2016/11/23	Tim Matsushita

**Maxxam ID:** QC0231  
**Sample ID:** MW16-15D  
**Matrix:** Water

**Collected:** 2016/11/16  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8480151	N/A	2016/11/22	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8480148	2016/11/22	2016/11/22	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8480679	N/A	2016/11/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8481790	N/A	2016/11/23	Isabel Choi
Conductance - water	AT/ALK	8480153	N/A	2016/11/22	Maria Maclean
Fluoride	ISE/ISE	8481740	N/A	2016/11/22	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8478433	N/A	2016/11/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8478434	N/A	2016/11/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8481405	N/A	2016/11/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8481377	2016/11/23	2016/11/23	Edwin Lamigo
Ion Balance	CALC	8479231	N/A	2016/11/23	Automated Statchk
Sum of cations, anions	CALC	8479232	N/A	2016/11/23	Automated Statchk

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** QC0231  
**Sample ID:** MW16-15D  
**Matrix:** Water

**Collected:** 2016/11/16  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8478694	N/A	2016/11/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8480056	N/A	2016/11/22	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8479895	2016/11/22	2016/11/22	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8479233	N/A	2016/11/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8480387	N/A	2016/11/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8481548	N/A	2016/11/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8481550	N/A	2016/11/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8478849	N/A	2016/11/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8479659	N/A	2016/11/22	Lucy Luo
pH Water	AT/ALK	8480154	N/A	2016/11/22	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8480681	N/A	2016/11/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8480235	2016/11/22	2016/11/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8480243	N/A	2016/11/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8479539	2016/11/22	2016/11/23	Tim Matsushita

**Maxxam ID:** QC0233  
**Sample ID:** MW16-15S  
**Matrix:** Water

**Collected:** 2016/11/16  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8480151	N/A	2016/11/22	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8480148	2016/11/22	2016/11/22	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8480679	N/A	2016/11/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8481792	N/A	2016/11/23	Isabel Choi
Conductance - water	AT/ALK	8480153	N/A	2016/11/22	Maria Maclean
Fluoride	ISE/ISE	8481740	N/A	2016/11/22	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8478433	N/A	2016/11/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8478434	N/A	2016/11/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8481405	N/A	2016/11/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8481377	2016/11/23	2016/11/23	Edwin Lamigo
Ion Balance	CALC	8479231	N/A	2016/11/23	Automated Statchk
Sum of cations, anions	CALC	8479232	N/A	2016/11/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8478694	N/A	2016/11/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8480056	N/A	2016/11/22	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8479895	2016/11/22	2016/11/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8479233	N/A	2016/11/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8480387	N/A	2016/11/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8481541	N/A	2016/11/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8481544	N/A	2016/11/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8478849	N/A	2016/11/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8479659	N/A	2016/11/22	Lucy Luo
pH Water	AT/ALK	8480154	N/A	2016/11/22	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8480681	N/A	2016/11/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8480235	2016/11/22	2016/11/22	Isabel Choi

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** QC0233  
**Sample ID:** MW16-15S  
**Matrix:** Water

**Collected:** 2016/11/16  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Phosphorus - unpreserved	KONE/COL	8480243	N/A	2016/11/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8479539	2016/11/22	2016/11/23	Tim Matsushita

**Maxxam ID:** QC0234  
**Sample ID:** MW15-11S  
**Matrix:** Water

**Collected:** 2016/11/16  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8480155	N/A	2016/11/22	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8480148	2016/11/22	2016/11/22	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8480682	N/A	2016/11/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8481790	N/A	2016/11/23	Isabel Choi
Conductance - water	AT/ALK	8480153	N/A	2016/11/22	Maria Maclean
Fluoride	ISE/ISE	8481748	N/A	2016/11/22	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8478433	N/A	2016/11/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8478434	N/A	2016/11/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8481405	N/A	2016/11/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8481377	2016/11/23	2016/11/23	Edwin Lamigo
Ion Balance	CALC	8479231	N/A	2016/11/23	Automated Statchk
Sum of cations, anions	CALC	8479232	N/A	2016/11/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8478694	N/A	2016/11/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8480056	N/A	2016/11/22	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8479895	2016/11/22	2016/11/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8479233	N/A	2016/11/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8480387	N/A	2016/11/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8481548	N/A	2016/11/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8481550	N/A	2016/11/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8478849	N/A	2016/11/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8479659	N/A	2016/11/22	Lucy Luo
pH Water	AT/ALK	8480154	N/A	2016/11/22	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8480684	N/A	2016/11/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8480247	2016/11/22	2016/11/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8480253	N/A	2016/11/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8479539	2016/11/22	2016/11/23	Tim Matsushita

**Maxxam ID:** QC0235  
**Sample ID:** MW15-01  
**Matrix:** Water

**Collected:** 2016/11/16  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8480151	N/A	2016/11/22	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8480148	2016/11/22	2016/11/22	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8480679	N/A	2016/11/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8481792	N/A	2016/11/23	Isabel Choi

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** QC0235  
**Sample ID:** MW15-01  
**Matrix:** Water

**Collected:** 2016/11/16  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductance - water	AT/ALK	8480153	N/A	2016/11/22	Maria Maclean
Fluoride	ISE/ISE	8481740	N/A	2016/11/22	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8478433	N/A	2016/11/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8478434	N/A	2016/11/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8481405	N/A	2016/11/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8481377	2016/11/23	2016/11/23	Edwin Lamigo
Ion Balance	CALC	8479231	N/A	2016/11/23	Automated Statchk
Sum of cations, anions	CALC	8479232	N/A	2016/11/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8478694	N/A	2016/11/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8480056	N/A	2016/11/22	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8479895	2016/11/22	2016/11/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8479233	N/A	2016/11/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8480387	N/A	2016/11/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8481548	N/A	2016/11/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8481550	N/A	2016/11/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8478849	N/A	2016/11/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8479659	N/A	2016/11/22	Lucy Luo
pH Water	AT/ALK	8480154	N/A	2016/11/22	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8480681	N/A	2016/11/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8480235	2016/11/22	2016/11/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8480243	N/A	2016/11/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8479539	2016/11/22	2016/11/23	Tim Matsushita

**Maxxam ID:** QC0236  
**Sample ID:** BH95G-32  
**Matrix:** Water

**Collected:** 2016/11/16  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8480151	N/A	2016/11/22	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8480148	2016/11/22	2016/11/22	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8480679	N/A	2016/11/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8481791	N/A	2016/11/23	Isabel Choi
Conductance - water	AT/ALK	8480153	N/A	2016/11/22	Maria Maclean
Fluoride	ISE/ISE	8481740	N/A	2016/11/22	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8478433	N/A	2016/11/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8478434	N/A	2016/11/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8481405	N/A	2016/11/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8481377	2016/11/23	2016/11/23	Edwin Lamigo
Ion Balance	CALC	8479231	N/A	2016/11/23	Automated Statchk
Sum of cations, anions	CALC	8479232	N/A	2016/11/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8478694	N/A	2016/11/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8480056	N/A	2016/11/22	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8479895	2016/11/22	2016/11/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8479233	N/A	2016/11/23	Automated Statchk

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** QC0236  
**Sample ID:** BH95G-32  
**Matrix:** Water

**Collected:** 2016/11/16  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Ammonia-N (Preserved)	KONE/COL	8480387	N/A	2016/11/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8481548	N/A	2016/11/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8481550	N/A	2016/11/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8478849	N/A	2016/11/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8479659	N/A	2016/11/22	Lucy Luo
pH Water	AT/ALK	8480154	N/A	2016/11/22	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8480681	N/A	2016/11/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8480235	2016/11/22	2016/11/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8480243	N/A	2016/11/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8479539	2016/11/22	2016/11/23	Tim Matsushita

**Maxxam ID:** QC0237  
**Sample ID:** BH95G-22  
**Matrix:** Water

**Collected:** 2016/11/16  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8480151	N/A	2016/11/22	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8480127	2016/11/22	2016/11/22	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8480679	N/A	2016/11/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8481792	N/A	2016/11/23	Isabel Choi
Conductance - water	AT/ALK	8480142	N/A	2016/11/22	Maria Maclean
Fluoride	ISE/ISE	8481740	N/A	2016/11/22	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8478433	N/A	2016/11/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8478434	N/A	2016/11/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8481405	N/A	2016/11/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAF	CV/AF	8481377	2016/11/23	2016/11/23	Edwin Lamigo
Ion Balance	CALC	8479231	N/A	2016/11/23	Automated Statchk
Sum of cations, anions	CALC	8479232	N/A	2016/11/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8478694	N/A	2016/11/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8480056	N/A	2016/11/22	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8479895	2016/11/22	2016/11/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8479233	N/A	2016/11/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8480387	N/A	2016/11/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8481541	N/A	2016/11/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8481544	N/A	2016/11/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8478849	N/A	2016/11/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8479659	N/A	2016/11/22	Lucy Luo
pH Water	AT/ALK	8480143	N/A	2016/11/22	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8480681	N/A	2016/11/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8480235	2016/11/22	2016/11/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8480243	N/A	2016/11/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8479539	2016/11/22	2016/11/23	Tim Matsushita



Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** QC0238  
**Sample ID:** DUP2  
**Matrix:** Water

**Collected:** 2016/11/16  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8480151	N/A	2016/11/22	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8480163	2016/11/22	2016/11/22	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8480679	N/A	2016/11/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8481791	N/A	2016/11/23	Isabel Choi
Conductance - water	AT/ALK	8480173	N/A	2016/11/22	Maria Maclean
Fluoride	ISE/ISE	8481734	N/A	2016/11/22	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8478433	N/A	2016/11/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8478434	N/A	2016/11/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8481405	N/A	2016/11/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8481377	2016/11/23	2016/11/23	Edwin Lamigo
Ion Balance	CALC	8479231	N/A	2016/11/23	Automated Statchk
Sum of cations, anions	CALC	8479232	N/A	2016/11/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8478694	N/A	2016/11/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8480056	N/A	2016/11/22	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8479895	2016/11/22	2016/11/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8479233	N/A	2016/11/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8480387	N/A	2016/11/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8481541	N/A	2016/11/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8481544	N/A	2016/11/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8478849	N/A	2016/11/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8479659	N/A	2016/11/22	Lucy Luo
pH Water	AT/ALK	8480174	N/A	2016/11/22	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8480681	N/A	2016/11/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8480235	2016/11/22	2016/11/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8480243	N/A	2016/11/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8479539	2016/11/22	2016/11/23	Tim Matsushita

**Maxxam ID:** QC0238 Dup  
**Sample ID:** DUP2  
**Matrix:** Water

**Collected:** 2016/11/16  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8480151	N/A	2016/11/22	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8480163	2016/11/22	2016/11/22	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8480679	N/A	2016/11/22	Balwinder Bassi
Nitrate+Nitrite (N) (low level)	TRAA/COL	8481541	N/A	2016/11/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8481544	N/A	2016/11/22	Isaac Wang
pH Water	AT/ALK	8480174	N/A	2016/11/22	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8480681	N/A	2016/11/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8480235	2016/11/22	2016/11/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8480243	N/A	2016/11/22	Isabel Choi

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**TEST SUMMARY**

**Maxxam ID:** QC0239  
**Sample ID:** BH95G-25D  
**Matrix:** Water

**Collected:** 2016/11/17  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8480151	N/A	2016/11/22	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8480148	2016/11/22	2016/11/22	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8480679	N/A	2016/11/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8481792	N/A	2016/11/23	Isabel Choi
Conductance - water	AT/ALK	8480153	N/A	2016/11/22	Maria Maclean
Fluoride	ISE/ISE	8481740	N/A	2016/11/22	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8478433	N/A	2016/11/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8478434	N/A	2016/11/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8481405	N/A	2016/11/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8481377	2016/11/23	2016/11/23	Edwin Lamigo
Ion Balance	CALC	8479231	N/A	2016/11/23	Automated Statchk
Sum of cations, anions	CALC	8479232	N/A	2016/11/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8478694	N/A	2016/11/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8480056	N/A	2016/11/22	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8479895	2016/11/22	2016/11/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8479233	N/A	2016/11/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8480388	N/A	2016/11/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8481541	N/A	2016/11/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8481544	N/A	2016/11/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8478849	N/A	2016/11/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8479659	N/A	2016/11/22	Lucy Luo
pH Water	AT/ALK	8480154	N/A	2016/11/22	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8480681	N/A	2016/11/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8480235	2016/11/22	2016/11/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8480243	N/A	2016/11/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8479539	2016/11/22	2016/11/23	Tim Matsushita

**Maxxam ID:** QC0239 Dup  
**Sample ID:** BH95G-25D  
**Matrix:** Water

**Collected:** 2016/11/17  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbon (DOC) - field filtered/preserved	TRAA/COL	8481792	N/A	2016/11/23	Isabel Choi

**Maxxam ID:** QC0240  
**Sample ID:** BH95G-25S  
**Matrix:** Water

**Collected:** 2016/11/17  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8480151	N/A	2016/11/22	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8480148	2016/11/22	2016/11/22	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8480679	N/A	2016/11/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8481791	N/A	2016/11/23	Isabel Choi
Conductance - water	AT/ALK	8480153	N/A	2016/11/22	Maria Maclean



Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** QC0240  
**Sample ID:** BH95G-25S  
**Matrix:** Water

**Collected:** 2016/11/17  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Fluoride	ISE/ISE	8481740	N/A	2016/11/22	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8478433	N/A	2016/11/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8478434	N/A	2016/11/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8481405	N/A	2016/11/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8481377	2016/11/23	2016/11/23	Edwin Lamigo
Ion Balance	CALC	8479231	N/A	2016/11/23	Automated Statchk
Sum of cations, anions	CALC	8479232	N/A	2016/11/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8478694	N/A	2016/11/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8480056	N/A	2016/11/22	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8479895	2016/11/22	2016/11/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8479233	N/A	2016/11/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8480387	N/A	2016/11/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8481541	N/A	2016/11/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8481544	N/A	2016/11/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8478849	N/A	2016/11/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8479659	N/A	2016/11/22	Lucy Luo
pH Water	AT/ALK	8480154	N/A	2016/11/22	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8480681	N/A	2016/11/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8480235	2016/11/22	2016/11/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8480243	N/A	2016/11/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8479539	2016/11/22	2016/11/23	Tim Matsushita

**Maxxam ID:** QC0241  
**Sample ID:** FIELD BLANK  
**Matrix:** Water

**Collected:** 2016/11/17  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8480151	N/A	2016/11/22	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8480148	2016/11/22	2016/11/22	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8480682	N/A	2016/11/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8481792	N/A	2016/11/23	Isabel Choi
Conductance - water	AT/ALK	8480153	N/A	2016/11/22	Maria Maclean
Fluoride	ISE/ISE	8481740	N/A	2016/11/22	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8478433	N/A	2016/11/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8478434	N/A	2016/11/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8481405	N/A	2016/11/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8481377	2016/11/23	2016/11/23	Edwin Lamigo
Ion Balance	CALC	8479231	N/A	2016/11/23	Automated Statchk
Sum of cations, anions	CALC	8479232	N/A	2016/11/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8478694	N/A	2016/11/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8480056	N/A	2016/11/22	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8479233	N/A	2016/11/23	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8480609	N/A	2016/11/22	Andrew An
Ammonia-N (Preserved)	KONE/COL	8480387	N/A	2016/11/22	Clare Kwok

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** QC0241  
**Sample ID:** FIELD BLANK  
**Matrix:** Water

**Collected:** 2016/11/17  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrate+Nitrite (N) (low level)	TRAA/COL	8481548	N/A	2016/11/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8481550	N/A	2016/11/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8478849	N/A	2016/11/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8479659	N/A	2016/11/22	Lucy Luo
pH Water	AT/ALK	8480154	N/A	2016/11/22	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8480684	N/A	2016/11/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8480235	2016/11/22	2016/11/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8480243	N/A	2016/11/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8479539	2016/11/22	2016/11/23	Tim Matsushita

**Maxxam ID:** QC0241 Dup  
**Sample ID:** FIELD BLANK  
**Matrix:** Water

**Collected:** 2016/11/17  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity - Water	AT/ALK	8480148	2016/11/22	2016/11/22	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8480682	N/A	2016/11/22	Balwinder Bassi
Conductance - water	AT/ALK	8480153	N/A	2016/11/22	Maria Maclean
Mercury (Total-LowLevel) by CVAf	CV/AF	8481377	2016/11/23	2016/11/23	Edwin Lamigo
Elements by ICPMS Low Level (total)	ICP/CRCM	8480609	N/A	2016/11/22	Andrew An
pH Water	AT/ALK	8480154	N/A	2016/11/22	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8480684	N/A	2016/11/22	Balwinder Bassi

**Maxxam ID:** QC0242  
**Sample ID:** BH95G-33D  
**Matrix:** Water

**Collected:** 2016/11/17  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8480151	N/A	2016/11/22	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8480127	2016/11/22	2016/11/22	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8480679	N/A	2016/11/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8481791	N/A	2016/11/23	Isabel Choi
Conductance - water	AT/ALK	8480142	N/A	2016/11/22	Maria Maclean
Fluoride	ISE/ISE	8481740	N/A	2016/11/22	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8478433	N/A	2016/11/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8478434	N/A	2016/11/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8481405	N/A	2016/11/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8481377	2016/11/23	2016/11/23	Edwin Lamigo
Ion Balance	CALC	8479231	N/A	2016/11/23	Automated Statchk
Sum of cations, anions	CALC	8479232	N/A	2016/11/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8478694	N/A	2016/11/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8480056	N/A	2016/11/22	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8479895	2016/11/22	2016/11/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8479233	N/A	2016/11/23	Automated Statchk

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** QC0242  
**Sample ID:** BH95G-33D  
**Matrix:** Water

**Collected:** 2016/11/17  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Ammonia-N (Preserved)	KONE/COL	8480388	N/A	2016/11/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8481541	N/A	2016/11/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8481544	N/A	2016/11/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8478849	N/A	2016/11/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8479659	N/A	2016/11/22	Lucy Luo
pH Water	AT/ALK	8480143	N/A	2016/11/22	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8480681	N/A	2016/11/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8480235	2016/11/22	2016/11/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8480243	N/A	2016/11/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8479539	2016/11/22	2016/11/23	Tim Matsushita

**Maxxam ID:** QC0243  
**Sample ID:** BH95G-2  
**Matrix:** Water

**Collected:** 2016/11/17  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8480151	N/A	2016/11/22	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8480148	2016/11/22	2016/11/22	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8480679	N/A	2016/11/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8481791	N/A	2016/11/23	Isabel Choi
Conductance - water	AT/ALK	8480153	N/A	2016/11/22	Maria Maclean
Fluoride	ISE/ISE	8481740	N/A	2016/11/22	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8478433	N/A	2016/11/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8478434	N/A	2016/11/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAF	CV/AF	8481405	N/A	2016/11/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAF	CV/AF	8481364	2016/11/23	2016/11/23	Edwin Lamigo
Ion Balance	CALC	8479231	N/A	2016/11/23	Automated Statchk
Sum of cations, anions	CALC	8479232	N/A	2016/11/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8478694	N/A	2016/11/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8480657	N/A	2016/11/23	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8479895	2016/11/22	2016/11/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8479233	N/A	2016/11/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8480387	N/A	2016/11/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8481541	N/A	2016/11/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8481544	N/A	2016/11/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8478849	N/A	2016/11/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8479659	N/A	2016/11/22	Lucy Luo
pH Water	AT/ALK	8480154	N/A	2016/11/22	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8480681	N/A	2016/11/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8480235	2016/11/22	2016/11/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8480243	N/A	2016/11/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8479541	2016/11/22	2016/11/23	Jamie Sun

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** QC0244  
**Sample ID:** BH95G-21  
**Matrix:** Water

**Collected:** 2016/11/17  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8480151	N/A	2016/11/22	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8480148	2016/11/22	2016/11/22	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8480679	N/A	2016/11/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8481791	N/A	2016/11/23	Isabel Choi
Conductance - water	AT/ALK	8480153	N/A	2016/11/22	Maria Maclean
Fluoride	ISE/ISE	8481740	N/A	2016/11/22	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8478433	N/A	2016/11/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8478434	N/A	2016/11/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8481405	N/A	2016/11/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8481364	2016/11/23	2016/11/23	Edwin Lamigo
Ion Balance	CALC	8479231	N/A	2016/11/23	Automated Statchk
Sum of cations, anions	CALC	8479232	N/A	2016/11/23	Automated Statchk
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8478694	N/A	2016/11/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8480657	N/A	2016/11/23	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8479895	2016/11/22	2016/11/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8479233	N/A	2016/11/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8480387	N/A	2016/11/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8481541	N/A	2016/11/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8481544	N/A	2016/11/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8478849	N/A	2016/11/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8479659	N/A	2016/11/22	Lucy Luo
pH Water	AT/ALK	8480154	N/A	2016/11/22	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8480681	N/A	2016/11/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8480235	2016/11/22	2016/11/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8480243	N/A	2016/11/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8479541	2016/11/22	2016/11/23	Jamie Sun

**Maxxam ID:** QC0245  
**Sample ID:** DUP 3  
**Matrix:** Water

**Collected:** 2016/11/17  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO3)	AT/PH	8480155	N/A	2016/11/22	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8480148	2016/11/22	2016/11/22	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8480682	N/A	2016/11/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8481791	N/A	2016/11/23	Isabel Choi
Conductance - water	AT/ALK	8480153	N/A	2016/11/22	Maria Maclean
Fluoride	ISE/ISE	8481748	N/A	2016/11/22	Isaac Wang
Hardness Total (calculated as CaCO3)	CALC	8478433	N/A	2016/11/23	Automated Statchk
Hardness (calculated as CaCO3)	CALC	8478434	N/A	2016/11/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8481405	N/A	2016/11/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8481364	2016/11/23	2016/11/23	Edwin Lamigo
Ion Balance	CALC	8479231	N/A	2016/11/23	Automated Statchk
Sum of cations, anions	CALC	8479232	N/A	2016/11/23	Automated Statchk

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### TEST SUMMARY

**Maxxam ID:** QC0245  
**Sample ID:** DUP 3  
**Matrix:** Water

**Collected:** 2016/11/17  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8478694	N/A	2016/11/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8480657	N/A	2016/11/23	Andrew An
Elements by ICPMS Digested LL (total)	ICP/CRCM	8479895	2016/11/22	2016/11/22	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8479233	N/A	2016/11/23	Automated Statchk
Ammonia-N (Preserved)	KONE/COL	8480388	N/A	2016/11/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8481548	N/A	2016/11/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8481550	N/A	2016/11/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8478849	N/A	2016/11/23	Automated Statchk
Filter and HNO3 Preserve for Metals	ICP	8479659	N/A	2016/11/22	Lucy Luo
pH Water	AT/ALK	8480154	N/A	2016/11/22	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8480684	N/A	2016/11/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8480247	2016/11/22	2016/11/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8480253	N/A	2016/11/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8479541	2016/11/22	2016/11/23	Jamie Sun

**Maxxam ID:** QC0245 Dup  
**Sample ID:** DUP 3  
**Matrix:** Water

**Collected:** 2016/11/17  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8480155	N/A	2016/11/22	Wilson Au Yueng
Fluoride	ISE/ISE	8481748	N/A	2016/11/22	Isaac Wang
Nitrate+Nitrite (N) (low level)	TRAA/COL	8481548	N/A	2016/11/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8481550	N/A	2016/11/22	Isaac Wang
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8480247	2016/11/22	2016/11/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8480253	N/A	2016/11/22	Isabel Choi

**Maxxam ID:** QC0246  
**Sample ID:** TRIP BLANK  
**Matrix:** Water

**Collected:** 2016/11/18  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	AT/PH	8480155	N/A	2016/11/22	Wilson Au Yueng
Alkalinity - Water	AT/ALK	8480148	2016/11/22	2016/11/22	Maria Maclean
Chloride by Automated Colourimetry	KONE/COL	8480682	N/A	2016/11/22	Balwinder Bassi
Carbon (DOC) - field filtered/preserved	TRAA/COL	8481791	N/A	2016/11/23	Isabel Choi
Conductance - water	AT/ALK	8480153	N/A	2016/11/22	Maria Maclean
Fluoride	ISE/ISE	8481748	N/A	2016/11/22	Isaac Wang
Hardness Total (calculated as CaCO <sub>3</sub> )	CALC	8478433	N/A	2016/11/23	Automated Statchk
Hardness (calculated as CaCO <sub>3</sub> )	CALC	8478434	N/A	2016/11/23	Automated Statchk
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8481405	N/A	2016/11/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8481364	2016/11/23	2016/11/23	Edwin Lamigo
Ion Balance	CALC	8479231	N/A	2016/11/23	Automated Statchk
Sum of cations, anions	CALC	8479232	N/A	2016/11/23	Automated Statchk

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

**TEST SUMMARY**

**Maxxam ID:** QC0246  
**Sample ID:** TRIP BLANK  
**Matrix:** Water

**Collected:** 2016/11/18  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	ICP/CRCM	8478694	N/A	2016/11/23	Automated Statchk
Elements by ICPMS Low Level (dissolved)	ICP/CRCM	8480657	N/A	2016/11/23	Andrew An
Na, K, Ca, Mg, S by CRC ICPMS (total)	ICP/CRCM	8479233	N/A	2016/11/23	Automated Statchk
Elements by ICPMS Low Level (total)	ICP/CRCM	8480609	N/A	2016/11/22	Andrew An
Ammonia-N (Preserved)	KONE/COL	8480388	N/A	2016/11/22	Clare Kwok
Nitrate+Nitrite (N) (low level)	TRAA/COL	8481548	N/A	2016/11/22	Isaac Wang
Nitrite (N) (low level)	TRAA/COL	8481550	N/A	2016/11/22	Isaac Wang
Nitrogen - Nitrate (as N)	CALC	8478849	N/A	2016/11/23	Automated Statchk
pH Water	AT/ALK	8480154	N/A	2016/11/22	Maria Maclean
Sulphate by Automated Colourimetry	KONE/COL	8480684	N/A	2016/11/22	Balwinder Bassi
Phosphorus-P (LL Tot, dissolved) - UF/UP	KONE/COL	8480247	2016/11/22	2016/11/22	Isabel Choi
Total Phosphorus - unpreserved	KONE/COL	8480253	N/A	2016/11/22	Isabel Choi
Total Suspended Solids-Low Level	BAL/BAL	8479541	2016/11/22	2016/11/23	Jamie Sun

**Maxxam ID:** QC0246 Dup  
**Sample ID:** TRIP BLANK  
**Matrix:** Water

**Collected:** 2016/11/18  
**Shipped:**  
**Received:** 2016/11/18

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury (Dissolved-LowLevel) by CVAf	CV/AF	8481405	N/A	2016/11/23	Edwin Lamigo
Mercury (Total-LowLevel) by CVAf	CV/AF	8481364	2016/11/23	2016/11/23	Edwin Lamigo
Ammonia-N (Preserved)	KONE/COL	8480388	N/A	2016/11/22	Clare Kwok



Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	0.7°C
Package 2	1.3°C
Package 3	1.0°C
Package 4	0.3°C
Package 5	0.7°C

All samples were received at analytical lab past recommended hold time for Nitrate, Nitrite, Total Phosphorus and Dissolved Phosphorus. (M\_S)

Sample QC0222 [MW15-03S] : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample QC0225 [MW15-04S] : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample QC0226 [MW15-05D] : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample QC0227 [MW16-16D] : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample QC0228 [MW16-17] : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample QC0229 [DUP 1] : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample QC0230 [BH95G-15D] : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample QC0231 [MW16-15D] : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample QC0233 [MW16-15S] : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample QC0234 [MW15-11S] : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample QC0235 [MW15-01] : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample QC0236 [BH95G-32] : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample QC0237 [BH95G-22] : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample QC0238 [DUP2] : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample QC0239 [BH95G-25D] : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### GENERAL COMMENTS

detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample QC0240 [BH95G-25S] : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample QC0242 [BH95G-33D] : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample QC0243 [BH95G-2] : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample QC0244 [BH95G-21] : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample QC0245 [DUP 3] : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

#### LL TOTAL METALS (DIGESTED) WITH CV HG Comments

Sample QC0225 [MW15-04S] Elements by ICPMS Digested LL (total): RDL raised due to sample matrix interference.

Sample QC0226 [MW15-05D] Elements by ICPMS Digested LL (total): RDL raised due to sample matrix interference.

Sample QC0227, Elements by ICPMS Low Level (dissolved): Test repeated.

Sample QC0230, Elements by ICPMS Low Level (dissolved): Test repeated.

**Results relate only to the items tested.**



Maxxam Job #: B6A4208  
Report Date: 2016/11/28

**QUALITY ASSURANCE REPORT**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8479536	Total Suspended Solids	2016/11/23			99	80 - 120	<1.0	mg/L		
8479539	Total Suspended Solids	2016/11/23			101	80 - 120	<1.0	mg/L		
8479541	Total Suspended Solids	2016/11/23			100	N/A	<1.0	mg/L		
8479895	Total Aluminum (Al)	2016/11/22	NC	80 - 120	118	80 - 120	<0.0030	mg/L	5.7	20
8479895	Total Antimony (Sb)	2016/11/22	101	80 - 120	106	80 - 120	<0.000020	mg/L	NC	20
8479895	Total Arsenic (As)	2016/11/22	102	80 - 120	109	80 - 120	<0.000020	mg/L	6.3	20
8479895	Total Barium (Ba)	2016/11/22	NC	80 - 120	106	80 - 120	<0.000050	mg/L	1.5	20
8479895	Total Beryllium (Be)	2016/11/22	107	80 - 120	108	80 - 120	<0.000010	mg/L	NC	20
8479895	Total Bismuth (Bi)	2016/11/22	102	80 - 120	106	80 - 120	<0.000010	mg/L	NC	20
8479895	Total Boron (B)	2016/11/22	108	80 - 120	109	80 - 120	<0.010	mg/L	NC	20
8479895	Total Cadmium (Cd)	2016/11/22	103	80 - 120	107	80 - 120	<0.0000050	mg/L	NC	20
8479895	Total Chromium (Cr)	2016/11/22	100	80 - 120	106	80 - 120	<0.00010	mg/L	5.0	20
8479895	Total Cobalt (Co)	2016/11/22	99	80 - 120	106	80 - 120	<0.000010	mg/L	3.3	20
8479895	Total Copper (Cu)	2016/11/22	96	80 - 120	111	80 - 120	<0.00010	mg/L	3.2	20
8479895	Total Iron (Fe)	2016/11/22	NC	80 - 120	108	80 - 120	<0.0050	mg/L	2.5	20
8479895	Total Lead (Pb)	2016/11/22	103	80 - 120	104	80 - 120	<0.000020	mg/L	2.0	20
8479895	Total Lithium (Li)	2016/11/22	100	80 - 120	101	80 - 120	<0.00050	mg/L	5.2	20
8479895	Total Manganese (Mn)	2016/11/22	NC	80 - 120	105	80 - 120	<0.00010	mg/L	0.22	20
8479895	Total Molybdenum (Mo)	2016/11/22	NC	80 - 120	107	80 - 120	<0.000050	mg/L	5.7	20
8479895	Total Nickel (Ni)	2016/11/22	97	80 - 120	107	80 - 120	<0.00010	mg/L	1.8	20
8479895	Total Phosphorus (P)	2016/11/22					<0.0050	mg/L	0.87	20
8479895	Total Selenium (Se)	2016/11/22	102	80 - 120	113	80 - 120	<0.000040	mg/L	NC	20
8479895	Total Silicon (Si)	2016/11/22					<0.050	mg/L	3.1	20
8479895	Total Silver (Ag)	2016/11/22	108	80 - 120	108	80 - 120	<0.000010	mg/L	NC	20
8479895	Total Strontium (Sr)	2016/11/22	NC	80 - 120	101	80 - 120	<0.000050	mg/L	1.7	20
8479895	Total Thallium (Tl)	2016/11/22	85	80 - 120	86	80 - 120	<0.0000020	mg/L	NC	20
8479895	Total Tin (Sn)	2016/11/22	92	80 - 120	104	80 - 120	<0.00020	mg/L	NC	20
8479895	Total Titanium (Ti)	2016/11/22	NC	80 - 120	114	80 - 120	<0.0020	mg/L	1.4	20
8479895	Total Uranium (U)	2016/11/22	108	80 - 120	105	80 - 120	<0.0000050	mg/L	2.9	20
8479895	Total Vanadium (V)	2016/11/22	102	80 - 120	106	80 - 120	<0.00020	mg/L	5.1	20
8479895	Total Zinc (Zn)	2016/11/22	NC	80 - 120	119	80 - 120	<0.0010	mg/L	3.7	20

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8479895	Total Zirconium (Zr)	2016/11/22					<0.00010	mg/L	8.0	20
8480056	Dissolved Aluminum (Al)	2016/11/22	116	80 - 120	103	80 - 120	<0.00050	mg/L	NC	20
8480056	Dissolved Antimony (Sb)	2016/11/22	115	80 - 120	102	80 - 120	<0.000020	mg/L	NC	20
8480056	Dissolved Arsenic (As)	2016/11/22	103	80 - 120	98	80 - 120	<0.000020	mg/L	3.2	20
8480056	Dissolved Barium (Ba)	2016/11/22	NC	80 - 120	102	80 - 120	<0.000020	mg/L	0.51	20
8480056	Dissolved Beryllium (Be)	2016/11/22	110	80 - 120	101	80 - 120	<0.000010	mg/L	NC	20
8480056	Dissolved Bismuth (Bi)	2016/11/22	109	80 - 120	100	80 - 120	<0.0000050	mg/L	NC	20
8480056	Dissolved Boron (B)	2016/11/22	109	80 - 120	104	80 - 120	<0.010	mg/L	NC	20
8480056	Dissolved Cadmium (Cd)	2016/11/22	100	80 - 120	100	80 - 120	<0.0000050	mg/L	NC	20
8480056	Dissolved Chromium (Cr)	2016/11/22	99	80 - 120	96	80 - 120	<0.00010	mg/L	NC	20
8480056	Dissolved Cobalt (Co)	2016/11/22	98	80 - 120	98	80 - 120	<0.0000050	mg/L	NC	20
8480056	Dissolved Copper (Cu)	2016/11/22	96	80 - 120	98	80 - 120	<0.000050	mg/L	NC	20
8480056	Dissolved Iron (Fe)	2016/11/22	103	80 - 120	106	80 - 120	<0.0010	mg/L	NC	20
8480056	Dissolved Lead (Pb)	2016/11/22	111	80 - 120	102	80 - 120	<0.0000050	mg/L	NC	20
8480056	Dissolved Lithium (Li)	2016/11/22	109	80 - 120	102	80 - 120	<0.00050	mg/L	NC	20
8480056	Dissolved Manganese (Mn)	2016/11/22	99	80 - 120	97	80 - 120	<0.000050	mg/L	1.5	20
8480056	Dissolved Molybdenum (Mo)	2016/11/22	NC	80 - 120	107	80 - 120	<0.000050	mg/L	0.99	20
8480056	Dissolved Nickel (Ni)	2016/11/22	98	80 - 120	97	80 - 120	<0.000020	mg/L	6.6	20
8480056	Dissolved Phosphorus (P)	2016/11/22					<0.0020	mg/L	NC	20
8480056	Dissolved Selenium (Se)	2016/11/22	107	80 - 120	104	80 - 120	<0.000040	mg/L	5.2	20
8480056	Dissolved Silicon (Si)	2016/11/22					<0.050	mg/L	0.059	20
8480056	Dissolved Silver (Ag)	2016/11/22	112	80 - 120	101	80 - 120	<0.0000050	mg/L	NC	20
8480056	Dissolved Strontium (Sr)	2016/11/22	NC	80 - 120	93	80 - 120	<0.000050	mg/L	0.25	20
8480056	Dissolved Thallium (Tl)	2016/11/22	109	80 - 120	101	80 - 120	<0.0000020	mg/L	NC	20
8480056	Dissolved Tin (Sn)	2016/11/22	116	80 - 120	104	80 - 120	<0.00020	mg/L	NC	20
8480056	Dissolved Titanium (Ti)	2016/11/22	97	80 - 120	101	80 - 120	<0.00050	mg/L	NC	20
8480056	Dissolved Uranium (U)	2016/11/22	115	80 - 120	102	80 - 120	<0.0000020	mg/L	2.8	20
8480056	Dissolved Vanadium (V)	2016/11/22	101	80 - 120	97	80 - 120	<0.00020	mg/L	NC	20
8480056	Dissolved Zinc (Zn)	2016/11/22	98	80 - 120	96	80 - 120	<0.00010	mg/L	NC	20
8480056	Dissolved Zirconium (Zr)	2016/11/22					<0.00010	mg/L	NC	20
8480127	Alkalinity (PP as CaCO3)	2016/11/22					<0.50	mg/L	NC	20

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8480127	Alkalinity (Total as CaCO3)	2016/11/22	97	80 - 120	97	80 - 120	<0.50	mg/L	NC	20
8480127	Bicarbonate (HCO3)	2016/11/22					<0.50	mg/L	NC	20
8480127	Carbonate (CO3)	2016/11/22					<0.50	mg/L	NC	20
8480127	Hydroxide (OH)	2016/11/22					<0.50	mg/L	NC	20
8480142	Conductivity	2016/11/22			100	80 - 120	<1.0	uS/cm	NC	20
8480143	pH	2016/11/22			101	97 - 103			1.1	N/A
8480148	Alkalinity (PP as CaCO3)	2016/11/22					<0.50	mg/L	NC	20
8480148	Alkalinity (Total as CaCO3)	2016/11/22	94	80 - 120	96	80 - 120	<0.50	mg/L	NC	20
8480148	Bicarbonate (HCO3)	2016/11/22					<0.50	mg/L	NC	20
8480148	Carbonate (CO3)	2016/11/22					<0.50	mg/L	NC	20
8480148	Hydroxide (OH)	2016/11/22					<0.50	mg/L	NC	20
8480151	Acidity (pH 4.5)	2016/11/22					<0.50	mg/L	NC	20
8480151	Acidity (pH 8.3)	2016/11/22			103	80 - 120	<0.50	mg/L	3.2	20
8480153	Conductivity	2016/11/22			99	80 - 120	<1.0	uS/cm	NC	20
8480154	pH	2016/11/22			101	97 - 103			0.74	N/A
8480155	Acidity (pH 4.5)	2016/11/22					<0.50	mg/L	NC	20
8480155	Acidity (pH 8.3)	2016/11/22			104	80 - 120	<0.50	mg/L	2.4	20
8480163	Alkalinity (PP as CaCO3)	2016/11/22					<0.50	mg/L	NC	20
8480163	Alkalinity (Total as CaCO3)	2016/11/22	NC	80 - 120	96	80 - 120	<0.50	mg/L	0.17	20
8480163	Bicarbonate (HCO3)	2016/11/22					<0.50	mg/L	0.17	20
8480163	Carbonate (CO3)	2016/11/22					<0.50	mg/L	NC	20
8480163	Hydroxide (OH)	2016/11/22					<0.50	mg/L	NC	20
8480173	Conductivity	2016/11/22			100	80 - 120	<1.0	uS/cm		
8480174	pH	2016/11/22			101	97 - 103			0.25	N/A
8480235	Dissolved Phosphorus (P)	2016/11/22	NC	80 - 120	94	80 - 120	<0.0020	mg/L	2.5	20
8480243	Total Phosphorus (P)	2016/11/22	NC	80 - 120	98	80 - 120	<0.0020	mg/L	1.2	20
8480247	Dissolved Phosphorus (P)	2016/11/22	NC	80 - 120	91	80 - 120	<0.0020	mg/L	1.0	20
8480253	Total Phosphorus (P)	2016/11/22	NC	80 - 120	93	80 - 120	<0.0020	mg/L	0.34	20
8480385	Total Ammonia (N)	2016/11/22	NC	80 - 120	106	80 - 120	<0.0050	mg/L	0.20	20
8480387	Total Ammonia (N)	2016/11/22	100	80 - 120	104	80 - 120	<0.0050	mg/L	NC	20
8480388	Total Ammonia (N)	2016/11/22	97	80 - 120	104	80 - 120	<0.0050	mg/L	NC	20

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8480609	Total Aluminum (Al)	2016/11/22	100	80 - 120	107	80 - 120	<0.00050	mg/L	NC	20
8480609	Total Antimony (Sb)	2016/11/22	97	80 - 120	103	80 - 120	<0.000020	mg/L	NC	20
8480609	Total Arsenic (As)	2016/11/22	102	80 - 120	103	80 - 120	<0.000020	mg/L	NC	20
8480609	Total Barium (Ba)	2016/11/22	97	80 - 120	104	80 - 120	<0.000020	mg/L	NC	20
8480609	Total Beryllium (Be)	2016/11/22	100	80 - 120	106	80 - 120	<0.000010	mg/L	NC	20
8480609	Total Bismuth (Bi)	2016/11/22	96	80 - 120	99	80 - 120	<0.0000050	mg/L	NC	20
8480609	Total Boron (B)	2016/11/22	101	80 - 120	110	80 - 120	<0.010	mg/L	NC	20
8480609	Total Cadmium (Cd)	2016/11/22	99	80 - 120	103	80 - 120	<0.0000050	mg/L	NC	20
8480609	Total Chromium (Cr)	2016/11/22	97	80 - 120	100	80 - 120	<0.00010	mg/L	NC	20
8480609	Total Cobalt (Co)	2016/11/22	98	80 - 120	101	80 - 120	<0.0000050	mg/L	NC	20
8480609	Total Copper (Cu)	2016/11/22	100	80 - 120	102	80 - 120	<0.000050	mg/L	NC	20
8480609	Total Iron (Fe)	2016/11/22	101	80 - 120	105	80 - 120	<0.0010	mg/L	NC	20
8480609	Total Lead (Pb)	2016/11/22	97	80 - 120	101	80 - 120	<0.0000050	mg/L	NC	20
8480609	Total Lithium (Li)	2016/11/22	99	80 - 120	104	80 - 120	<0.00050	mg/L	NC	20
8480609	Total Manganese (Mn)	2016/11/22	99	80 - 120	101	80 - 120	<0.000050	mg/L	NC	20
8480609	Total Molybdenum (Mo)	2016/11/22	98	80 - 120	106	80 - 120	<0.000050	mg/L	NC	20
8480609	Total Nickel (Ni)	2016/11/22	102	80 - 120	102	80 - 120	<0.000020	mg/L	NC	20
8480609	Total Phosphorus (P)	2016/11/22					<0.0020	mg/L	NC	20
8480609	Total Selenium (Se)	2016/11/22	104	80 - 120	106	80 - 120	<0.000040	mg/L	NC	20
8480609	Total Silicon (Si)	2016/11/22					<0.050	mg/L	NC	20
8480609	Total Silver (Ag)	2016/11/22	93	80 - 120	104	80 - 120	<0.0000050	mg/L	NC	20
8480609	Total Strontium (Sr)	2016/11/22	98	80 - 120	92	80 - 120	<0.000050	mg/L	NC	20
8480609	Total Thallium (Tl)	2016/11/22	97	80 - 120	101	80 - 120	<0.0000020	mg/L	NC	20
8480609	Total Tin (Sn)	2016/11/22	99	80 - 120	106	80 - 120	<0.00020	mg/L	NC	20
8480609	Total Titanium (Ti)	2016/11/22	105	80 - 120	90	80 - 120	<0.00050	mg/L	NC	20
8480609	Total Uranium (U)	2016/11/22	97	80 - 120	102	80 - 120	<0.0000020	mg/L	NC	20
8480609	Total Vanadium (V)	2016/11/22	98	80 - 120	101	80 - 120	<0.00020	mg/L	NC	20
8480609	Total Zinc (Zn)	2016/11/22	105	80 - 120	100	80 - 120	<0.00010	mg/L	NC	20
8480609	Total Zirconium (Zr)	2016/11/22					<0.00010	mg/L	NC	20
8480657	Dissolved Aluminum (Al)	2016/11/23	104	80 - 120	103	80 - 120	<0.00050	mg/L	NC	20
8480657	Dissolved Antimony (Sb)	2016/11/23	101	80 - 120	97	80 - 120	<0.000020	mg/L	NC	20

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8480657	Dissolved Arsenic (As)	2016/11/23	89	80 - 120	98	80 - 120	<0.000020	mg/L	10	20
8480657	Dissolved Barium (Ba)	2016/11/23	101	80 - 120	97	80 - 120	<0.000020	mg/L	8.8	20
8480657	Dissolved Beryllium (Be)	2016/11/23	98	80 - 120	95	80 - 120	<0.000010	mg/L	NC	20
8480657	Dissolved Bismuth (Bi)	2016/11/23	100	80 - 120	95	80 - 120	<0.0000050	mg/L	NC	20
8480657	Dissolved Boron (B)	2016/11/23	93	80 - 120	97	80 - 120	<0.010	mg/L	NC	20
8480657	Dissolved Cadmium (Cd)	2016/11/23	94	80 - 120	102	80 - 120	<0.0000050	mg/L	NC	20
8480657	Dissolved Chromium (Cr)	2016/11/23	86	80 - 120	102	80 - 120	<0.00010	mg/L	NC	20
8480657	Dissolved Cobalt (Co)	2016/11/23	86	80 - 120	100	80 - 120	<0.0000050	mg/L	NC	20
8480657	Dissolved Copper (Cu)	2016/11/23	87	80 - 120	102	80 - 120	<0.000050	mg/L	NC	20
8480657	Dissolved Iron (Fe)	2016/11/23	106	80 - 120	111	80 - 120	<0.0010	mg/L	NC	20
8480657	Dissolved Lead (Pb)	2016/11/23	97	80 - 120	96	80 - 120	<0.0000050	mg/L	NC	20
8480657	Dissolved Lithium (Li)	2016/11/23	92	80 - 120	93	80 - 120	<0.00050	mg/L	NC	20
8480657	Dissolved Manganese (Mn)	2016/11/23	86	80 - 120	100	80 - 120	<0.000050	mg/L	NC	20
8480657	Dissolved Molybdenum (Mo)	2016/11/23	100	80 - 120	102	80 - 120	<0.000050	mg/L	NC	20
8480657	Dissolved Nickel (Ni)	2016/11/23	86	80 - 120	103	80 - 120	<0.000020	mg/L	NC	20
8480657	Dissolved Phosphorus (P)	2016/11/23					0.0030, RDL=0.0020	mg/L		
8480657	Dissolved Selenium (Se)	2016/11/23	100	80 - 120	104	80 - 120	<0.000040	mg/L	NC	20
8480657	Dissolved Silicon (Si)	2016/11/23					<0.050	mg/L	NC	20
8480657	Dissolved Silver (Ag)	2016/11/23	103	80 - 120	95	80 - 120	<0.0000050	mg/L	NC	20
8480657	Dissolved Strontium (Sr)	2016/11/23	84	80 - 120	98	80 - 120	<0.000050	mg/L	4.5	20
8480657	Dissolved Thallium (Tl)	2016/11/23	96	80 - 120	89	80 - 120	<0.0000020	mg/L	NC	20
8480657	Dissolved Tin (Sn)	2016/11/23	100	80 - 120	107	80 - 120	<0.00020	mg/L	NC	20
8480657	Dissolved Titanium (Ti)	2016/11/23	83	80 - 120	101	80 - 120	<0.00050	mg/L	NC	20
8480657	Dissolved Uranium (U)	2016/11/23	97	80 - 120	99	80 - 120	<0.0000020	mg/L	11	20
8480657	Dissolved Vanadium (V)	2016/11/23	85	80 - 120	103	80 - 120	<0.00020	mg/L	NC	20
8480657	Dissolved Zinc (Zn)	2016/11/23	92	80 - 120	104	80 - 120	<0.00010	mg/L	NC	20
8480657	Dissolved Zirconium (Zr)	2016/11/23					<0.00010	mg/L	NC	20
8480679	Dissolved Chloride (Cl)	2016/11/22	112	80 - 120	105	80 - 120	<0.50	mg/L	NC	20
8480681	Dissolved Sulphate (SO4)	2016/11/22	NC	80 - 120	92	80 - 120	<0.50	mg/L	0.63	20
8480682	Dissolved Chloride (Cl)	2016/11/22	101	80 - 120	107	80 - 120	<0.50	mg/L	NC	20

Maxxam Job #: B6A4208  
Report Date: 2016/11/28

**QUALITY ASSURANCE REPORT(CONT'D)**

ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8480684	Dissolved Sulphate (SO4)	2016/11/22	96	80 - 120	101	80 - 120	0.83, RDL=0.50	mg/L	NC	20
8481364	Total Mercury (Hg)	2016/11/23	105	80 - 120	107	80 - 120	<0.0000020	mg/L	NC	20
8481377	Total Mercury (Hg)	2016/11/23	101	80 - 120	101	80 - 120	<0.0000020	mg/L	NC	20
8481384	Dissolved Mercury (Hg)	2016/11/23	98	80 - 120	99	80 - 120	<0.0000020	mg/L	NC	20
8481405	Dissolved Mercury (Hg)	2016/11/23	97	80 - 120	98	80 - 120	<0.0000020	mg/L	NC	20
8481541	Nitrate plus Nitrite (N)	2016/11/22	105	80 - 120	109	80 - 120	<0.0020	mg/L	1.3	25
8481544	Nitrite (N)	2016/11/22	100	80 - 120	99	80 - 120	<0.0020	mg/L	NC	25
8481548	Nitrate plus Nitrite (N)	2016/11/22	NC	80 - 120	109	80 - 120	<0.0020	mg/L	2.3	25
8481550	Nitrite (N)	2016/11/22	102	80 - 120	101	80 - 120	<0.0020	mg/L	NC	25
8481734	Fluoride (F)	2016/11/22	101	80 - 120	100	80 - 120	0.014, RDL=0.010	mg/L	5.1	20
8481740	Fluoride (F)	2016/11/22	99	80 - 120	102	80 - 120	0.013, RDL=0.010	mg/L	NC	20
8481748	Fluoride (F)	2016/11/22	108	80 - 120	104	80 - 120	0.014, RDL=0.010	mg/L	3.3	20
8481790	Dissolved Organic Carbon (C)	2016/11/23	104	80 - 120	108	80 - 120	<0.50	mg/L	NC	20
8481791	Dissolved Organic Carbon (C)	2016/11/23	97	80 - 120	102	80 - 120	<0.50	mg/L	NC	20
8481792	Dissolved Organic Carbon (C)	2016/11/23	104	80 - 120	111	80 - 120	<0.50	mg/L	NC	20
8483493	Dissolved Molybdenum (Mo)	2016/11/24			92	80 - 120	<0.000050	mg/L		
8483715	Dissolved Phosphorus (P)	2016/11/24	NC	80 - 120	94	80 - 120	<0.0020	mg/L	0.80	20
8483722	Total Phosphorus (P)	2016/11/24			96	80 - 120	<0.0020	mg/L		
8484993	Dissolved Molybdenum (Mo)	2016/11/27	96	80 - 120	107	80 - 120	<0.000050	mg/L		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

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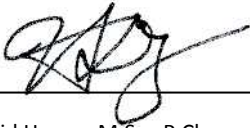
ALEXCO ENVIRONMENTAL GROUP INC.  
Client Project #: BMC-16-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: AB

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Andy Lu, Ph.D., P.Chem., Scientific Specialist



David Huang, M.Sc., P.Chem., QP, Scientific Services Manager

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Contact Name:		Contact Name: <b>KAI WOLOSHYN</b>			P.O. #/ AFE#:			PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS										
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Email:		Email: <b>kwoloshyn@alexcoresource.com</b>			Site #:			<input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days										
Date Required:		Sampled By: <b>Andrea Badger</b>																
Regulatory Criteria		Special Instructions		Analysis Requested							Rush Confirmation #:							
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> BC CSR Water <input type="checkbox"/> CCME (Specify) <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC Water Quality		<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify) <b>Also send report to:</b> <b>lfougere@accessconsulting.ca</b> <b>nspeiss@accessconsulting.ca</b>		TOTAL LOW LEVEL METALS INCL. MERCURY DISSOLVED LOW LEVEL METALS INCL. MERCURY LOW LEVEL TSS ANIONS (Cl, F, SO4, NO2, NO3) AMMONIA CONDUCTIVITY pH ALKALINITY & ACIDITY DOC TOTAL PHOSPHORUS - LOW LEVEL DISSOLVED PHOSPHORUS - LOW LEVEL							LABORATORY USE ONLY CUSTODY SEAL Present Intact COOLER TEMPERATURES COOLING MEDIA PRESENT							
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM																		
Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	TOTAL LOW LEVEL METALS INCL. MERCURY	DISSOLVED LOW LEVEL METALS INCL. MERCURY	LOW LEVEL TSS	ANIONS (Cl, F, SO4, NO2, NO3)	AMMONIA	CONDUCTIVITY	pH	ALKALINITY & ACIDITY	DOC	TOTAL PHOSPHORUS - LOW LEVEL	DISSOLVED PHOSPHORUS - LOW LEVEL	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	COMMENTS
1	MW15-03S	15-Nov-16	9:16	Water	X	X	X	X	X	X	X	X	X	X	X	10		
2	MW15-03D	15-Nov-16	9:30	Water	X	X	X	X	X	X	X	X	X	X	X	10		RECEIVED IN WHITEHORSE
3	MW15-04D	15-Nov-16	10:18	Water	X	X	X	X	X	X	X	X	X	X	X	10		BY: <i>[Signature]</i>
4	MW15-04S	15-Nov-16	10:35	Water	X	X	X	X	X	X	X	X	X	X	X	10		2016-11-18
5	MW15-05D	15-Nov-16	11:35	Water	X	X	X	X	X	X	X	X	X	X	X	10		TEMP: 1 1 1 10
6	MW16-16D	15-Nov-16	13:18	Water	X	X	X	X	X	X	X	X	X	X	X	10		1 1 1 1
7	MW16-17	15-Nov-16	14:02	Water	X	X	X	X	X	X	X	X	X	X	X	10		0 0 1
8	DUP 1	15-Nov-16		Water	X	X	X	X	X	X	X	X	X	X	X	10		1 1 0
9	BH95G-15D	16-Nov-16	9:22	Water	X	X	X	X	X	X	X	X	X	X	X	10		
10	MW16-15D	16-Nov-16	11:25	Water	X	X	X	X	X	X	X	X	X	X	X	10		
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)			DATE: (YYYY/MM/DD)	TIME: (HH:MM)										
Andrew MacPhail		Nov-18-2016	17:00	<i>[Signature]</i>			2016/11/21	16:00										



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Contact Name:		Contact Name: <b>KAI WOLOSHYN</b>				P.O. #/ AFE#:										PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS	
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Phone:		Phone: <b>(867) 668-6463</b>				Site Location: <b>Kudz Ze Kayah</b>										<input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days	
Email:		Email: <b>kwoleshyn@alexcoresource.com</b>				Site #:										<input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days	
Date Required:		Sampled By: <b>Andrea Badger</b>															
Regulatory Criteria				Special Instructions		Analysis Requested										Rush Confirmation #:	
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> BC CSR Water <input type="checkbox"/> CCME (Specify) <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC Water Quality				<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify) <b>Also send report to:</b> lfougere@accessconsulting.ca ngpeiss@accessconsulting.ca		TOTAL LOW LEVEL METALS INCL. MERCURY DISSOLVED LOW LEVEL METALS INCL. MERCURY LOW LEVEL TSS ANIONS (Cl, F, SO4, NO2, NO3) AMMONIA CONDUCTIVITY PH ALKALINITY & ACIDITY DOC TOTAL PHOSPHORUS - LOW LEVEL DISSOLVED PHOSPHORUS - LOW LEVEL										LABORATORY USE ONLY CUSTODY SEAL Y/N Present Intact COOLING MEDIA PRESENT Y/N COMMENTS	
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM												# OF CONTAINERS SUBMITTED					
Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	TOTAL LOW LEVEL METALS INCL. MERCURY	DISSOLVED LOW LEVEL METALS INCL. MERCURY	LOW LEVEL TSS	ANIONS (Cl, F, SO4, NO2, NO3)	AMMONIA	CONDUCTIVITY	PH	ALKALINITY & ACIDITY	DOC	TOTAL PHOSPHORUS - LOW LEVEL	DISSOLVED PHOSPHORUS - LOW LEVEL	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE
1	MW16-155	16-Nov-16	11:40	Water	X	X	X	X	X	X	X	X	X	X	X	10	
2	MW15-115	16-Nov-16	12:20	Water	X	X	X	X	X	X	X	X	X	X	X	10	RECEIVED IN WHITEHORSE
3	MW15-01	16-Nov-16	13:24	Water	X	X	X	X	X	X	X	X	X	X	X	10	Ev. <i>[Signature]</i>
4	BH95G-32	16-Nov-16	14:18	Water	X	X	X	X	X	X	X	X	X	X	X	10	2016-11-18
5	BH95G-22	16-Nov-16	14:48	Water	X	X	X	X	X	X	X	X	X	X	X	10	TEMP: 1 1 1 10
6	DUP2	16-Nov-16		Water	X	X	X	X	X	X	X	X	X	X	X	10	1 1 2
7	BH95G-25D	17-Nov-16	10:12	Water	X	X	X	X	X	X	X	X	X	X	X	10	1 1 1
8	BH95G-25S	17-Nov-16	10:30	Water	X	X	X	X	X	X	X	X	X	X	X	10	6 0 1
9	FIELD BLANK	17-Nov-16	10:40	Water	X	X	X	X	X	X	X	X	X	X	X	10	1 1 0
10	BH95G-33D	17-Nov-16	11:27	Water	X	X	X	X	X	X	X	X	X	X	X	10	
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)										
Andrew MacPhail		Nov-18-2016	17:00	<i>[Signature]</i> <b>Laurel Bentner</b>		2016/11/21	10:00										



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Vancouver, BC PC: V6E 4A4		Whitehorse, YK PC: V1A 2V3				Site Location: <b>Kudz Ze Kayah</b>				<input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days								
Phone:		Phone: <b>(867) 668-6463</b>				Site #:				<input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days								
Email:		Email: <b>kwoloshyn@alexcoresource.com</b>				Sampled By: <b>Andrea Badger</b>				Date Required:								
Regulatory Criteria		Special Instructions		Analysis Requested						Rush Confirmation #:								
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1	BH95G-2	17-Nov-16	13:30	Water	X	X	X	X	X	X	X	X	X	X	X	10		
2	BH95G-21	17-Nov-16	15:11	Water	X	X	X	X	X	X	X	X	X	X	X	10		RECEIVED IN WHITEHORSE
3	DUP 3	17-Nov-16		Water	X	X	X	X	X	X	X	X	X	X	X	10		RY: <i>mlb</i>
4	TRIP BLANK	17-Nov-16		Water	X	X	X	X	X	X	X	X	X	X	X	10		2016-11-18
5																		
6																		
7																		TEMP: 1 1 1 10
8																		1 1 2
9																		1 1 1
10																		0 0 1
																		1 1 0
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)				DATE: (YYYY/MM/DD)	TIME: (HH:MM)									
Andrew MacPhail		Nov-18-2016	17:00	<i>Michael Beaudry</i>				2016/11/21	10:00									



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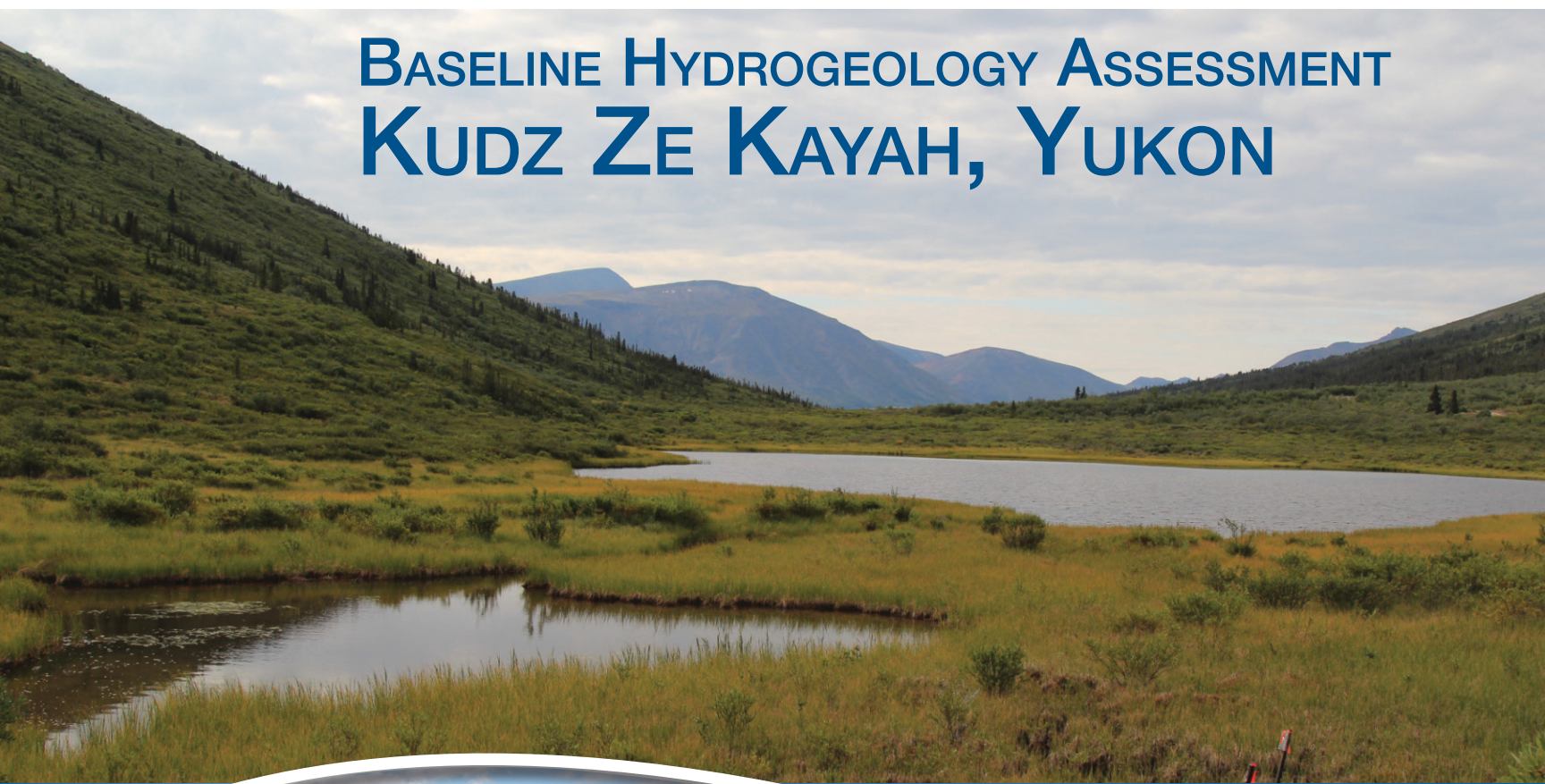
APPENDIX G  
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REPORT FOR

# BASELINE HYDROGEOLOGY ASSESSMENT KUDZ ZE KAYAH, YUKON



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## TABLE OF CONTENTS

<b>1.0</b>	<b>INTRODUCTION</b>	<b>1</b>
1.1	Purpose and Objective	1
1.2	Scope of Work	2
1.3	Project Background	2
<b>2.0</b>	<b>STUDY AREA</b>	<b>4</b>
2.1	Location	4
2.2	Access	4
2.3	Physiography	4
2.4	General Hydrology and Meteorology	4
2.5	Geology	5
2.5.1	Surficial Geology	5
2.5.2	Bedrock Geology	6
2.5.3	Glacial History	6
<b>3.0</b>	<b>SUMMARY OF HISTORICAL HYDROGEOLOGICAL DATA AND GAP ANALYSIS</b>	<b>7</b>
<b>4.0</b>	<b>METHODS</b>	<b>9</b>
4.1	Monitoring Well and Instrumentation Installation	9
4.1.1	Drilling	9
4.1.2	Monitoring Wells	9
4.1.3	205 mm Diameter Well Installation	11
4.1.3.1	Well Locations	12
4.1.3.2	Well Installation – WW15-01	12
4.1.3.3	Well Installation – WW15-02	14
4.1.4	Vibrating Wire Piezometers	15
4.2	Hydraulic Well Testing	16
4.2.1	Packer Testing	16
4.2.2	Hydraulic Response Testing	17
4.2.3	Pumping Tests	18
4.2.3.1	Observation Wells	18
4.2.3.2	Regulations Relating to Water Discharge	19
4.2.3.3	Pumping Test Program – WW15-01	19
4.2.3.4	Step-drawdown Pumping Test	19
4.2.3.5	Constant Rate Pumping Test	20
4.2.3.6	Pumping Test Program – WW15-02	20
4.2.3.7	Step-drawdown Pumping Test	20
4.2.3.8	Constant Rate Pumping Test	21
4.3	Groundwater Level Measurements	21
4.4	Groundwater Sampling	21
4.4.1	Groundwater Sampling – Monitoring Wells	21
4.4.2	Groundwater Sampling – WW15-01 and WW15-02	22
4.5	Capping of Flowing Wells	22
4.6	Ground Temperature Monitoring	22



<b>5.0 RESULTS AND DISCUSSION</b>	<b>25</b>
5.1 Monitoring Well Completion	25
5.2 Vibrating Wire Piezometers	25
5.2.1 Inferred Piezometric Elevations	25
5.3 Hydraulic Well Testing	28
5.3.1 Packer Testing Results	28
5.3.2 Hydraulic Response Testing Results	29
5.3.3 Pumping Test Results	30
5.3.3.1 Pumping Test Results – WW15-01 (Overburden)	30
5.3.3.2 Pumping Test Results – WW15-02 (Bedrock)	31
5.3.3.3 Well Capacity – WW15-01 and WW15-02	32
5.4 Ground Temperatures	33
5.5 Groundwater Quality	35
5.5.1 Summary of Historical Groundwater Quality Data	35
5.5.2 Current Baseline Groundwater Quality	38
5.5.2.1 Quality Assurance and Quality Control (QA/QC)	38
5.5.2.2 Discussion of Groundwater Chemistry	41
5.5.2.3 Discussion of Groundwater Chemistry, Zone 1 to Zone 4b	44
5.5.2.4 Comparison with Applicable Regulatory Water Quality Guidelines	49
<b>6.0 CONCEPTUAL HYDROGEOLOGICAL MODEL</b>	<b>52</b>
6.1 Hydrostratigraphy	52
6.1.1 Overburden Aquifer	52
6.1.2 Bedrock Aquifer	53
6.2 Groundwater Flow Regime	54
6.3 Permafrost	57
6.4 Groundwater – Surface Water Interaction	58
<b>7.0 SUITABILITY OF MONITORING WELL NETWORK</b>	<b>59</b>
<b>8.0 SUMMARY AND CONCLUSIONS</b>	<b>61</b>
<b>9.0 CLOSURE</b>	<b>63</b>
<b>REFERENCES</b>	<b>64</b>

## LIST OF TABLES IN TEXT

Table A: Exploration drill holes used for hydrogeological investigations and monitoring wells	10
Table B: Well Construction Summary (WW15-01)	13
Table C: Well Construction Summary (WW15-02)	15
Table D: Cement-bentonite Mix	16
Table E: Submersible Pump Placement (WW15-01 and WW15-02)	18
Table F: Observation Wells	18
Table G: Borehole Capping Program (October 2015)	23
Table H: Ground Temperature Observation Wells	24



Table I: VWP Installation Details.....	26
Table J: Piezometric elevations inferred for the bedrock aquifer at KZK measured on September 22 and 23, 2015 (unless noted otherwise).....	26
Table K: Piezometric elevations inferred for the overburden aquifer at KZK measured on September 22 and 23, 2015 (unless noted otherwise).....	27
Table L: Hydraulic Response Test Results .....	30
Table M: Pumping Test Results WW15-01 .....	31
Table N: Pumping Test Results WW15-02.....	32
Table O: Well Capacity - WW15-01 .....	33
Table P: Well Capacity - WW15-02.....	33
Table Q: Summary of Wells with Historical Groundwater Quality Data (Cominco, 1996).....	36
Table R: Historical Groundwater Quality Data (Cominco, 1996).....	37
Table S: Groundwater monitoring QA/QC .....	38
Table T: Zones for Groundwater Chemistry Interpretation .....	41
Table U: Key Analytical Results, Zone 1 to Zone 4b, 2015/16 Groundwater Monitoring Program .....	42
Table V: Key Dissolved Metals Results, 2015/16 Groundwater Monitoring Program.....	44
Table W: Vertical Hydraulic Gradients at Nested Well Locations (September 2015) .....	55
Table X: Groundwater Horizontal Hydraulic Gradients and Velocity.....	56

## LIST OF FIGURES IN TEXT

Figure A: Sump adjacent to WW15-01 used to store development water.....	13
Figure B: Hydraulic conductivities inferred from packer tests vs. depth (blue – packer tests conducted by Tetra Tech EBA; red – packer tests conducted by Knight Piesold).....	29
Figure C: Ground temperatures observed across the KZK project site. (A) Ground temperatures measured in ground temperature observation wells. (B) Ground temperatures measured by VWPs in the area of the ABM deposit.....	34
Figure D: Piezometric elevations (hydraulic heads) inferred from pore pressure measurements using VWPs at K15-200 and K15-248 (September 23, 2015) .....	55

## APPENDIX SECTIONS

### TABLES

Table 1	Summary of Groundwater Monitoring Well Completion Details
Table 2	Summary of Groundwater Elevations
Table 3A	Summary of Hydraulic Test Results Conducted in Monitoring Well Boreholes
Table 3B	Summary of Packer Test Results Conducted in Exploration Boreholes
Table 4A	Monitoring Wells Packer Test Data Quality Analysis
Table 4B	Exploration Boreholes Packer Test Data Quality Analysis
Table 5A	Groundwater Analytical Results, Zone 1 (Tailing Management Facility, Mill Site, Polishing Pond, Water Management Pond)

Table 5B	Groundwater Analytical Results, Zone 2 (Class C Storage Facility and Overburden Stockpile)
Table 5C	Groundwater Analytical Results, Zone 3 (Class B Storage Facility)
Table 5D	Groundwater Analytical Results, Zone 4a (Open Pit - West)
Table 5E	Groundwater Analytical Results, Zone 4b (Open Pit - A Open Pit – West East)
Table 6	Groundwater Quality Assurance/Quality Control
Table 7A	Maximum Groundwater Guideline Exceedances, Zone 1 (Tailing Management Facility, Mill Site, Polishing Pond, Water Management Pond) (2015/16)
Table 7B	Maximum Groundwater Guideline Exceedances, Zone 2 (Class C Storage Facility and Overburden Stockpile) (2015/16)
Table 7C	Maximum Groundwater Guideline Exceedances, Zone 3 (Class B Storage Facility) (2015/16)
Table 7D	Maximum Groundwater Guideline Exceedances, Zone 4a (Open Pit – West)
Table 7E	Maximum Groundwater Guideline Exceedances, Zone 4b (Open Pit – East)

## FIGURES

Figure 1	Site Location
Figure 2	Site Plan with Monitoring Well Locations
Figure 3	Surficial Geology
Figure 4	Bedrock Geology
Figure 5	Packer Test Diagnostic Plots
Figure 6	Inferred Hydraulic Conductivities, Recovery and RQD
Figure 7	Groundwater Geochemistry Zones
Figure 8	Piper Plots
Figure 9	Groundwater Contours Overburden Aquifer (September 2015)
Figure 10	Groundwater Contours Bedrock Aquifer (September 2015)
Figure 11	Hydrogeological Cross Section A – A'

## APPENDICES

Appendix A	Tetra Tech's General Conditions
Appendix B	Well Logs
Appendix C	Vibrating Wire Piezometer Data and Calibration Sheets
Appendix D	Hydraulic Response Test Data Analysis
Appendix E	Pumping Test Results
Appendix F	Packer Test Data
Appendix G	Laboratory Reports

## ACRONYMS & ABBREVIATIONS

"	inches
µg/L	microgram per litre
µS/cm	micro Siemens per centimetre
AEG	Alexco Environmental Group
BMC	BMC Minerals (No. 1) Ltd.
CANMET	Canada Centre for Mineral and Energy Technology
CCME-AW	Canadian Council of Ministers of the Environment Canadian Water Quality Guidelines for the Protection of Freshwater Aquatic Life (CCME, 1999).
CHM	conceptual hydrogeological model
CSR-AW	Yukon CSR Schedule 3, Generic Numerical Water Quality Standards for Aquatic Life (Yukon Environment Act, Contaminated Sites Regulation, 2002).
DDH	diamond drill hole
DO	dissolved oxygen
E	easting
EC	electrical conductivity
FIG	Federal Interim Groundwater Quality Guidelines for Commercial and Industrial Land Uses and Protection of Freshwater Aquatic Life (Environment Canada, 2012).
Ft	foot
Golder	Golder Associates Ltd.
GSC	Geological Survey of Canada
hr	hour
ID	inner diameter
in	inch
IEE	Initial Environmental Evaluation
K	Hydraulic Conductivity
km	kilometre
kPa	kilo Pascal
KZK	Kudz Ze Kayah
L/s	litre per second
L	litre
lbs	pounds
LDL	laboratory detection limit
m	metre
m ah	metres along hole
m asl	metre above sea level
m bg	metre below ground
m btoc	metre below top of casing
m/m	metre per metre
m/s	metre per second
m <sup>2</sup> /s	square metre per second
m <sup>3</sup> /s	cubic metre per second

meq	milliequivalent per litre
mg/L	milligram per litre
Midnight Sun	Midnight Sun Drilling Inc.
min	minute
mm	millimetre
N	northing
NAD83	North American Datum of 1983
NTS	National Topography System
OD	outer diameter
PAC	potentially acid consuming
PVC	polyvinyl chloride
RPD	relative percent difference
QA/QC	quality assurance and quality control
RQD	rock quality designation
S/N	serial number
SPAG	strongly potentially acid generating
Tetra Tech EBA	Tetra Tech EBA Inc.
TDS	total dissolved solids
USgpm	US gallons per minute
UTM	Universal Transverse Mercator
VMS	volcanic massive sulphide
VWP	vibrating wire piezometer
WPAG	weakly potentially acid generating
YESAA	Yukon Environmental and Socioeconomic Assessment Act
YESAB	Yukon Environmental and Socioeconomic Assessment Board
YTT	Yukon Tanana Terrain

## LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of BMC Minerals (No. 1) Ltd. and their agents. Tetra Tech EBA Inc. (Tetra Tech EBA) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than BMC Minerals (No. 1) Ltd., or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this report is subject to the terms and conditions stated in Tetra Tech EBA's General Conditions that are provided in Appendix A of this report.

## 1.0 INTRODUCTION

BMC Minerals (No. 1) Ltd. (BMC) is currently assessing the potential to develop the Kudz Ze Kayah Project (the KZK Project), a volcanic massive sulphide (VMS) deposit within the Finlayson VMS district, South Central Yukon. The KZK VMS deposit hosts zinc-rich polymetallic (zinc-lead-copper-silver-gold) massive-sulphide mineralization. The KZK Project is located in the northern Pelly Mountains, 135 km south of Ross River, Yukon. The KZK Property (the site) covers 23,000 hectares and is accessible by an all-weather tote road from the Robert Campbell Highway (Figure 1).

Tetra Tech EBA Inc. (Tetra Tech EBA) was retained by BMC to conduct a baseline hydrogeology assessment for the KZK Project in support of the preparation of a project proposal for assessment under the Yukon Environmental and Socio-economic Assessment Act (YESAA) and the subsequent application under the Waters Act for a Type A Water Use Licence.

This report presents the results of the hydrogeology baseline assessment for the KZK Project. The baseline assessment was based on information collected from a network of groundwater monitoring wells installed in the 1990s with additional wells installed in the summer of 2015. This report includes data collected during the first year of seasonal monitoring up until March 2016. Tetra Tech EBA understands that the seasonal groundwater monitoring has been continued and that additional monitoring wells were installed during the summer 2016 field program. However, any monitoring data collected after March 2016 and the details of the additional monitoring wells installed in 2016 are not included in this report but will be documented under separate cover.

### 1.1 Purpose and Objective

The purpose of this project was to review and evaluate existing hydrogeological information for Kudz Ze Kayah collected and documented as part of the baseline studies in 1994 and 1995 that were previously presented in the Initial Environmental Evaluation (IEE) (Cominco, 1996). The 2015/16 hydrogeology baseline program was then designed to fill data gaps that were observed in order to meet the current regulatory requirements. Groundwater information forms an essential part of the environmental baseline characterization that is required for a future assessment of the KZK mine project proposal under YESAA and a Type A Water Use Licence application as part of the mine permitting process.

The baseline groundwater information collected using the monitoring well network established at the site was used for the development of a conceptual hydrogeological model (CHM). The CHM demonstrates the understanding of the local groundwater regime, including a characterization of the hydrostratigraphic units encountered at the site, aquifer properties, recharge and discharge areas, general direction of groundwater flow, and groundwater-surface water interaction.

Groundwater samples collected in the areas of the proposed mine infrastructure was used to characterize baseline groundwater quality and identify spatial and temporal trends. A minimum of one year of seasonal groundwater data is typically required prior to a project proposal submission under YESAA and a minimum of two consecutive years of seasonal groundwater data is required for a Type A Water Licence application. In addition to some sporadically collected data in the 1990s, this report includes the results of four rounds of seasonal groundwater monitoring conducted in May, August/September, and November 2015, and March 2016, thus representing approximately one year of data. Seasonal groundwater monitoring is being continued at the site through 2016. The results of the ongoing groundwater monitoring will be presented in a supplementary report upon the completion of the 2016 of baseline groundwater monitoring.

## 1.2 Scope of Work

The scope of work for this baseline hydrogeology and groundwater quality assessment for the KZK Project included:

- Review of pertinent geological and hydrogeological background information;
- Review and evaluation of the historic hydrogeological information collected as part of the environmental baseline assessment for KZK in the 1990s (Cominco, 1996);
- Design of a field program to install groundwater monitoring wells and other subsurface instrumentation to re-initiate hydrogeological data collection and fill data gaps identified in the historic hydrogeological baseline data collected at KZK;
- Field oversight and coordination of monitoring well drilling and instrumentation installation;
- Design and field oversight for the installation of two test wells for conducting pumping tests in the area of the proposed open pit;
- Monitoring well development and groundwater sampling;
- Hydraulic testing including packer testing in select diamond drill holes, hydraulic response tests on monitoring wells, and two pumping tests in overburden and shallow bedrock within the area of the proposed open pit; and
- Comparison of the findings of the 2015/16 hydrogeology baseline assessment with the results of the historic baseline assessment (Cominco, 1996).

The hydrogeology baseline assessment provides a characterization of the groundwater regime in the vicinity of the proposed KZK mine site and addresses the following:

- Location and boundaries of hydrostratigraphic units identified within the study area;
- Estimated rate and direction of groundwater flow;
- Anticipated interaction of groundwater with surface water;
- Areas where permafrost may influence groundwater flow; and
- Groundwater quality of the overburden and bedrock aquifers.

The hydrogeology baseline assessment provides the basis for identifying potential effects on groundwater quantity and quality from the proposed mining activities. Where potential effects are identified, mitigation measures and contingency plans will be developed to minimize or eliminate potential effects that the proposed project may have on the groundwater resources in the vicinity and downgradient of the KZK Project.

## 1.3 Project Background

The KZK Property, which is 100% owned by BMC, hosts high grade zinc-copper- lead- gold-silver veins. The property was acquired by BMC in February 2015.

KZK environmental and socioeconomic baseline studies were conducted in the 1990s, along with an Environmental and Social Impact Assessment (under the Canadian Environmental Assessment Act). In 1999, a Type A Water User Licence (QZ97-026) was issued for the Project (valid until September 2018).

BMC is currently carrying out environmental and socioeconomic baseline studies at the KZK Project. These studies build on and add to the data collected by previous owners in the 1990's to support a project proposal submission to be made under YESAA. Subsequent to Yukon Environmental and Socio-economic Assessment Board (YESAB) approval, BMC intends to apply for a Quartz Mining License to allow for Project development and operation.



## 2.0 STUDY AREA

The study area (also referred to as the site) for the purpose of this hydrogeological baseline assessment encompasses the area of the main mineral deposit and conceptual open pit, Class A, B, and C storage areas, water management pond and polishing pond depicted on Figure 2. The Class A storage facility is proposed to contain dry-stack tailings and strongly potentially acid generating (SPAG) waste rock. The Class B storage facility will contain weakly potentially acid generating (WPAG) waste rock, and the Class C storage facility will contain potentially acid consuming (PAC) material.

### 2.1 Location

The KZK Project is located in southeastern Yukon, approximately 250 km northeast of Whitehorse. The proposed infrastructure has an approximate UTM/NAD83 location of 414700 E / 6816200 N in Zone 9N and lies on National Topography System (NTS) map sheet 105G/10.

### 2.2 Access

The site is road accessible by a 24 km long gravel tote road from the Robert Campbell Highway. The tote road joins the highway near Finlayson Lake airstrip, about 530 km by road northeast of Whitehorse.

### 2.3 Physiography

The study area is located in the northern foothills of the Pelly Mountains and within the Pelly Mountains ecoregion. The Pelly Mountains ecoregion is described as a rolling plateau topped by numerous mountain peaks and dissected in places by small rivers.

The relief in the study area is generally greater than 1,200 metres above mean sea level (m asl) on valley floors and up to 1,700 m asl at surrounding peaks. The Pelly Mountains ecoregion is the first major barrier to the flow of weather systems east of the St. Elias and Coast Mountains, so precipitation is relatively heavy. The higher elevations of this region result in cooler summers and less severe winters.

Throughout the Pelly Mountains ecoregion, permafrost can regularly be found in the alpine zone, but at lower elevations it is more variably distributed. In northern parts of the ecoregion, most valley floors are underlain by frozen ground, such as near Ross River and Finlayson Lake, where the base of permafrost is over 20 m below the ground surface (Smith et al., 2004). In these parts, only some south-facing slopes and river courses are permafrost-free (Smith et al., 2004).

With much of the ecoregion lying above treeline (between 1,350 and 1,500 m asl), shrub and dwarf shrub tundra dominate the vegetation at higher elevations. Coniferous, and sometimes mixed, forests mantle the slopes below 1,350 m asl. In the north of the ecoregion, while white spruce is the dominant tree species, black spruce is common on cool wet sites and paper birch can be a significant component of the canopy (Smith et al., 2004).

### 2.4 General Hydrology and Meteorology

The study area is drained by Geona Creek, which flows in a northerly direction along the valley that dissects the study area. At the southern end of the study area, Geona Creek flows across the sub-crop of the ABM deposit. To the north of the study area, Geona Creek flows into Finlayson Creek, which is a tributary of Finlayson River, a major regional drainage feature. A surface water divide exists immediately to the south of the ABM deposit.

The climatic conditions in the area of KZK were summarized by Geo-engineering Ltd. (2000) with additional data collected by Alexco Environmental Group (AEG) since 2015 (AEG, 2016a). The following presents a summary of key climate characteristics for Kudz Ze Kayah:

- The study area can be described as having a typical northern interior climate with daily mean temperatures ranging from around -25°C in January up to 15°C in July. Extreme temperatures range from -60°C in winter to 35°C in summer months.
- Total annual precipitation is estimated to be approximately 780 mm, with 290 mm falling as rain and 490 mm as snowfall (expressed as water equivalent). Annual lake evaporation is estimated to be approximately 330 mm. The snow pack generally peaks in early April although snow may continue to accumulate later in the year at higher elevations. Snow melt and ice breakup in streams generally occurs between late April and early May.
- Based on stream flow records, runoff is usually at its minimum in March and April prior to the snow-melt freshet. Runoff peaks in late May or early June due to snowmelt. Summer rainstorms can give rise to significant flood peaks between May and September, although these events are most likely to occur in June or July.
- Runoff was estimated to be about 63% of precipitation in the area of the KZK project.

## 2.5 Geology

The following sections provide a brief summary of the surficial and bedrock geology in the area of the Kudz Ze Kayah Property. More detailed discussion of the local geology and mineralization at Kudz Ze Kayah can be found in Geo-engineering (2000) and Golder (1996).

### 2.5.1 Surficial Geology

Regional 1:100 000 surficial geology maps (GSC Map 1797A, 1993) indicate that the ABM deposit area is underlain by a till veneer (less than 1 m thick or discontinuous) that may contain extensive areas of thin (less than 1 m) patchy colluvium (Figure 3). Till is described as morainal deposits; diamicton, mainly till, generally consisting of a silty sandy matrix containing pebbles, cobbles and minor boulders.

To the north of the deposit area, till is mapped as overlain by glaciofluvial deposits composed of sand, gravel, diamicton, and minor silts and clay. Geo-engineering (2000) noted that geotechnical investigations confirmed the presence of these deposits to over 40 m deep in the Geona Creek valley. South of the deposit area, till is overlain by alluvial fan sediments consisting of gravelly sand, silt and diamicton up to 10 m or more thick and colluvial apron sediments consisting of boulder diamicton, poorly sorted sands and gravels.

Borehole logs of subsurface conditions from drilling investigations undertaken in 1995 and 2015 generally concur with the mapped surficial geology, indicating that across the study area, overburden is primarily composed of till and glacial deposits ranging in thickness from a thin veneer on valley flanks, to more than 20 m near the centreline of the valley. Overburden deposits are commonly logged as consisting of an upper compact to dense brown sand with varying amounts of silt, gravel or cobble overlying a basal dense to very dense sand and gravel.

Bedrock exposures are encountered at higher elevations, steep slopes and in deep ravines where post-glacial erosion has removed the overburden mantle.

## 2.5.2 Bedrock Geology

The Pelly Mountains Ecoregion is within the Omineca Morphological Belt, an area of uplifted sedimentary, metamorphic and granitic rocks. The study area lies within a belt of metamorphosed rocks known as the Yukon–Tanana (also called Kootenay) terranes (YTT).

Geo-engineering (2000) describe the YTT in the study area as consisting of a layered sequence of metamorphosed sedimentary and volcanic rocks subdivided into three main assemblages: (1) a “lower unit” of pre Devonian Quartzite, pelitic schist and minor marble, (2) a “middle unit” of Late Devonian to lower Mississippian carbonaceous phyllite and schist with interbanded mafic and locally significant felsic volcanic units, and (3) an “upper unit” comprising Pennsylvanian marbles and quartzite. Volcanism in the “middle unit” was accompanied by the intrusion of two to three Late Devonian to Mississippian mafic to felsic metaplutonic suites. The ABM deposit is hosted within felsic volcanics of the “middle unit”.

Exploratory drilling programs in 1995 and 2015 have shown that bedrock in the vicinity of the ABM deposit mainly consists of felsic volcanics intersected with thick felsic tuff and sill/flow complexes that host the deposit. The host felsic volcanic sequence is described by Geo-engineering (2000) as underlying the extreme upper reaches of Geona Creek, Geona Lakes and South Lakes and extending east-west along strike. North of the ABM deposit, the study area is underlain by units of the metasedimentary sequence. These units occur on ridges east and west of Geona Creek (Figure 4).

Bedrock is assumed to be relatively competent, but with a highly fractured zone about two metres thick at the upper contact with the overlying sediments (Golder, 1995). Several northeast-southwest trending faults are mapped as intersecting the deposit area, including the East Fault, Northwest Fault and Fault Creek. Grain size analyses of fault gouge associated with these fault zones indicate that the gouge is comprised primarily of sand and gravel-sized material with a minor fine grained fraction.

Mineralization within the ABM deposit, which consists of the ABM and Krakatoa Zones, occurs as a stratabound body of massive sulphide up to 39 m thick, with a 700 m strike length and 400 m down-dip extent. Massive sulphide is not exposed at surface but subcrops beneath 2-20 m of overburden and dips 35 degrees to the north. A flexure at approximately 200 m depth flattens the dip to 15 degrees for the remaining 200 m. Host rocks to the mineralization are dominated by felsic volcanic and volcanoclastic rocks. Minor amounts of mudstone are intermingled with rhyolitic material or locally form discrete horizons up to several meters thick. A distinct mafic sill occurs in the footwall to the ABM deposit and is locally weakly mineralized.

## 2.5.3 Glacial History

Deposits left by Cordilleran ice sheets during the last two glaciations are found within the Pelly Mountains Ecoregion, including within the study area. During the postglacial period, streams incised into glacial sediments deposited alluvial fans and cut alluvial terraces. Intense mechanical weathering and mass wasting created colluvial mantles on mountain slopes. Rock glaciers advanced from cirques and from below precipitous slopes during the Little Ice Age (about 1550 to 1850 AD). These rock glaciers remain active in many areas (Jackson, 1994).

### 3.0 SUMMARY OF HISTORICAL HYDROGEOLOGICAL DATA AND GAP ANALYSIS

In 1995/96, Golder Associates Ltd. (Golder, 1996a and 1996b) conducted feasibility level geotechnical and hydrogeological site investigations for the KZK Project to support the overall project feasibility evaluation and the design for the tailings impoundment, waste rock storage facilities, mill site and open pit at the site.

The proposed design criteria for the pit slopes were based upon field investigations undertaken in association with the exploration drilling program in 1994 and additional drilling in 1995, as well as specific field investigations in the proposed Class B and C storage areas and a limited laboratory testing program. The focus of the field investigation was to gather information on the hydrogeological regime in the vicinity of the planned open pit, Class B and C storage areas and tailings dam options and to source a possible water supply for potable and process make-up water.

During the investigations, the following monitoring wells were installed to target proposed site infrastructure, including:

- Class B Storage Area – two monitoring wells (BH95G-32 and BH95G-33);
- Class C Storage Area – two monitoring wells (BH95G-30 and BH95G-31);
- South of Open Pit – one monitoring well (BH95G-29);
- Tailings dam sites A (not being considered in current mine plan) – five monitoring wells (BH95G-6, BH95G-7, BH95G-8, BH95G-9 and BH95G-10);
- Tailings dam sites B (not being considered in current mine plan) – four monitoring wells (BH95G-2, BH95G-3, BH95G-4, and BH95G-5);
- Tailings dam site C (not being considered in current mine plan) – one monitoring well (BH95G-12);
- Tailings dam site D (not being considered in current mine plan) – seven monitoring wells (BH95G-13, BH95G-14, BH95G-15, BH95G-17, BH95G-18, BH95G-19, BH95G-21);
- Open Pit area – thirteen monitoring wells (BH95G-20, BH95G-21, BH95G-22, BH95G-23, BH95G-24, BH95G-25, BH95G-26, BH95-129, BH95-131, BH95-135, BH95-146, BH95-148, and BH95-150);
- Mill Site (location changed in current mine plan) – four monitoring wells (BH95G-35, BH95G-36, BH95G-37 and BH95G-20M); and
- Water supply exploration well (not being considered in current mine plan) – one monitoring well (BH95G-27).

Hydraulic conductivity tests (falling and rising head tests) were conducted to estimate the hydraulic conductivity of the overburden (BH95G-21S, BH95G-22, BH95G-23, BH95G-24, BH95G-25S, BH95G-26, BH95G-29), fractured bedrock (BH95G-15D, BH95G-21D, BH95G-20, BH95G-21, BH95G-25S, BH95G-33) and competent bedrock (BH95-131, BH95-129) (Golder, 1996b). Hydraulic conductivity of the overburden and fractured bedrock varied between  $1 \times 10^{-6}$  m/s to  $1 \times 10^{-5}$  m/s, whereas the competent bedrock had lower inferred hydraulic conductivity values ranging between  $2.5 \times 10^{-7}$  m/s and  $2.6 \times 10^{-8}$  m/s.

The conceptual hydrogeological model created by Golder expected the groundwater table to generally mimic topography, with the groundwater table located near surface in the valley bottom and greater than 200m below the

mountains. They anticipated the groundwater table to be within the competent and fractured bedrock on the valley flanks and in the overburden in the valley bottoms. They found that the groundwater flows from the mountains to the valley bottoms. Artesian conditions encountered in the valley bottom indicated discharging groundwater, which is the result of the steep topography and upward hydraulic gradients.

The purpose of the mining geotechnical investigation was to address open pit slope design criteria and pit wall stability. The investigations also addressed mine dewatering requirements based on the groundwater conditions encountered in the area of the ABM deposit.

The hydrogeological data collected by Golder (1996a and 1996b) formed the basis for the updated baseline hydrogeology assessment presented in this report. However, changes to the regulatory regime and more stringent data requirements for the environmental assessment of proposed mining projects in the Yukon required the installation of additional monitoring wells and seasonal groundwater monitoring to supplement the data collected by Golder in 1995/96. Also, many of the existing monitoring wells were found to be in poor condition with no steel protective casing and very short PVC pipe stick-ups.

As part of the work plan development for the baseline hydrogeology assessment, Tetra Tech EBA designed a monitoring well network based on the historical mine plan (Cominco, 1996) that was aimed to satisfy the requirements of a project proposal review under YESAA. The monitoring well network was designed to provide groundwater information from all main aquifers in the area of each major piece of proposed mine infrastructure that may have an impact on groundwater quantity and/or quality during mine construction, operation, remediation, or post closure. The proposed monitoring well network consisted of:

- Historical monitoring wells that were able to be upgraded with proper stick-ups and steel protective casings for long-term use; and
- New monitoring wells in areas that were not covered by historical monitoring wells, or where historical monitoring wells were damaged beyond repair.

Table 1 presents the monitoring well network used for the baseline hydrogeology assessment for KZK Project, along with the date of construction and completion details for each monitoring well. The well logs of all monitoring wells used as part of this assessment are included in Appendix B1. Further details on the historical monitoring wells can be found in Golder (1996a and 1996b). The following sections provide additional detail on the new monitoring wells installed as part of the 2015 hydrogeology field program.

## 4.0 METHODS

The following sections describe the methods used for the field program and data analysis.

### 4.1 Monitoring Well and Instrumentation Installation

#### 4.1.1 Drilling

All drilling was completed using diamond drill rigs with NQ and HQ-size tools which produced a borehole diameter of 75.7 mm and 96.1 mm, respectively. Drilling was conducted by Geotech Drilling Services Ltd. of Prince George, BC. Drill water was taken from local creeks and lakes, and water was continuously pumped from the creek to a water tank located at the drill rig (as per the exploration permit). Excess and return water was drained to a sump at each drill site.

The diamond drill holes (DDHs) were drilled using a polymer-based drilling mud when required for borehole stability. Drillers were directed to use as little drilling polymer as possible. The borehole was flushed with water until there was no visible polymer in the return water prior to conducting a packer test or installing a monitoring well.

Table A presents the location, depth, and dip angle for the exploration drill holes used as part of the hydrogeological investigations. Figure 2 shows the location of the exploration drill holes where VWP's were installed, and where packer tests were conducted, as well as where monitoring wells were installed.

All monitoring wells and exploration hole collars were surveyed by Challenger Geomatics using professional surveying equipment. The vertical accuracy of the survey is about  $\pm 3$  cm.

Drill logs are included in Appendices B1 through B3. The geological logging was completed by Equity Exploration Consultants Ltd. (Equity) geologists.

#### 4.1.2 Monitoring Wells

Groundwater monitoring wells were installed in 2015 at 11 locations on site, eight of which are nested installations. These wells are located within the areas of the ABM deposit and proposed mine infrastructure, and are to be used for the ongoing assessment of groundwater elevations and quality. At most locations, a "deep" well was installed in the bedrock aquifer and a "shallow" well was installed within the shallow overburden aquifer where present. Well logs for all monitoring wells are included in Appendix B1.

Tetra Tech EBA observed the drilling of each borehole as the drilled depth approached the anticipated groundwater depth. The following procedures were employed in the determination of whether groundwater had been intercepted and the interval the deep groundwater monitoring well was to be screened over:

- When drilling close to the expected groundwater depth, drilling was halted, water switched off and water levels were monitored. Where water levels were observed to be rising, the depth to water was recorded several times in order to estimate the recovery rate. Water was then added to the borehole in small volumes (to accelerate recovery) until the water level was observed to be falling.
- The driller was asked to note any increases in water returns (an increase in return may indicate interception of groundwater). Artesian conditions were encountered at several locations across the site and an increase in return was noted at several locations.

**Table A: Exploration drill holes used for hydrogeological investigations and monitoring wells**

Hole ID	Alternate Hole ID	Borehole Diameter	Easting <sup>1</sup>	Northing <sup>1</sup>	Ground Elevation	Length	Azimuth	Dip
		mm	m	m	m asl <sup>2</sup>	m bgs <sup>3</sup>	degrees	degrees
K15-200	AMB16	96.1	414749	6815599	1408.9	211.5	180	-70
K15-248	ABM50	96.1	415203	6815283	1424.4	278.5	1	-75
K15-202	ABM18	96.1	414795	6815365	1400.2	71.0	180	-60
K15-204	ABM2	75.7	414549	6815464	1457.2	149.0	180	-60
K15-206	ABM6	75.7	414651	6815747	1430.5	237.0	180	-65
K15-242	ABM46R	75.7	415134	6815439	1400.6	161.0	167	-65
K15-265	ABM51R	75.7	415206	6815594	1424.0	285.0	181	-55
MW15-01	K15-211	96.1	414472	6816559	1487.3	20.0	-	-90
MW15-02	K15-214	96.1	414808	6816270	1429.8	33.0	-	-90
MW15-03	K15-222	96.1	416317	6816052	1465.2	16.9	-	-90
MW15-04	K15-220	96.1	415786	6816156	1451.0	32.3	-	-90
MW15-05	K15-219	96.1	415852	6816872	1463.8	28.6	-	-90
MW15-06	K15-217	96.1	415460	6816722	1387.5	10.0	-	-90
MW15-07	K15-215	96.1	414922	6817784	1360.0	33.1	-	-90
MW15-08	K15-212	96.1	414904	6818518	1332.5	36.9	-	-90
MW15-09	K15-208	96.1	414709	6819177	1319.2	41.3	-	-90
MW15-10	K15-210	96.1	414794	6819203	1318.0	32.4	-	-90
MW15-11	K15-318	96.1	415079	6815119	1386.0	36.4	-	-90
WW15-01	-	205	414893	6815295	1389.9	15.2	-	-90
WW15-02	-	205	414839	6815767	1395.5	38.1	-	-90

**Vibrating wire piezometer and packer tests**

**Packer tests**

**Monitoring well**

**Pumping test well**

<sup>1</sup> Collar Coordinates; UTM NAD 83, Zone 09N

<sup>2</sup> m asl – metres above mean sea level

<sup>3</sup> m bgs – metres below ground surface

Deep monitoring wells were constructed in accordance with the following general protocol:

- A minimum of 0.1 m of 10-20 filter sand was placed at the base of the borehole.
- A screened section of 10-slot (0.010”) 32 mm (1.25”) diameter (nominal) Schedule 40 polyvinyl chloride (PVC) pipe was placed in the borehole annulus to span the desired depth interval. Screen lengths were either 9.1 m or 12.2 m (30 or 40 ft).
- Above the screened section, the PVC standpipe was completed to surface using solid lengths of 32 mm (1.25”) diameter (nominal) Schedule 40 PVC pipe.
- 10-20 filter sand was added to about 0.9 m above the top of the screened section.



- The annulus between the PVC standpipe and borehole wall was backfilled with bentonite (coated bentonite pellets, bentonite pellets and bentonite chips) from the top of the sand pack to the ground surface at MW15-01 and MW15-02 and to the bottom of the sand pack of the shallow installation at all nested monitoring wells.

Shallow monitoring wells were constructed in accordance with the following general protocol:

- A minimum of 0.6 m of clean 10-20 filter sand was placed on top of the lower bentonite plug.
- A 3.0 m screened section of 10-slot (0.010") 32 mm (1.25") diameter (nominal) Schedule 40 PVC was placed at all shallow monitoring wells except at MW15-09S, which had a 6 m screened section, in the borehole annulus at the desired depth.
- The PVC standpipe was completed to surface using 32 mm (1.25") diameter (nominal) Schedule 40 PVC solid lengths.
- 10-20 filter sand was added to about 0.5 m above the top of the screened section.
- The borehole annulus was backfilled from the top of the sand to 0.3 m below ground surface (bgs) with bentonite (coated bentonite pellets, bentonite pellets and bentonite chips).
- The borehole was completed to slightly above surface with concrete (to minimize water pooling around the well), then a protective steel casing placed over the PVC and set in concrete.
- Once the protective steel casing was installed, the solid 32 mm (1.25") diameter (nominal) Schedule 40 PVC standpipe was extended from ground surface to an accessible point within the casing.

During the deep monitoring well construction, the following procedures were employed to ensure sand and bentonite intervals were placed at the correct intervals and to minimize the risk of bridging in the borehole annulus during addition:

- Sand and bentonite was added slowly to the well to minimize the risk of bridging in the borehole annulus.
- Coated bentonite pellets (which have a delayed swelling response when submerged in water) were used below the water table to ensure they would reach the base of the borehole.
- Settled depths were recorded regularly to limit the possibility of overfilling the annulus to above the desired interval.
- When placing the sand and bentonite into the borehole annulus, the drill rods were left in place to keep the borehole annulus open and prevent collapsing in order to best place the materials within the annulus. The depth of the drill rods were measured and compared to the top of the settled materials within the borehole. The drill rods were slowly lifted to ensure that material was not settling within the drill rods to prevent jacking of the monitoring wells.

### 4.1.3 205 mm Diameter Well Installation

Two large diameter (205 mm) groundwater wells were installed in the vicinity of the proposed mine pit at the southern end of the mine site in July and August, 2015. This phase of the drilling program was conducted in recognition of the key objectives of completing multipurpose wells that could be used for:

1. Long term pumping tests to infer bulk hydraulic conductivity of the overburden and bedrock aquifers;



2. Assessment of groundwater quality; and
3. Potential use as future dewatering/extraction wells.

#### 4.1.3.1 Well Locations

Figure 2 shows the locations of WW15-01 and WW15-02. Each well was located in consultation with BMC and Equity representatives to ensure the wells were located outside of the footprint of the proposed pit and other planned site developments.

Tetra Tech EBA note that both WW15-01 and WW15-02 were proposed to be located to the north of the proposed pit location. However, during the drilling of WW15-02, bedrock was observed to be close to surface (approximately 3.0 m bgs and there was no overburden aquifer present at this location. Following review of existing well logs and consultation with BMC and Equity representatives, the location of WW15-01 was amended to the south of the proposed pit location where an overburden aquifer was expected to be present.

#### 4.1.3.2 Well Installation – WW15-01

WW15-01 was drilled and constructed by Midnight Sun Drilling Inc. (Midnight Sun) of Whitehorse, Yukon, under the direction of Tetra Tech EBA on August 1 and 2, 2015. WW15-01 was designed and constructed to monitor and test overburden aquifer conditions, with the base of the well screen contacting the top of the underlying bedrock.

A well log describing the depth and thickness of geologic materials encountered during drilling is provided in Appendix B2. In summary, a sand and gravel fill was encountered from surface to 3.7 m bgs. The fill was underlain by natural gravels, some sand to 5.2 m bgs. From 5.2 m bgs to 11.0 m bgs, a damp silt, sand and gravel unit was logged. A sand and gravel unit was encountered from 11.0 m to 15.2 m bgs. This unit was generally uniform in composition, other than a 0.4 m layer from 12.2 m to 12.6 m bgs, where a medium to coarse sand was encountered. The borehole was drilled to 15.2 m bgs, the depth at which bedrock was intercepted.

Groundwater was encountered at 11.0 m bgs, in the sand and gravel unit immediately below the base of the silt, sand and gravel unit.

Field particle size analysis was conducted on samples obtained from 12.2 m and 14.0 m bgs to design an appropriate well screen for the aquifer encountered from 11.0 m to 15.2 m bgs. Particle size distribution results from these samples are included in Appendix B2 and indicate that the primary aquifer material is medium to coarse grained sand and fine gravel.

The well screen assembly was designed based on the results of field particle size analysis on the sample collected at 14.0 m bgs (using a 50% passing rate). A summary of WW15-01 construction details is provided in Table B and detailed on its well log in Appendix B2.

WW15-01 was developed on August 1 and 2, 2015 by air lifting and jetting. The well was not surged during development as the driller was concerned that surging would create excessive downhole pressure that could blow water to the surface on the outside of the casing. To minimise potential environmental effects of discharging groundwater to Geona Creek, all water removed from WW15-01 during development was directed to and stored in a temporary sump which had been excavated adjacent to the well (Figure A). Water in the sump infiltrated into the ground within approximately 12 hours of the cessation of development. Approximately 156,000 L was removed from WW15-01 during development. The visual clarity and turbidity measurements of the development water were considered acceptable to stop development after 2.75 hours. Detailed well development records are provided in Appendix B2.

**Table B: Well Construction Summary (WW15-01)**

Well Detail	Interval	Internal Diameter (m)	Slot Size (in)	Screen Open Area Length	Notes
	m bgs			m	
Casing	-0.64 to 11.6	0.205	-	-	Standard 8" steel water well casing
K-packer	11.2 to 11.3	0.176	-	-	K-packer friction fitted to casing. Fitted to top of riser with female threaded fitting. Top of K-packer is unthreaded.
Riser	11.3 to 12.0	0.176	Solid	Solid	-
Well Screen	12.0 to 15.2	0.176	0.080	3.0	Veriperm telescopic wire wrapped well screen, (0.1905 m (7.5 in) OD)



**Figure A: Sump adjacent to WW15-01 used to store development water.**

Following development, a surface seal was installed to minimise the potential for surface water ingress and impact from potential surficial contaminants. The surface seal was installed by overdrilling around the 205 mm (8") casing with 279 mm (11") casing to a depth of 4.3 m bgs. A neat Portland cement grout was injected into the annulus between the 203 mm (8") well casing as the 279 mm (11") casing was removed from the ground, leaving an approximate 38 mm (1.5") surface seal around the 203 mm (8") casing. The well was completed by welding on a flat steel plate to the top of the 203 mm (8") casing.

#### **4.1.3.3 Well Installation – WW15-02**

WW15-02 was drilled and constructed by Midnight Sun under the direction of Tetra Tech EBA on July 30, 2015. This well was designed and constructed to target the shallow bedrock aquifer.

WW15-02 was drilled by advancing 203 mm casing through the overburden and into competent bedrock to a depth of 3.4 m bgs (to establish a seal between the overburden and bedrock units). Open hole drilling was continued in bedrock to a total depth of 38.1 m bgs. In accordance with the drilling work plan, drilling was halted at 38.1 m bgs as there had been no clear increase in water returns between 25.9 m and 38.1 m bgs, indicating competent and relatively unfractured bedrock had been intercepted. A well log describing the depth and thickness of geologic materials encountered during drilling is provided in Appendix B2.

The following points are noted in regards to observations of groundwater flow and yield during the drilling program:

- Groundwater was first noted in returns at 23.8 m bgs.
- Yield from the well at a depth of approximately 26 m bgs was estimated by the driller to be approximately 1 to 2 L/s. There was no observable increase in yield as the borehole depth was increased from 26 m to 38.1 m bgs.
- After the drill rods were tripped out of the borehole, groundwater was visually observed (through looking down the borehole with a flashlight) flowing into the borehole at four points approximately 13 m bgs. The rate of flow was estimated by the driller and Tetra Tech EBA to be approximately 0.3 L/s.

After the drill string was removed from the borehole a PVC liner was placed in the well to provide protection to equipment placed in the well (i.e. pump and monitoring equipment) from borehole collapse. As there was no observable increase in water returns during drilling from 26 m to 38.1 m bgs (and therefore inferred to be no major water bearing fractures in this interval), the liner was constructed with a 3.1 m solid section at the base of the borehole (35.0 to 38.1m bgs) to act as a sump to collect sediment and debris. A screened section was placed from 22.9 to 35 m bgs, and a second solid section from 22.9 m bgs to 0.76 m above ground. A summary of the well construction details is provided in Table C and detailed on the well log in Appendix B2.

WW15-02 was developed on July 30, 2015 by air lifting and jetting. The well was not surged during development as the driller was concerned that surging would create excessive downhole pressure that could blow water to the surface on the outside of the casing. To minimise potential environmental effects of discharging groundwater to Geona Creek, all water removed from WW15-02 during development was directed to and stored in a temporary sump, which had been excavated adjacent to the well. Water in the sump infiltrated to ground within approximately 12 hours of the cessation of development. A total of approximately 3,300 L was removed from WW15-02 during development. The visual clarity and turbidity measurements of the development water were considered acceptable to stop development after 35 minutes.

Following development, a surface seal was installed to minimise the potential for surface water ingress and impact from potential surficial contaminants. The surface seal was installed by overdrilling around the 203 mm (8") casing with 279 mm (11") casing to a depth of 2.6 m bgs. A neat portland cement grout was injected into the annulus between the 203 mm (8") well casing as the 279 mm (11") casing was removed from the ground, leaving an

approximate 38 mm (1.5”) surface seal around the 203 mm (8”) casing. The well was completed by welding on a flat steel plate to the top of the 203 mm (8”) casing.

**Table C: Well Construction Summary (WW15-02)**

Well Detail	Interval	Internal Diameter	Slot Size	Screen Open Area Length	Notes
	m bgs	m	in	m	
Steel Casing	-0.84 to 3.4	0.205	Solid	Solid	Standard 8” steel water well casing
Open Hole	3.4 to 38.1	0.203	-	-	-
PVC Casing	-0.76 to 22.9 35.0 to 38.1	0.133	Solid	Solid	Rice Schedule 40 PVC Water Well Casing
PVC Screen	22.9 to 35.0	0.133	0.020	12.1	Rice Schedule 40 PVC Slotted Water Well Casing

#### 4.1.4 Vibrating Wire Piezometers

Vibrating Wire Piezometers (VWPs) are used to measure piezometric levels and temperatures in boreholes. The sensing element of the VWP is a high strength steel wire attached to a diaphragm. The wire is excited by two coil magnets set around the connecting over tube. External pressure on the diaphragm will move the diaphragm a very small amount changing the tension on the vibrating wire. This tension change is directly proportional to the resonant frequency at which the wire will vibrate. The current resonant frequency of the wire is measured using a readout unit that connects to the cable at the surface. The resonant frequency is then converted into a pressure reading using the individual calibration record for each instrument. The calibration sheets for the VWPs installed at KZK are included in Appendix C.

Vibrating wire piezometers were installed to assess the vertical hydraulic gradient within the deeper bedrock aquifer in the area of the proposed open pit. The VWPs were installed in exploration boreholes K15-200 and K15-248 located to the west and east of Geona Creek, respectively. These two locations allow the vertical hydraulic gradient and subsurface temperatures in the deeper bedrock aquifer to be assessed on either side of Geona Creek which is believed to be a local groundwater discharge feature.

The vibrating wire instrument measures absolute pressure; subsequently measurements should be corrected for temperature and barometric pressure to calculate the actual piezometric pressure or hydraulic head. Each instrument includes a thermistor, which measures the temperature of the transducer and its surroundings. This temperature information is used to provide temperature correction to the output pressure readings. Barometric pressure readings from the KZK weather station were used to compensate the VWP data for barometric pressure changes.

Fresh water was brought to each site at least one day prior to VWP installation to allow water to equilibrate to local atmospheric conditions. VWPs were submerged in water and soaked before installation. The VWPs were installed in exploration boreholes with three VWPs installed in each borehole at various depths below the anticipated groundwater table. The VWPs were attached to the outside of a 25.4 mm (1-inch) diameter Schedule 80 PVC pipe that was lowered downhole through the open hole or drill rods depending on borehole stability. The PVC pipe was

then used as a tremie pipe to grout the VWP in place. Each hole was tremie-grouted using a cement-bentonite grout until grout return was observed through the surface casing. The surface casing was then removed and the well was completed with a protective steel casing secured in concrete. As recommended by Mikkelsen (2002), the cement-bentonite grout mix presented in Table D was used for the installation of the VWPs.

**Table D: Cement-bentonite Mix**

Material	Weight	Ratio by Weight
Water	30 gallons	2.5
Portland Cement	94 lbs (~2 bags)	1
Bentonite	25 lbs (1/2 bag, as required)	0.3

## 4.2 Hydraulic Well Testing

Hydraulic well testing consisted of packer, hydraulic response and pumping tests. Each of these tests is described in this section.

### 4.2.1 Packer Testing

Packer tests are used to infer the in situ hydraulic conductivity of a rock mass over a specific interval. All packer tests were conducted as constant head injection tests, i.e., water was injected at specific pressure steps and the resulting injection rate is recorded when flow has reached a quasi-steady state condition.

Packer tests were conducted in seven selected exploration drill holes (see Table A). The test holes were selected to provide a reasonable spatial coverage of the area of the proposed open pit. Golder (1996a) had identified a number of faults in the area of the ABM deposit. The packer test holes were also selected based on their likelihood to intersect those faults identified during previous exploration and geotechnical investigations.

A packer test system is composed of:

- A downhole assembly of two or three inflatable “packer” glands used to isolate the target interval within the DDH;
- A packer inflation system utilizing nitrogen (inert gas) to inflate the packer system and seal the test section; and,
- A water pressure system (in this case utilizing the drill mud pump and a clear water tank) to facilitate water injection at a constant pressure (head) into the tested interval with the ability to measure flow rate.

The packer tests were conducted after the drill had penetrated a specified depth or encountered a target test zone. A static water level measurement is important to determine the excess pressure ( $P_W^{max}$ ) to apply over the specific test interval. This is calculated as follows:

$$P_W^{max} = \sigma_v' = \gamma_s'(z_s) + \gamma_r'(z_{tz} - z_s)$$

Where  $\gamma_s'$  is the submerged unit weight of the overburden deposits;  $\gamma_r'$  is the submerged unit weight of the bedrock;  $z_s$  is the thickness of the overburden deposits; and  $(z_{tz} - z_s)$  is the thickness of bedrock over the tested interval. If the water pressure is too high, hydraulic fracturing or opening of fissures may alter the rock mass hydraulic



conductivity. CANMET (1977) recommends a maximum excess water pressure ( $P_W^{max}$ ) of 700 kPa. Therefore, the excess pressure was not allowed to exceed 700 kPa to avoid potential hydraulic fracturing of the bedrock. The packer inflation pressures ensure that the tested interval is properly sealed to prevent leakage of flow, slippage and damage to packers.

After the drill had reached the specified testing depth, the hole was flushed with clear water to remove any drill mud or cuttings, then the drill rods were pulled back to allow the water level to stabilize. Water for testing was pumped from a separate clean water tank. The downhole assembly was attached to the wireline and lowered through the drill rods with the bottom packer(s) extending through the drill bit into the open drill hole. The packer glands were then inflated using nitrogen gas to the calculated inflation pressure and the water pressure assembly was attached to the drill mud pump (pumping from the clean water tank). Water was then injected into the bedrock interval isolated by the packers under a constant pressure. The injection rate (flow rate) was measured by recording readings of total flow at regular time intervals. The packer tests were conducted in stages where the excess pressure was increased from 33% to 67% to 100% of  $P_W^{max}$  to a maximum pressure of 700 kPa.

Data from these tests were then analyzed to determine the hydraulic conductivity of the bedrock interval tested. The results were interpreted using the Thiem solution and the following assumptions were made:

- Steady-state condition was reached during the test;
- Laminar flow applies; and,
- Radius of influence of the test did not exceed 10 m.

The hydraulic conductivity  $K$  of the rock mass over the test zone is inferred from the field data using the following modified Thiem equation (e.g., Doe et al., 1980):

$$K = \frac{Q}{2\pi LH} \cdot \ln\left(\frac{L}{r}\right)$$

Where  $K$  is the hydraulic conductivity,  $Q$  is the flow rate ( $m^3/s$ ),  $L$  is the vertical length of the test zone (m),  $H$  is the excess head applied to the test zone (m water column), and  $r$  is the radius of the test zone (borehole radius) (m).

## 4.2.2 Hydraulic Response Testing

Hydraulic response tests were conducted to evaluate the hydraulic conductivity of the aquifer in the vicinity of the monitoring wells. Hydraulic response tests involve the instantaneous injection or withdrawal of a slug of water or solid cylinder of a known volume which cause a sudden change of the well water level. The slug injection causes an instantaneous increase in water level and a subsequent recovery phase during which the water level drops back to the static water level. This test is also referred to as a falling head test. In contrast, slug withdrawal causes an instantaneous drop in water level followed by a recovery phase with the water level rising back to the static water level. This test is also referred to as a rising head test. The recovery phase of the well water level is recorded by manual measurements and/or automatic pressure transducer readings. The recovery data can then be analyzed to infer the hydraulic conductivity of the aquifer material in the vicinity of the test well.

A series of falling and/or rising head tests were conducted on all test wells if the recovery was reasonably fast (i.e., less than 30 min). Only one or two tests were conducted on monitoring wells completed in low hydraulic conductivity formations with an associated slow recovery of the well water level during the hydraulic response test.

All hydraulic response test data were analyzed using the methods presented in Appendix D that are implemented in the software AquiferTest Pro Version 2014.1.

### 4.2.3 Pumping Tests

Pumping tests (12 hours in overburden and 24 hours in shallow bedrock) were undertaken at WW15-01 and WW15-02 in order to estimate the bulk hydraulic conductivities of the different hydrostratigraphic units (permeable overburden and shallow fractured bedrock) to better determine anticipated dewatering rates for a possible future open pit. The pumping tests also provided the opportunity to identify aquifer boundaries that may be present given the topography in the vicinity of the proposed open pit and collect groundwater quality samples.

Temporary submersible pumps were installed in WW15-01 and WW15-02 at the depths specified in Table E.

**Table E: Submersible Pump Placement (WW15-01 and WW15-02)**

Well ID	Pump Inlet Placement (m bgs)	Notes
WW15-01	9.4	<ul style="list-style-type: none"> <li>Inlet placed approximately 2.6 m above the top of the screen</li> </ul>
WW15-02	31.4	<ul style="list-style-type: none"> <li>Inlet placed approximately 3.6 m above the base of the screened section of liner in order to provide sufficient flow over the pump motor for cooling.</li> </ul>

At each well, a pressure transducer and logger was installed within a one-inch sounding tube to monitor water level response during each pumping test. Manual water level data were also collected during the testing program using a manual water level sounder. A barologger was placed at each wellhead to monitor the barometric pressure for the duration of testing so that water level data could be corrected for changes in atmospheric pressure.

Flow rates were controlled using a ball valve and rates monitored using a digital flow meter and confirmed throughout the testing program through manual measurements. Tetra Tech EBA measured temperature and field water quality parameters of discharge water at each well through the duration of the pumping test program.

#### 4.2.3.1 Observation Wells

Select wells in the vicinity of WW15-01 and WW15-02 were identified for use as observation wells, with groundwater elevations measured in the wells over the course of the pumping test program. A summary of observation wells is provided in Table F and the locations of observation wells shown in Figure 2.

**Table F: Observation Wells**

Pumping Well ID	Observation Well	Unit Observation Well Completed In	Distance From Pumping Well (m)	Direction From Pumping Well
WW15-01	BH95-23	Overburden (considered to be same unit as pumping well)	24	Southeast
WW15-02	BH95-21	Bedrock	132	South Southwest
	BH95-22	Bedrock	97	East Southeast
	ABM16	Bedrock	190	South Southwest

#### 4.2.3.2 Regulations Relating to Water Discharge

BMC currently holds a Type A Water Licence No. QZ97-026 (the Licence) for the KZK Project that was issued on November 2, 1999 and expires on September 28, 2018. Under this Licence, the licensee is authorized to dewater the overburden and bedrock in the area of the proposed open pit and discharge the water to Geona Creek (Part D.43, p. 10).

Both test wells WW15-01 and WW15-02 are located in the area of the proposed open pit and were completed so they can potentially be used as dewatering wells. Tetra Tech EBA, in consultation with BMC, therefore determined that the pumping tests can be completed under the existing Type A Water Licence.

Even though the Licence permits direct discharge of groundwater from the overburden and bedrock aquifers within the open pit area into Geona Creek, all groundwater produced during the drilling, development and pumping tests was discharged into the ground and returned to the same aquifers it was extracted from to minimize or eliminate any potential environmental impact.

Additionally, pumping tests were designed to minimize the amount of groundwater extracted during each of the tests. The maximum extraction rate was 191 m<sup>3</sup>/day for both pumping tests conducted, i.e., below the threshold of 300 m<sup>3</sup>/day for the requirement of a water licence for water use associated with a quartz mining undertaking. A Schedule 3 notice (Notification of Water Use Without a Licence) was deemed to be not required as BMC holds a valid Type A Water Licence.

#### 4.2.3.3 Pumping Test Program – WW15-01

Hydraulic testing was conducted from October 4 to 6, 2015 by Arctic Sky Welding under the supervision and direction of an onsite Tetra Tech EBA hydrogeologist.

Water pumped from the well during the pumping test program was directed to ground approximately 40 m from WW15-01 via lay flat hosing to a vegetated and low lying area to the north of the well. This was considered far enough from the pumping and observation wells for re-circulation of the pumped water into the aquifer not to be of concern. This location also maximised the distance to nearby surface water bodies (the closest lake is approximately 200 m north of WW15-01), allowing for higher pumping rates with less chance of overland flow reaching the lake. Overland flow was noted to be passive throughout the pumping test program and there was no observable transportation of particulate matter (i.e. silt, sand, or organic matter) between the discharge point and the maximum observed extent of flow.

Further information on the discharge of water to ground during the pumping test program is included in Tetra Tech EBA's November 2015 Technical Memo titled "Pumping Test Program – WW15-01 and WW15-02, Kudz Ze Kayah, October 2015" and included in Appendix E.

#### 4.2.3.4 Step-drawdown Pumping Test

A step-drawdown pumping test consisting of four 1-hour steps of approximately 2.4, 4.7, 9.5 and 15.8 L/s (37.5, 75, 150 and 250 USgpm) was undertaken at WW15-01 on October 4, 2015. The maximum drawdown during the 15.8 L/s (250 USgpm) step was 5.09 m (16.7 ft) below the static water level, at which point the water level was drawn down to the pump inlet. This occurred approximately two minutes into the 15.8 L/s (250 USgpm) step and the test was halted at this point.

After completing the step-drawdown test, Tetra Tech EBA determined that the well could be pumped at 4.4 L/s (70 USgpm) for a 12 hour constant rate test.



#### 4.2.3.5 Constant Rate Pumping Test

A constant rate pumping test was conducted on October 5, 2015 after the well had recovered to 96% of the pre-test static water level. The well was pumped at 4.4 L/s (70 USgpm) for 12 hours and the maximum drawdown during this test was 3.49 m (11.5 ft) below the pre-pumping static water level.

Following the completion of the constant rate pumping test, the groundwater level had recovered to 91 percent of drawdown (from static) after 11.5 hours, at which point the pump and associated pipework was removed from the well.

#### 4.2.3.6 Pumping Test Program – WW15-02

Hydraulic testing was conducted at WW15-02 from October 7 to 11, 2015 by Arctic Sky Welding under the supervision and direction of Tetra Tech EBA.

Prior to the commencement of the pumping test program, the static water level at WW15-02 was measured at 0.94 m above grade (level with the top of the steel casing) and was frozen within the casing. Water in the casing was thawed using a tiger torch applied to the outside of the steel casing. Following thawing and water level recovery, water was observed to be flowing over the top of the casing, indicating the static elevation is above the top of casing.

Water pumped from the well during the pumping test program was directed via lay flat hosing to a vegetated area approximately 60 m to the southeast of WW15-02. This was considered sufficient distance from the pumping and observation wells for re-circulation of the pumped water into the aquifer not to be of concern. This location also maximised the distance to nearby surface water bodies (the closest creek on the valley floor is approximately 200 m east of WW15-02), allowing for higher pumping rates with less chance of overland flow reaching the creek. Over the course of the pumping test program, overland flow was noted to be passive and there was no observable transportation of particulate matter (i.e. silt, sand, or organic matter) between the discharge point and the maximum observed extent of flow.

Further information on the discharge of water to ground during the pumping test program is included in Tetra Tech EBA's November 2015 Technical Memo titled "*Pumping Test Program – WW15-01 and WW15-02, Kudz Ze Kayah, October 2015*", included in Appendix E.

#### 4.2.3.7 Step-drawdown Pumping Test

A step-drawdown test was conducted at WW15-02 on October 7, 2015. During the first step of this test, Tetra Tech EBA observed that the contractor's flow meter was not reading flows accurately with the actual flow rate (based on flow into a 5 gal pail) on the order of three to four times the target flow rate. Due to the inaccurate flow meter readings, Tetra Tech EBA requested the contractor halt the test at the completion of the first step.

Following delivery to site of a flow meter capable of measuring low flow rates, a second step-drawdown pumping test consisting of four 1-hour steps of 0.13, 0.25, 0.76 and 1.9 L/s (2, 4, 12 and 30 USgpm) was undertaken at WW15-02 on October 9, 2015. The maximum drawdown during the 1.9 L/s (30 USgpm) step was 24.4 m (80 ft) below the static water level. At approximately 3.5 minutes into the fourth step, the drawdown increased rapidly and the pumping rate dropped below 1.9 L/s (30 USgpm), even with the discharge valve fully open. As the water level dropped, the pumping rate decreased further as the pump worked to overcome the increasing head. The step-drawdown test was halted after 18 min into the fourth step as useful data was no longer being collected.

After completing the step-drawdown, Tetra Tech EBA determined, based on the data collected from the step rate test that the well could be pumped at 0.7 L/s (11 USgpm) for the 24-hour constant rate test.

#### 4.2.3.8 Constant Rate Pumping Test

A constant rate pumping test was conducted on October 9, 2015 after the well had recovered to 91% of the pre-test static water level. The well was pumped at 0.7 L/s (11 USgpm) for two hours, at which point the water level had drawn down approximately 28 m (92 ft). This was a markedly different response to being pumped at this rate than what had been observed during the step-drawdown test. With drawdown showing no signs of stabilising and the water level nearing the pump inlet, the test was halted after two hours.

The well was left to recover to 92% of the pre-test static water level and a second constant rate test commenced on October 10, 2015. The well was pumped at 0.19 L/s (3 USgpm) for a 24 hour period and the maximum drawdown during this test was 5.73 m (18.8 ft) below the pre-test static water level.

The groundwater level had recovered to 63% of drawdown (from static) after 6 hours, at which point the pump and associated pipework was removed from the well.

### 4.3 Groundwater Level Measurements

Groundwater levels were recorded at each monitoring well using an electronic water level sounder as part of each round of groundwater monitoring. Groundwater levels were measured prior to disturbance by purging and sample collection.

All groundwater levels were measured relative to the top of the PVC well casing. The depth-to-water measurements were converted into piezometric elevations in m asl using the survey data.

### 4.4 Groundwater Sampling

The following sections describe the methods used for groundwater sample collection.

#### 4.4.1 Groundwater Sampling – Monitoring Wells

The groundwater monitoring wells installed at the site were purged and sampled using field methods in accordance with internal work methods that form part of Tetra Tech EBA's Quality Management System. The work methods are based upon generally accepted industry best practices and is in general accordance with applicable ASTM standards. Groundwater monitoring and sampling was completed by qualified Tetra Tech EBA hydrogeologists.

Prior to sampling, the static water level was measured in each well, using an electric measuring tape. Wells were then purged and sampled using an inertial pump. The monitoring wells were purged by removing a minimum of three well volumes (where possible) using a Waterra inertial pump prior to a sample being obtained. Where purge rates were high and required purged volumes low (i.e. less than 15 to 20 L), up to six holding volumes were purged prior to sample collection. Field parameters were recorded after approximately the first litre was purged from the well and then at regular intervals to sample collection.

As described above, while purging, physicochemical parameters (pH, temperature, electrical conductivity, and dissolved oxygen) were measured and recorded. All field measurements were conducted in a 1 L-bottle that was also used as a flow cell. The field parameters were measured using a YSI Professional Plus Multimeter. The pH probe was calibrated using a two-point calibration with pH 7 and pH 10 calibration solutions. The electrical conductivity probe was calibrated using a one-point calibration with a 1,413  $\mu\text{S}/\text{cm}$  standard. The pH and electrical conductivity readings were checked every day while in the field using pre-made calibration solutions and found to have drifted very little from calibrated values.

After each monitoring well was purged, samples were collected for analysis of low-level total and dissolved metals, acidity, alkalinity, anions, dissolved organic carbon, electrical conductivity, hardness, ammonia, total phosphorus, pH, total dissolved solids, dissolved orthophosphate and total Kjeldahl nitrogen.

In addition to the monitoring wells, two flowing artesian wells (designated ART-3 and ART-4) in the area of the ABM deposit were sampled prior to being capped. The two wells are located at 414798 E / 6815481 N (ART-3) and 414947 E / 6815750 N (ART-4). Both wells are located in the western portion of the proposed open pit.

Each sample was labelled with the location ID, project number and the date. New, clean sample containers and appropriate preservatives for each suite of tests were provided by the laboratory. Samples were appropriately preserved in the field and the majority of dissolved metals and dissolved organic carbon samples field filtered using a 0.45 µm filter. Samples were stored in coolers containing ice packs and delivered to the laboratory (Maxxam Analytics in Burnaby, BC) under chain of custody control within the appropriate holding times. The Maxxam laboratory is an accredited ISO/IEC 17025 testing laboratory.

#### **4.4.2 Groundwater Sampling – WW15-01 and WW15-02**

One sample was collected from WW15-01 by Tetra Tech EBA on October 5, 2015 immediately prior to the completion of the 12 hour constant rate pumping test and one sample was collected from WW15-02 by Tetra Tech EBA on October 11, 2015 immediately prior to the completion of the 24 hour constant rate pumping test.

Both samples were analyzed for total dissolved solids, alkalinity, electrical conductivity, pH, total organic carbon, total suspended solids, major ions (bicarbonate, carbonate, hydroxide, chloride, sulphate, and fluoride), dissolved metals, total metals, biological oxygen demand, and turbidity.

Samples were collected in laboratory supplied sample bottles in accordance with laboratory sampling protocols. All samples were stored on ice and shipped to Whitehorse via road then by air cargo to Maxxam Analytics, an accredited ISO/IEC 17025 testing laboratory located in Burnaby, BC.

#### **4.5 Capping of Flowing Wells**

At the request of BMC, Tetra Tech EBA and Arctic Sky Welding attended and capped a number of flowing artesian boreholes across the Project area. This work was conducted in conjunction with the October 2015 pumping test program. Male threaded NQ (60 mm ID) and NW (76.2 mm ID) size borehole caps made from machined aluminum were fitted directly into the female threaded borehole steel casing.

Where casing was corroded or out of shape, caps were fitted and secured using pipe and chain wrenches. These boreholes will likely require similar tools to remove the caps if access is needed in the future. If seepage was still evident following capping, the cap was removed and electrical tape was wrapped around the cap thread to enhance the seal.

Table G provides a summary of the capping work conducted. Tetra Tech EBA notes that ten borehole locations were attended by Arctic Sky Welding and their work was not viewed or verified.

#### **4.6 Ground Temperature Monitoring**

Ground temperatures were monitored using the VWP's installed at two locations within the area of the ABM deposit (K15-200 and K15-248; see Section 4.1.4). In addition, Knight Piesold (2016) installed four additional observation wells in early 2016 with ground temperature cables across the KZK Project area. Table H shows the location and completion details of the ground temperature observation wells. Figure 2 shows the location of the four ground temperature observation wells. The ground temperature observation wells were completed with 25 mm (1")

diameter PVC standpipes grouted in place. The thermistor cables were installed inside the PVC standpipe filled with silicone oil. Each of the observations wells is equipped with a datalogger collecting two measurements of ground temperatures per day.

**Table G: Borehole Capping Program (October 2015)**

Hole ID	Casing Size	Well Capped	Capped/ Attended by	Notes
K94021	NW	Yes	Tetra Tech EBA	Sealed using electrical tape around cap thread
K97172	NW	No	Tetra Tech EBA	Could not cap as PVC casing extending out of steel casing. Will need to be revisited with tool appropriate to internally cut PVC (i.e. a dremel), then capped
K95161	NW	Yes	Arctic Sky Welding and Tetra Tech EBA	Sealed using electrical tape around cap thread
K94026	NW	Yes	Arctic Sky Welding	Capped and sealed
K98190N	NW	No	Arctic Sky Welding	Two boreholes were understood to be at this location, only one could be located. Cap fitted to this borehole.
K98190S	NQ	Yes	Arctic Sky Welding	Capped and sealed
K95170	NQ	No	Arctic Sky Welding	Two boreholes were understood to be at this location, only one could be located. The casing of this borehole was too big for NQ or NW cap. Is possibly HQ size (77.9 mm ID)?
K95170	NW	No	Arctic Sky Welding	
K98194N	NQ	Yes	Arctic Sky Welding	Capped and sealed
K98194S	NW	Yes	Arctic Sky Welding	Capped and sealed
K98195N	NQ	Yes	Arctic Sky Welding	Capped and sealed
K98195S	NW	Yes	Arctic Sky Welding	Capped and sealed
K98191	NW	Yes	Arctic Sky Welding	Borehole identified by adjacent stake as K98191. This borehole was not on original list to be capped. Capped following conversation between Arctic Sky Welding and Equity Exploration representative (Kelli Bergh) where Equity Exploration directed Arctic Sky Welding to cap any additional flowing boreholes noted.

**Table H: Ground Temperature Observation Wells**

Final Drillhole ID	UTM NAD83 Zone 09N			Thermistor Cable ID	Datalogger ID	Thermistor Cable Length (m)	Depth of Thermistor Nodes (m bgs)
	Easting (m)	Northing (m)	Elevation (m asl)				
KP15-01	414,924	6,818,696	1,347	TS4038	04775	50	0.99
							1.99
							2.99
							4.49
							6.49
							9.49
							13.49
							20.49
							33.49
48.49							
KP15-02	415,347	6,816,411	1,387	TS4036	04777	30	1.58
							2.58
							3.58
							5.08
							7.08
							10.08
							14.08
							19.08
							24.08
29.08							
KP15-05	414,667	6,817,327	1,421	TS4035	04779	30	1.50
							2.50
							3.50
							5.00
							7.00
							10.00
							14.00
							19.00
							24.00
29.00							
KP15-06	414,792	6,819,016	1,318	TS4037	04776	50	1.30
							2.30
							3.30
							4.80
							6.80
							9.80
							13.80
							20.80
							33.80
48.80							

## 5.0 RESULTS AND DISCUSSION

### 5.1 Monitoring Well Completion

A total of 19 groundwater monitoring wells were installed at 11 locations to study the hydrogeological regime at the site. All monitoring wells were installed as nested pairs with the exception of MW15-01, MW15-02 and MW15-06. Figure 2 shows the locations of the newly installed monitoring wells.

Table 1 (attached) presents the well completion details for the monitoring wells installed as part of this project. Well logs indicating the lithologies encountered and well completion details are included in Appendix B1. Depth to groundwater and groundwater elevations are summarized in Table 2 (attached).

Issues were encountered during the monitoring well installation at MW15-05 and MW15-06. While installing the bentonite seal above the sand pack, the driller lost count of the number of drill rods that had been pulled. Consequently, bentonite chips were poured in the annulus between the drill rods and the monitoring wells. When removing another drill rod, the monitoring wells jacked. The shallow well, MW15-05S, lifted approximately 0.6 m resulting in the screened section being above the top of the sand pack. The deep well, MW15-05D, did not appear to be damaged but when confirming the depth to bottom within the well, the measurement taken after the well jacked was shallower than before. As bentonite was also noted within the well, it appears as though MW15-05D was damaged during the installation.

While installing the surface seal at MW15-06, the PVC standpipe broke approximately 0.6 m below ground. The PVC was extended using a coupler, however, some bentonite and sand entered the well. During the well development, some of the bentonite and sand were removed from the well.

No other issues were encountered during the drilling and monitoring well installations.

### 5.2 Vibrating Wire Piezometers

VWPs were installed into two exploration boreholes, ABM16/K15-200 and ABM50/K15-248 within the area of the proposed open pit. Table I summarizes the completion details of the two nested VWP installations including the depths of installation.

The pressure readings from the VWP were converted into piezometric elevations based on the elevation at which the instrument was installed. The raw and reduced data from the VWPs are presented in Appendix C. Inferred piezometric elevations are also summarized in Table J. The depths below ground presented in Table I should be considered approximate as the values do not take into account elevation changes between the drill collar and the actual location of the VWPs based on the azimuth and dip of the borehole.

#### 5.2.1 Inferred Piezometric Elevations

Groundwater piezometric elevations were inferred from the pore pressure measurements with the VWPs and direct measurements of the depth to groundwater in the deep monitoring wells. The depth to groundwater and groundwater elevation measurements collected at KZK are presented in Table 2 (attached) and Appendix C, and summarized in Table J below. The pore pressure measured by the VWPs is usually significantly affected by the disturbance due to drilling and grouting of the well and depending on the permeability of the formation and grout, it may take a considerable period of time for the pore pressures to re-equilibrate. The observed pore pressure readings from the VWPs (see Appendix C) suggest that the pore pressures have mostly returned to pre-disturbance conditions. However, additional readings from the VWPs are required to verify this observation.

The shallow monitoring wells MW15-03S through MW15-11S were installed within the overburden aquifer. The piezometric elevations measured in the shallow monitoring wells therefore reflect the shallow groundwater table within the overburden. Piezometric elevations observed in the shallow monitoring wells are summarized in Table K.

**Table I: VWP Installation Details**

Area	VWP ID	Well ID	Azimuth	Dip	VWP No.	Depth Along Hole (m)	Depth (m bgs)	VWP S/N
						m ah	m bgs	
ABM Open Pit (west of Geona Creek)	VWP15-01	ABM16/ K15-200	180	-70	1	49.99	46.98	33427
					2	124.97	117.43	33428
					3	199.95	187.89	33430
ABM Open Pit (east of Geona Creek)	VWP15-02	ABM50/ K15-248	180	-50	1	50.80	47.74	33426
					2	174.30	163.79	33429
					3	274.30	257.76	33431

'VWP' Vibrating Wire Piezometer

'm ah' meter along hole

'm bgs' meters below ground surface

'S/N' serial number

**Table J: Piezometric elevations inferred for the bedrock aquifer at KZK measured on September 22 and 23, 2015 (unless noted otherwise)**

Well ID	Easting	Northing	Top of Casing Elevation	Depth to Groundwater	Piezometric Elevation
	m	m	m asl	m btoc	m asl
MW15-01	414472	6816559	1488.54	11.42	1477.12
MW15-02	414808	6816270	1431.19	Flowing <sup>1</sup>	1431.19
MW15-03D	416317	6816052	1466.18	2.77	1463.41
MW15-04D	415786	6816156	1452.07	7.20	1444.87
MW15-05D	415852	6816872	1464.88	11.72	1453.16
MW15-07D	414922	6817784	1360.86	Flowing <sup>1</sup>	1360.86 <sup>1</sup>
MW15-08D	414904	6818518	1333.42	0.64	1332.78
MW15-09D	414709	6819177	1319.75	Flowing <sup>1</sup>	1319.75 <sup>1</sup>
MW15-10D	414794	6819203	1318.89	Flowing <sup>1,2</sup>	1318.89 <sup>1,2</sup>
MW15-11D	415079	6815119	1387.07	Flowing/frozen?	1387.07 <sup>1,3</sup>
K15-200-VWP-1	414749	6815599	1408.93	5.19	1403.74
K15-200- VWP-2	414749	6815599	1408.93	2.14	1406.79
K15-200- VWP-3	414749	6815599	1408.93	2.34	1406.59
K15-248- VWP-1	415207	6815283	1424.38	18.1	1406.28
K15-248- VWP-2	415207	6815283	1424.38	17.34	1407.04
K15-248- VWP-3	415207	6815283	1424.38	6.52	1417.86
BH95G-2	414341	6819836	1349.77	4.89	1344.88



Well ID	Easting	Northing	Top of Casing Elevation	Depth to Groundwater	Piezometric Elevation
	m	m	m asl	m btoc	m asl
BH95G-21	414802	6815641	1403.47	2.11	1401.36
BH95G-22	414928	6815729	1385.52	2.3	1383.22
BH95G-24	415037	6815258	1385.30	Flowing	1385.30
BH95G-25D	415074	6815522	1386.90	4.38	1382.52
BH95G-30	415437	6816766	1386.88	Frozen @ 0.61	1386.27
BH95G-31	415199	6816129	1391.74	1.09	1390.65
BH95G-32	415008	6816134	1387.46	4.95	1382.51
BH95G-33D	415130	6816745	1390.48	5.83	1384.65
BH95-129	414601	6815499	1444.66	5.63	1439.03
BH95-131	415182	6815377	1417.29	31.22	1386.07
BH95-146	414898	6815504	1390.23	Flowing	1390.23

UTM coordinates are measured in NAD83 and Zone 9V

<sup>1</sup> – Artesian conditions observed at this well. Groundwater elevation is assumed to be at the top of the PVC pipe.

<sup>2</sup> – Groundwater elevations measured on September 5, 2015.

<sup>3</sup> – Groundwater elevations measured on November 7, 2015.

**Table K: Piezometric elevations inferred for the overburden aquifer at KZK measured on September 22 and 23, 2015 (unless noted otherwise).**

Well ID	Easting	Northing	Top of Casing Elevation	Depth to Groundwater	Piezometric Elevation
	m	m	m btoc	m btoc	m asl
MW15-03S	416317	6816052	1466.19	4.81	1461.85
MW15-04S	415786	6816156	1452.06	7.84	1444.85
MW15-05S	415852	6816872	1464.88	Dry	-
MW15-06	415460	6816722	1388.56	0.39	1388.56
MW15-07S	414922	6817784	1360.90	1.55	1359.38
MW15-08S	414904	6818518	1333.51	Flowing <sup>1</sup>	1333.51 <sup>1</sup>
MW15-09S	414709	6819177	1319.66	0.10	1319.56
MW15-10S	414794	6819203	1318.92	0.37 <sup>2</sup>	1318.29 <sup>2</sup>
MW15-11S	415079	6815119	1387.14	2.13 <sup>3</sup>	1385.01 <sup>3</sup>
BH95G-23	414906	6815276	1387.18	0.83	1386.35
BH95G-25S	415073	6815522	1386.92	1.38	1385.54
BH95G-29	415197	6814543	1392.56	Flowing	1392.56
BH95G-33S	415130	6816745	1390.48	6.3	1384.18

UTM coordinates are measured in NAD83 and Zone 9V

<sup>1</sup> – Artesian conditions observed at this well. Groundwater elevation is assumed to be at the top of the PVC pipe.

<sup>2</sup> – Groundwater elevations measured on September 5, 2015.

<sup>3</sup> – Groundwater elevations measured on November 7, 2015.



## 5.3 Hydraulic Well Testing

The following sections present the results of the hydraulic well tests conducted to infer the hydraulic conductivity of the bedrock aquifer at KZK

### 5.3.1 Packer Testing Results

This section presents the results of the packer tests that were employed to collect data for determining the bedrock hydraulic conductivity in the areas of the main mineralized zones at KZK. The results of the individual packer tests are presented in Tables 3A and 3B (attached). The raw data and analysis for each packer test are included as Appendix F.

In addition to the packer tests conducted by Tetra Tech EBA, Knight Piesold also conducted packer tests on geotechnical drill holes in December 2015 using a similar method as described in Section 4.2.1 (Knight Piesold, 2016). The results of the packer tests conducted by Knight Piesold are also presented in Table 3B. However, as Tetra Tech EBA was not involved with conducting and analyzing of these packer tests, we cannot confirm the quality and accuracy of the data and rely on the information provided by Knight Piesold.

The packer tests were conducted at selected depth intervals deemed representative for both intersected bedrock sequences and structural features encountered as observed in the drill core. All test intervals were chosen over intervals expected to be below the groundwater table.

To assess the validity of the packer test data with respect to the assumptions implied by the analytical method of Thiem for inferring the aquifer hydraulic conductivity, the observed flow rate is plotted against the injection pressure for each pressure step (Figures 5a to 5g; attached). Ideally the flow rate should increase linearly with increasing injection pressure. However, deviation from the linear behaviour is often observed in packer test data and can be caused by a variety of reasons including, but not limited to, the following:

- Washing out of gouge material from fractures causing increased permeability;
- Fracture dilation or hydraulic fracturing due to excessive pressure;
- Clogging of fractures by transported material with a decrease in permeability; and,
- Turbulent (non-Darcian) flow due to excessive flow rate.

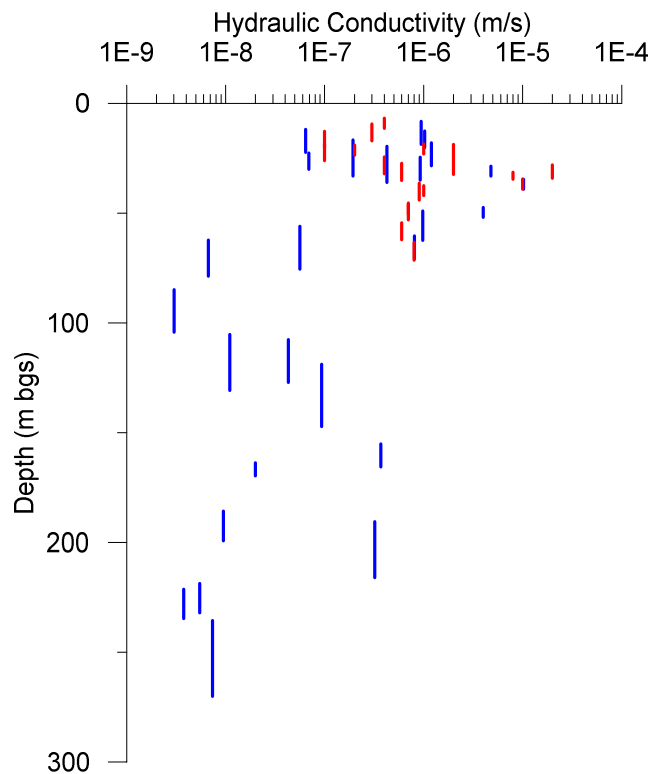
Tables 4A and 4B (attached) summarize the results of the diagnostic plot analysis and presents a data quality assessment. Packer tests with ideal linear flow behaviour are likely to result in reliable estimates of hydraulic conductivity using the method presented in Section 4.2.1. Moderate quality data will likely still result in reasonable estimates of hydraulic conductivity but should be used with some caution. Poor quality data with non-linear flow behaviour should be interpreted cautiously and may not result in representative estimates of hydraulic conductivity.

As shown in Tables 4A and 4B most packer tests yielded good to moderate quality data that are expected to provide reliable estimates of the bedrock hydraulic conductivity in the immediate vicinity of the test holes. The poor quality data may not satisfy the underlying assumptions of the analysis method presented in Section 4.2.1 and may not provide reliable estimates of bedrock hydraulic conductivity. These results are highlighted in Tables 3A and 3B, not included in Figure B, and should be used with caution.

Tables 3A to 3B (attached) presents the inferred hydraulic conductivities for each packer test. The inferred hydraulic conductivities range from about  $<1 \times 10^{-9}$  m/s to about  $1 \times 10^{-5}$  m/s which are typical values for fractured bedrock (e.g., Freeze and Cherry, 1979).

Equity Exploration Consultants also logged all drill core for some basic geotechnical parameters, including Recovery and Rock Quality Designation (RQD). Both Recovery and RQD are related to the degree of fracturing of the bedrock and therefore potentially to the permeability as well. Figures 6a and 6b (attached) shows the inferred hydraulic conductivities from packer tests along with the Recovery and RQD values. However, there is no clear correlation between the inferred hydraulic conductivities and Recovery or RQD.

Figure B shows the inferred hydraulic conductivities as a function of depth. Typically, hydraulic conductivities decrease with depth as a result of increased pressure due to the overlying rock mass and the associated closure of permeable features, such as joints and faults. A similar trend is apparent in Figure B with a decreasing trend in the inferred hydraulic conductivities with increasing depths.



**Figure B: Hydraulic conductivities inferred from packer tests vs. depth (blue – packer tests conducted by Tetra Tech EBA; red – packer tests conducted by Knight Piesold)**

### 5.3.2 Hydraulic Response Testing Results

Hydraulic response tests were conducted on all monitoring wells where artesian conditions were not present to infer the hydraulic conductivity of the bedrock and overburden aquifers. Multiple tests were conducted on each monitoring well to confirm the test results and reduce uncertainty if the recovery was sufficiently fast. Only one or two tests were conducted on monitoring wells that exhibited a very slow recovery. However, all hydraulic response tests conducted on slow recovery wells produced suitable response data and Tetra Tech EBA therefore deems the inferred hydraulic conductivities reliable.

Table L summarizes the hydraulic response test results for each individual monitoring well. The hydraulic response test data and detailed analysis are included in Appendix D.

The inferred hydraulic conductivities agree reasonably well with the results from the packer tests discussed in Section 5.3.1.

**Table L: Hydraulic Response Test Results**

Well ID	Number of Tests	Inferred Hydraulic Conductivity
		Geometric Mean
		(m/s)
MW15-01	3	1.2E-06
MW15-03S	4	8.5E-06
MW13-03D	4	1.9E-06
MW15-04S	3	1.1E-05
MW15-04D	4	9.2E-07
MW15-05D	5	1.3E-06
MW15-06	3	1.5E-06
MW15-07S	5	4.5E-06
MW15-08D	3	1.3E-07
MW15-09S	3	1.6E-06
MW15-10S	4	2.0E-06
MW15-11S	2	3.6E-05

### 5.3.3 Pumping Test Results

Pumping tests were conducted at WW15-01 and WW15-02 in order to estimate the bulk hydraulic conductivities of the permeable overburden and shallow fractured bedrock units.

#### 5.3.3.1 Pumping Test Results – WW15-01 (Overburden)

Water levels were recorded during the step-drawdown and constant rate tests at WW15-01 and observation well BH95G-23. Observed drawdown and recovery in both wells during the constant rate pumping test are shown in Figure E1 (Appendix E). Figure E1 shows the water level in WW15-01 continued to fall throughout the 12-hour pumping test and had not stabilised at the termination of the test.

Figure E2 presents a semi-log plot of time vs drawdown in WW15-01 and observation well BH95G-23. This figure shows a slowing in the rate of drawdown after approximately 5 hours, potentially indicating a recharge boundary had been encountered. Based on the surrounding setting, it is possible the recharge boundary may be associated with leakage from the pond, located approximately 40 m to the east of WW15-01.

Data recorded at BH95G-23, a small diameter (32 mm) well which is screened in the same aquifer as WW15-01 indicates a direct and rapid hydraulic connection between the two wells, with changes in pumping rates at WW15-01 during the step rate and constant rate tests observed almost immediately at BH95G-23.

Drawdown data at WW15-01 and BH95G-23 during the constant rate test were analyzed using the Cooper-Jacob Straight-Line Time-Drawdown and Theis recovery Methods (e.g., Fetter, 2001). Both interpretation methods were applied using the software AquiferTest Pro (by WHI, v2014.1), which was used to analyze the pumping test data (see Appendix E).

The results of the pumping test are presented in Table M. The observed hydraulic conductivity of about  $1 \times 10^{-4}$  m/s is typical for conductive sand and gravel deposits as encountered at WW15-01. However, this value is significantly higher than the geometric mean of the hydraulic conductivity of the overburden aquifer ( $4 \times 10^{-6}$  m/s) inferred from the hydraulic response tests (see Table 3A). It should be noted that the highest hydraulic conductivity inferred from the hydraulic response tests was also observed in the area of the ABM deposit (MW15-11S), which may indicate that the hydraulic conductivity of the overburden aquifer in the area of the proposed open pit is higher than the average of the study area.

Based on data collected from the observation well (BH95G-23) during the pumping test, the aquifer has a storativity value of  $6.5 \times 10^{-4}$ , which is in line with typical literature values for storativity values in confined aquifers (e.g., Fetter, 2001).

**Table M: Pumping Test Results WW15-01**

Well	Method	Transmissivity (T)	Hydraulic Conductivity (K) <sup>1</sup>	Storativity (S) <sup>2</sup>
		[m <sup>2</sup> /s]	[m/s]	[unitless]
<b>Pumping Well</b>				
WW15-01	Cooper-Jacob	5.1E-04	1.2E-04	-
	Theis Recovery	3.8E-04	9.0E-05	-
	<b>Mean</b>	<b>4.5E-04</b>	<b>1.1E-04</b>	-
<b>Observation Well</b>				
BH95G-23	Cooper-Jacob	5.1E-04	1.2E-04	6.5 E-04
	Theis Recovery	4.0E-04	9.6E-05	-
	<b>Mean</b>	<b>4.6E-04</b>	<b>1.1E-04</b>	-

<sup>1</sup>Assumes an aquifer thickness of 4.2 m <sup>2</sup> Based on radial distance from the pumping well of 24 m.

### 5.3.3.2 Pumping Test Results – WW15-02 (Bedrock)

Water levels were recorded during the step-drawdown and constant rate tests at WW15-02. Observed drawdown and recovery in WW15-02 during the constant rate pumping test is shown in Appendix E. As shown in Figure E3, the water level continued to fall throughout the 24-hour pumping test, although the data shows there was very little change in water level during the last 12 hours of the test (< 0.1 m).

Dataloggers were installed in nearby groundwater wells BH95G-21 and BH95G-22 during the pumping test program. Both of these wells are small diameter (32 mm) monitoring wells. BH95G-21 is screened in bedrock from approximately 6 to 9 m bgs while BH95G-22 is screened across the overburden and bedrock aquifers. The data recorded from these two wells showed no response to the pumping of WW15-02 during the step-drawdown or constant rate tests. Readings were also obtained from VWP's in K15-200 over the course of the pumping test program. The VWP's in K15-200 measures piezometric levels at three intervals in the bedrock aquifer; 47 m, 117 m and 188 m bgs. Measurements from the VWP's at 47 m and 188 m bgs did not show a response to the pumping of

WW15-02, with elevations generally increasing over the course of the pumping test program. The VWP at 117 m bgs showed an approximate 0.23 m decline in elevation over 12 hr period in the middle period of the pumping test, before showing a 0.03 m increase in elevation over the last eight hours of the test. Tetra Tech EBA consider this response is unlikely to be related to the pumping test at WW15-02 and is more likely related to exploration drilling work that was being conducted in the general vicinity.

While the absence of clear response in observation well infers there may not be a hydraulic connection between the pumping and observation wells/ VWP's, the pumping rates and time intervals of the testing program, particularly the 24-hour constant rate test (3 USgpm) may not have been sufficient to induce a response in the observation wells.

The drawdown data during the pumping test were analyzed using the Cooper-Jacob Straight-Line Time-Drawdown and Theis recovery Methods (e.g., Fetter, 2001). Both interpretation methods were applied using the software AquiferTest Pro (by WHI, v3.5), which was used to analyze the pumping test data (see Appendix E).

The results of the WW15-02 pumping test are presented in Table N. The observed hydraulic conductivity of about  $1.7 \times 10^{-6}$  m/s is in the expected range for fractured rock aquifer, such as that encountered at WW15-02.

**Table N: Pumping Test Results WW15-02**

Well	Method	Transmissivity (T)	Hydraulic Conductivity (K) <sup>1</sup>
		[m <sup>2</sup> /s]	[m/s]
WW15-02	Cooper-Jacob	7.6E-5	2.2E-6
	Theis Recovery	3.9E-5	1.1E-6
	<b>Mean</b>	<b>5.8E-5</b>	<b>1.7E-6</b>

<sup>1</sup>Assumes an aquifer thickness of 34.7 m

### 5.3.3.3 Well Capacity – WW15-01 and WW15-02

WW15-01 and WW15-02 were designed and constructed in recognition that they may be used during mining operations as dewatering/ extraction wells. Pumps used for dewatering/ extraction should be selected in recognition of the maximum theoretical yield that can be obtained from a well.

The maximum theoretical yield from a well is governed by multiple factors including maximum flow through the well screen (screen transmitting capacity) and maximum flow within the well casing/screen (to maintain laminar flow). When assessing the maximum pumping rate, it should be set at the smallest of the governing flow rates for the well.

#### WW15-01

Table O provides recommended maximum flow values for WW15-01, based on physical well details and assumes that the pump is placed within the screen to maximise its dewatering capability.

Table O shows that flow from WW15-01 will be constrained by the screen transmitting capacity value. In order to ensure laminar flow and maximise pump efficiency, the ideal pumping rate for WW15-01 is at or below 26 L/s (416 USgpm). If this well is to be used as a dewatering well, a pump should be selected in consideration of this constraining flow rate.

## WW15-02

Table P provides recommended maximum flow values for WW15-02 based on physical well details. These calculations are based on the 152 mm (6") PVC liner installed in the well.

Table P shows flow from WW15-02 will be constrained by the screen transmitting capacity. Therefore, in order to ensure laminar flow and maximise pump efficiency, based on the physical well details, the ideal pumping rate for WW15-02 is at or below 5.5 L/s (87 USgpm).

Tetra Tech EBA notes that in reality, flow from the well will be constrained by the yield from the aquifer. Based on the October 2015 pumping test program, pumping rates on the order of 0.7 L/s (11 USgpm) resulted in drawdown close to the base of the well. If this well is to be used as a dewatering well, the pump should be selected in consideration of this constraining flow rate, rather than the higher screen transmitting capacity value.

**Table O: Well Capacity - WW15-01**

Flow Type	Maximum Flow Value	
	L/s	USgpm
Screen Transmitting Capacity <sup>1</sup>	26	416
Casing/Well Screen (0.176 m [7" diameter]) <sup>2</sup>	39	615

<sup>1</sup>Assumes screen is fully saturated <sup>2</sup>Based on screen internal diameter as pump likely to be placed within screen for dewatering

**Table P: Well Capacity - WW15-02**

Flow Type	Maximum Flow Value <sup>1</sup>	
	L/s	USgpm
Screen Transmitting Capacity	5.5	87
Casing/ Well Screen (0.133 m [5.2" internal diameter]) <sup>2</sup>	31	338

<sup>1</sup> Assumes 12.1 m screen is fully saturated <sup>2</sup>Based on screen inner diameter (ID) of 0.133 m

<sup>2</sup> Based on screen section internal diameter as pump likely to be placed within screen for dewatering

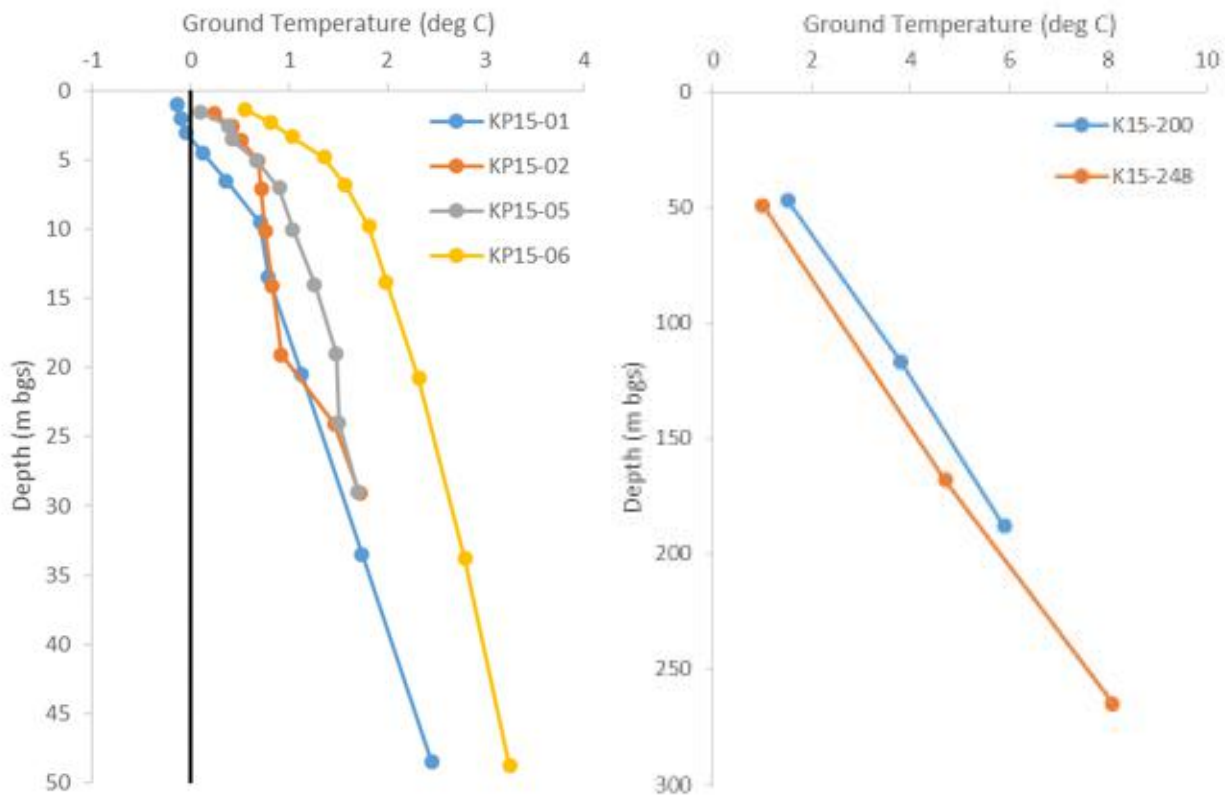
## 5.4 Ground Temperatures

Ground temperatures were measured using two observation wells with VWP's within the area of the ABM deposit and four ground temperature observation wells with thermistor cables located across the site. The VWP's were installed in August 2015 whereas the four ground temperature observation wells were installed in December 2015 with the thermistor cables deployed in February 2016. It is expected that drilling and well installation resulted in a disturbance of the ground temperature profile in the vicinity of the observation wells and that it would take several days to weeks for the ground temperatures to re-equilibrate. Ground temperatures were monitored in March 2016 about six weeks after the last disturbance caused by well completion. Data recorded twice a day for the ground temperature observation wells indicate that temperatures had re-equilibrated shortly after deployment of the

thermistor cables by consistent temperature readings below a depth of about 10 m bgs. Figure C shows the ground temperature profiles observed in the ground temperature observation wells and VWP, respectively.

The ground temperature profiles presented in Figure C suggest that permafrost is absent at all six locations below a depth of about 50 m bgs, and completely absent (even at shallow depths) at the locations of the four ground temperature observations wells KP15-01, KP15-02, KP15-05, and KP15-06. The negative temperatures measured in KP15-01 near surface very likely represent seasonal frost rather than shallow permafrost.

The geothermal gradient inferred from the ground temperature measurements below about 15 m depth (i.e., below the depth of seasonal ground temperature fluctuations) is about 3°C per 100 m for wells KP15-05, KP15-06, K15-200 (VWP) and K15-248 (VWP) which is an average geothermal gradient for continental crust. However, ground temperatures recorded in KP15-01 and KP15-02 suggest a much larger geothermal gradient of about 50°C per km which would be an anomalously high geothermal gradient. It should be noted that KP15-01 and KP15-02 are only about 50 m and 30 m deep, respectively, and that the VWPs in K15-200 and K15-248 span a much larger depth range of about 150 m and 200 m, respectively; and hence, are likely to provide a more reliable estimate of the regional geothermal gradient. One possible explanation of the higher geothermal gradient observed in KP15-01 and KP15-02 is that the shallow ground temperatures at these locations are affected by upwelling of warmer groundwater from greater depth which would be in line with the observed upward vertical hydraulic gradients at most locations throughout the site (see Section 6.2).



**Figure C: Ground temperatures observed across the KZK project site. (A) Ground temperatures measured in ground temperature observation wells. (B) Ground temperatures measured by VWPs in the area of the ABM deposit.**



## 5.5 Groundwater Quality

The following sections present a characterization of the baseline groundwater quality at the site based on data collected to date.

### 5.5.1 Summary of Historical Groundwater Quality Data

In September 1995, groundwater samples were collected from select piezometers and exploration holes to characterize the quality of groundwater providing baseflow to Geona Creek and South Creek (Cominco, 1996; Table Q). One piezometer below the proposed tailings dam (BH95G-13D), and two in the area of the proposed open pit (BH95G-26 and BH95G-29) were sampled, and analyzed for a range of non-metal "general parameters" as well as total and dissolved metals. The general parameters included pH, conductivity, suspended solids, dissolved solids, hardness, alkalinity, nitrogen species, phosphorous and sulphate. Three other piezometers, located on the north and south sides of the open pit (BH95G-21 and BH95G-23), and west of the proposed Class C Storage Area (95G-31) were also sampled. These samples were analyzed for total and dissolved metals only. Flowing exploration boreholes were sampled including one each on the north and south sides of the open pit (T94-23 and T94-49). These samples were analyzed for general parameters and total and dissolved metals. Three other borehole samples (T94-14, T94-26 and T94-30) were analyzed for total and dissolved metals only. All of the exploration boreholes were cased through the overburden, and are open for the remaining length of the borehole in bedrock.

Analytical results showed that groundwater chemistry was similar to surface water chemistry (Table R). The groundwater pH was similar to that of surface water. Alkalinity, total dissolved solids and hardness were slightly higher in groundwater than in surface water. Sulphate concentrations were variable, with two wells (one shallow, one deep) having sulphate concentrations more than double the concentrations in surface water and the remaining three having similar concentration to surface water. Concentrations of nitrate, nitrite and ammonia were generally low except for a moderate level of nitrate-N (0.13 mg/L) in shallow well BH95G-26. The two shallow overburden wells (BH95G-26 and BH95G-29) had phosphorus concentrations an order of magnitude or more above those measured in surface water. Metal concentrations in both shallow and deep groundwater were low. In particular, copper and lead concentrations in all groundwater samples were equal to or lower than the concentrations in surface water. Exceptions to the pattern of low metals were elevated concentrations of arsenic and iron in the three deep bedrock wells within the orebody (T94-49, T94-30 and T94-13) and elevated arsenic, iron, cadmium and zinc in one overburden well.

The deep well (T94-49) with the highest arsenic and iron concentrations (170 µg/L and 4300 µg/L, respectively) also had elevated sulphate (71.4 mg/L) and the lowest pH and alkalinities of any of the wells measured. Zinc was also somewhat elevated (160 µg/L). Sulphate, pH and alkalinity were not measured in the shallow well that had elevated arsenic, iron, cadmium and zinc (BH95G-26).



**Table Q: Summary of Wells with Historical Groundwater Quality Data (Cominco, 1996)**

Borehole	Location	Well Screen (mbgs)	Flowing	Analyses		Field Measurements			
				General Parameters	Metals Only	pH	Cond (µS/cm)	Temp (°C)	DO (mg/L)
BH95G-13D	Tailings Dam	39.4-50.3	Y	X		8.2	202	3.0	4.2
BH95G-26	Open Pit	10.0-14.3	N	X		7.9	330	2.5	3.5
BH95G-29	Open Pit	14.3-19.2	N	X		8.0	228	2.5	2.4
BH95G-21	Open Pit	5.3-10.0	N		X	7.8	218	2.0	7.6
BH95G-23	Open Pit	8.8-12.8	Y		X	8.0	228	2.5	2.4
BH95G-31	Class C Storage	2.4-10.0	N		X	8.0	160	2.0	7.4
T94-23	Open Pit	-	Y	X		8.1	252	2.5	1.9
T94-49	Open Pit	-	Y	X		7.9	398	2.5	2.0
T94-14	Open Pit	-	Y		X	7.9	398	2.5	2.0
T94-26	Open Pit	-	Y		X	8.1	235	3.5	1.8
T94-30	Open Pit	-	Y		X	8.0	245	2.5	3.2

**Notes:**

Cond – Specific conductance

Temp – Water temperature

DO – Dissolved oxygen

**Table R: Historical Groundwater Quality Data (Cominco, 1996)**

PARAMETER	UNIT	BH95G-13	BH95G-31	BH95G-26	BH95G-21	BH95G-23	BH95G-29	T94-23	T94-26	T94-49	T94-30	T94-14
Specific Conductance	µS/cm	350	-	783	-	-	516	567	-	449	-	-
Nonfilterable Residue	mg/L	4	-	826	-	-	28	6	-	14	-	-
Filterable Residue (TDS)		210	-	386	-	-	224	463	-	240	-	-
Hardness, Dissolved		177	143	320_	193	111	204	236	201	170	201	355
Alkalinity Total 4.5		160	-	254	-	-	168	185	-	98.9	-	-
Ammonia Nitrogen		0.01	-	<0.005	-	-	<0.005	0.009	-	0.016	-	-
Nitrate Nitrogen		<0.02	-	0.13	-	-	<0.02	<0.02	-	<0.02	-	-
Nitrite Nitrogen		<0.005	-	<0.005	-	-	<0.005	<0.005	-	<0.005	-	-
Phosphorus - Total		<0.003	-	0.187	-	-	0.511	0.003	-	0.013	-	-
Sulfate		13.4	-	72.9	-	-	38.1	47.5	-	71.4	-	-
<b>Dissolved Metals</b>												
Silver	µg/L	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.05	<0.01	0.03
Aluminum		7	15	<6 <sup>1</sup>	10	15	17	7	7	7	9	13
Arsenic		0.26	0.06	0.39	0.7	61	3.8	0.29	0.06	170	33	23
Barium		73	97	82	37	36	55	38	25	17	28	24
Cadmium		<0.01	0.02	0.16	<0.01	6	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt		<0.4	0.4	0.4	<0.4	4.2	<0.4_	<0.4	<0.4	0.7	<0.4	<0.4
Chromium		0.5	11	8.7	0.3	1.3	0.5	0.3	0.3	0.6	0.3	0.3
Copper		0.2	0.7	0.3	0.2	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Iron		320	54	38	8	4800	500	590	440	4300	2100	1800
Mercury		0.02	-	0.04	-	<0.01	0.04_	0.06	-	<0.01	<0.01	7
Manganese		160	10	56	46	570	120	46	20	240	250	20t
Molybdenum		2.9	0.5	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Nickel		<1	8	4	<1	9	<1	<1	<1	1	<1	<1
Lead		<0.1	<0.1	<0.1	<0.1	0.3	0.2	<0.1	<0.1	<0.1	<0.1	<0.1
Selenium		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc		2	3	27	3	2700	4	<1	<1	160	11	<1

## 5.5.2 Current Baseline Groundwater Quality

The following sections present the results of the groundwater monitoring events conducted in May, August/September, and November 2015, and March 2016. The laboratory analytical results of the monitoring events are summarized in Tables 5A to 5E (attached). Laboratory reports are included in Appendix G.

### 5.5.2.1 Quality Assurance and Quality Control (QA/QC)

A summary of the QA/QC procedures implemented for the groundwater monitoring program to ensure the validity of the data set is provided in Table S. Sample duplicate results and relative percent differences (RPD) are presented in Table 6 (attached).

**Table S: Groundwater monitoring QA/QC**

QA/QC Aspect	Evidence and Evaluation
Sample Integrity	<p>All samples were collected in new sample bottles provided by the laboratory (Maxxam Analytics, located in Burnaby BC). All preservatives were also provided by the laboratory. The samples were shipped on ice with a Laboratory Request Form/ Chain of Custody as soon as feasibly possible following the completion of the fieldwork.</p> <p>Tetra Tech EBA notes that given the remote location of the property and the intermittent courier service that operated between the camp and Whitehorse, samples often arrived at the Burnaby laboratory several days after sample collection. Tetra Tech EBA ensured that samples were placed on ice, packed in insulation and shipped in insulated coolers; however, the long transit times meant that on occasion samples arrived at the laboratory above the preferred temperature (4°C).</p>
Holding Times	<p>All samples were received by the laboratory within appropriate holding times with the following exceptions:</p> <ul style="list-style-type: none"> <li>▪ pH: holding time of 15 min was exceeded; however, pH was also measured in the field</li> <li>▪ Nitrate/nitrite: holding time of 3 days was exceeded for separate analysis of nitrate and nitrite. However, nitrate + nitrite were also analyzed as a combined parameter within the appropriate holding time of 28 days.</li> </ul>
Field Procedures	<p>Monitoring wells were sampled using Waterra inertial pumps. Field parameters were monitored while purging and samples were taken when field parameters were stabilized to ensure a representative sample was obtained.</p>
Calibration of Field Equipment	<p>The following calibration of field equipment was undertaken regularly during fieldwork and documented on standard field forms.</p> <ul style="list-style-type: none"> <li>▪ pH: three-point calibration with pH4, pH7 and pH10 calibration solutions</li> <li>▪ Electrical conductivity: one-point calibration with a 1,413 µS/cm standard</li> <li>▪ Dissolved oxygen: air calibration</li> </ul> <p>Calibration solutions were pre-made by Hanna Instruments and were within expiration dates. Calibration data indicated that field equipment was operating within suitable precision and accuracy ranges during field programs.</p>
Ion Balance	<p>To evaluate the quality of the analysis, the ion balance for each sample was calculated, i.e., the balance between sum of anion and cation equivalent charges. Usually, an ion balance of within (0±10)% is considered satisfactory. The calculated ion balances vary from 0.31% to 6.1% (see Tables 5A to 5E), i.e., the ion balance for all samples is within (0±10)%. This suggests that analytical errors are within acceptable limits and all major cations and anions were included in the analyses.</p>
Blind Duplicates	<p>A blind duplicate is a coded duplicate sample submitted to the primary laboratory for analysis as an individual sample without any indication to the laboratory that it has been duplicated. Blind duplicates allow comparison of parameters that are analysed using identical analytical techniques to ascertain the</p>

QA/QC Aspect	Evidence and Evaluation
	<p>method precision. Blind duplicate pairs were collected simultaneously, with each container filled with approximately 10% of the total sample volume at a time until both containers are filled.</p> <p>Eight blind duplicate samples were collected during the 2015/16 groundwater monitoring program which equates to a frequency of one duplicate to every nine samples collected.</p> <p>Relative percent difference (RPD) calculations for duplicate samples are shown in Table 6.</p> <p>Most duplicate results showed an acceptable relative percent difference (RPD) of less than 30% when compared to concentrations measured in the respective sample from the same monitoring well for all concentrations greater than five times the method detection limit (MDL).</p> <ul style="list-style-type: none"> <li>▪ Acceptance Criteria: RPD &lt; 30%</li> <li>▪ Groundwater Samples Analysed: 82</li> <li>▪ Blind Replicate Samples Analysed: 8</li> <li>▪ Blind Replicate Analyte Pairs: 503</li> <li>▪ Number of Analyte Pairs Exceeding Criteria: 22</li> <li>▪ Percentage of Analyte Pairs Exceeding Criteria: 4.4%</li> </ul> <p>Total metals and total phosphate RPDs were not calculated given the high turbidity of many samples potentially resulting in erroneous concentrations and high RPDs. This does not affect the validity of the results given that total metals and total phosphorus concentrations are generally not representative of mobile (in situ) concentrations in groundwater and are not compared against guideline values.</p> <p>As shown above and in Table 6, a number of duplicates fell outside the typically acceptable 30% RPD range. Of the elevated RPDs, a number of exceedances are noted where concentrations are within 10 times the laboratory detection limit (LDL). Tetra Tech EBA notes that while the RPD value can appear exaggerated where concentrations are close to the detection limit, there can be a comparatively low difference in concentrations between samples. Therefore, a reasonable level of confidence can still be obtained from results within 10 times the LDL when RPD values are over 30%.</p> <p>A number of duplicate pairs with concentrations above 10 times the LDL displayed RPD values in excess of the acceptable 30% range. Where these exceedances were observed, results were checked and confirmed by the laboratory.</p> <p>There is no firm understanding as to the reason for these discrepancies, with various parameters displaying exceedances across the course of the monitoring program. Sampling field sheets indicated that wells were generally purged to stabilization of physicochemical parameters measured in the field and field personnel collected duplicate samples using appropriate procedures (splitting sample between primary and duplicate samples to collect representative and homogeneous samples). Discrepancies may be due to a number of factors including the high turbidity/ sediment content noted in some samples (potentially resulting in variability in dissolved metals concentrations after filtering), the long transit time to the lab (potentially allowing sample chemistry to alter) or laboratory analytical error.</p> <p>Tetra Tech EBA notes that where these duplicates exceeded the 30% RPD range, they were generally within the variability of results displayed across the monitoring program and within the range displayed across the study area. <u>Where a duplicate pair exceeded the 30% RPD range, in all samples the maximum primary and duplicate concentrations were below the maximum site concentration and below all applicable water quality guideline values.</u></p> <p>Tetra Tech EBA consider that for the purpose of this hydrogeological assessment, primary and blind duplicate results and the dataset as a whole are considered acceptable to characterize groundwater chemistry across the study area.</p>
Trip Blanks	<p>Trip blanks are analyte-free reagent water that are sent from the laboratory to the field, and are later returned along with samples. Containers remain unopened in the field and in storage transit. Trip blanks are useful to determine contamination that might arise from sample containers, preservatives, handling, transport and storage conditions.</p>

QA/QC Aspect	Evidence and Evaluation
	<p>Three trip blanks, consisting of samples of laboratory supplied de-ionised water, were submitted for analysis during the May 2015, September 2015 and March 2016 monitoring programs. Samples were analyzed for the same parameters as groundwater samples. A fourth trip blank was submitted to the laboratory with the November samples on November 8, 2015 and accidentally placed on hold. Analysis was requested on 16 December 2015, however the laboratory advised us that the sample had been disposed of. All three trip blank samples showed trace concentrations of bicarbonate alkalinity. Trace concentrations of total aluminum and total iron were detected in May 2015, along with trace concentrations of lithium in September 2015 and manganese in March 2016. Orthophosphate was detected in the September 2015 and March 2015 samples. Ammonia was detected in the September 2015 sample. Where detected, concentrations in trip blanks were between 1 and 2.3 times the MDL. Sample containers remained closed while in the possession of Tetra Tech EBA and in sealed coolers under Chain of Custody when in transit. Tetra Tech EBA considers it is extremely unlikely that contamination of the trip blanks occurred in transit or storage on Site as contamination through screw caps or leaching through plastic bottles would only be considered possible by highly volatile compounds. We consider that it is far more likely that the parameters detected were either present in the reagent water prior to filling bottles, were contaminated in the laboratory during analysis preparation or are erroneous detections.</p> <p>Tetra Tech EBA understands that based on detections of these parameters in trip blank samples there is the potential that groundwater samples may be reported at erroneously high concentrations. However, as detections in blanks were reported at concentrations typically well below those detected in groundwater, at concentrations only just above the MDL and at concentrations between 8 and 250 times lower than the relevant guideline criteria, any impact to groundwater samples would have been minor and would not be considered to effect the overall conclusions and recommendations of this hydrogeological assessment report.</p>
Laboratory Internal QA/QC	Laboratory internal QA/QC is detailed within the laboratory reports (Appendix G). The laboratory showed acceptable testing frequency and results for method blanks, laboratory duplicates and matrix spikes.
Laboratory Detection Limit	Laboratory reports indicate that the MDL's were lower than the respective assessment criteria for all parameters.
Other	Tetra Tech EBA notes that dissolved metals concentrations (in particular lead) reported for WW15-01 in October 2015 are potentially erroneous given that several dissolved concentrations are higher than the total concentrations, as well as one result (lead) being substantially higher than the concentration reported from the same well in the previous monitoring round. The analytical laboratory was called and confirmed analytical results reported were correct. While the cause of the variance cannot be confirmed, it is considered possible that during filtration a break in the filter has potentially allowed sediment into the dissolved sample, resulting in elevated concentrations.
Validity of Data Set	The data quality review indicates no significant systematic errors in the data collection or analysis process for groundwater and therefore, the data set used as the basis for the groundwater assessment is considered valid and complete.

### 5.5.2.2 Discussion of Groundwater Chemistry

#### General Site Wide Groundwater Chemistry

In general, the chemical composition of groundwater depends on the local and upgradient aquifer lithologies. As groundwater flows through an aquifer it assumes and continuously evolves a characteristic chemical composition due to interaction with the aquifer matrix. As such a groundwater sample represents the local and upstream aquifer conditions, and its composition is a function of aquifer lithology, solution kinetics, water residence time, mixing, and groundwater flow patterns.

Given the extent of the site (over 5 km north to south), the various groundwater flow systems and recharge sources (east and west of Geona Creek) and the potential for differing chemistry in the vicinity of the ABM deposit, the study area was divided into five zones for the purpose of assessing and comparing groundwater chemistry. Each zone generally represents either an assumed separate flow system, where potential differences in groundwater quality may exist (i.e. ABM deposit location) or areas of future potential contaminant sources (e.g., Class A, B and C storage areas). Table T details the five areas and the extent of each area is shown in Figure 7.

**Table T: Zones for Groundwater Chemistry Interpretation**

Area	Number of Wells	Rationale and Notes
Zone 1	9 (4 overburden, 5 bedrock)	<ul style="list-style-type: none"> <li>▪ Spans east and west of Geona Creek</li> <li>▪ Includes the mill site, tailing management facility, water management pond and polishing pond</li> </ul>
Zone 2	9 (4 overburden, 5 bedrock)	<ul style="list-style-type: none"> <li>▪ East side of Geona Creek</li> <li>▪ Includes the Class C Storage Facility and Seepage Collection Pond, overburden stockpile.</li> </ul>
Zone 3	5 (1 overburden, 4 bedrock)	<ul style="list-style-type: none"> <li>▪ West side of Geona Creek</li> <li>▪ Includes the Class B Storage Facility and Seepage Collection Pond</li> </ul>
Zone 4a	10 (2 overburden, 8 bedrock)	<ul style="list-style-type: none"> <li>▪ West side of Geona Creek</li> <li>▪ Includes ABM deposit</li> </ul>
Zone 4b	6 (3 overburden, 3 bedrock)	<ul style="list-style-type: none"> <li>▪ East side of Geona Creek</li> <li>▪ Includes ABM deposit</li> </ul>

Groundwater analytical chemistry results from the 2015/16 monitoring program at KZK Property are provided in Tables 5A through 5E.

A summary of maximum, minimum and average results of key parameters from each of the five zones as well as the entire study area is provided in Table U. pH, total dissolved solids, dissolved hardness were selected as key parameters as they are generally representative of overall general water quality and can be used for broad scale comparison and assessment of water types and potential groundwater regimes. Sulphate was selected as a key parameter as concentrations are expected to be elevated in areas downgradient of where groundwater contacts the deposit (due to the oxidation of sulfide to sulfate).

Note that average values may be skewed by wells that were sampled multiple times during the 2015-16 program whereas other wells in the same zone may only have been sampled once.

**Table U: Key Analytical Results, Zone 1 to Zone 4b, 2015/16 Groundwater Monitoring Program**

Zone	Number of Samples <sup>1</sup>	Temperature (°C)	Field pH (units)	Total Dissolved Solids (mg/L)	Dissolved Hardness (mg/L)	Sulfate (mg/L)
Zone 1	17	0.0 - 3.3	5.68 - 7.71 (7.0)	176 - 1,960 (593)	136 - 2,108 (575)	1.0 - 52 (29)
Zone 2	19 - 24	0.0 - 1.7	6.06 - 8.1 (7.6)	136 - 266 (208)	78.9 - 212 (158)	10 - 42.2 (22)
Zone 3	12 - 13	0.1 - 2.4	6.59 - 8.5 (7.5)	206 - 370 (282)	181 - 296 (229)	33.3 - 138 (59)
Zone 4a	20 - 25	0.1 - 4.3	5.98 - 8.6 (7.3)	180 - 832 (353)	112 - 415 (207)	37.2 - 273 (102)
Zone 4b	12 - 14	0.1 - 4.3	7.13 - 7.79 (7.4)	258 - 772 (575)	204 - 683 (483)	44 - 222 (164)
Study Area	80 - 93	0 - 4.3	5.68 - 8.6 (7.4)	136 - 1,960 (379)	78.9 - 2,108 (396)	1.01 - 273 (68)

xx - xx maximum and minimum range from all wells (includes duplicates), 1995 & 2015/16 groundwater monitoring program  
 (in brackets) - average concentration from all wells (includes duplicates), 1995 & 2015/16 groundwater monitoring program

<sup>1</sup>Range provided where there is variability in the suite of analytes between 1995 and 2015/16 and due to field parameters not being reported on duplicates.

The following key points are noted in regards to general groundwater chemistry within the study area over the 2015/2016 groundwater monitoring program:

- Field pH values ranged from 5.68 to 8.6 units and averaged a slightly alkaline 7.4 in both overburden and bedrock aquifers across the whole study area.
- Groundwater has an average total dissolved solids (TDS) concentration of 379 mg/L across the study area. TDS averaged 406 mg/L in bedrock wells and 306 mg/L in overburden wells. Zone 1 and Zone 4b exhibited the highest average TDS concentrations, indicating groundwater is more mineralised in these zones. The highest TDS concentration (1,960 mg/L in Zone 1) was more than twice the highest TDS in any of the other four zones.
- Dissolved hardness concentrations are variable across the site, ranging from 78.9 to 2,108 mg/L. The maximum concentration reported in Zone1 was over three times higher than the next highest maximum concentration (in Zone 4b). Average and maximum concentrations were typically higher in bedrock wells than overburden wells in each zone and appear to increase in concentration with depth within the bedrock aquifer.
- Sulfate concentrations averaged 68 mg/L across the study area, with an average of 67 mg/L in overburden wells and 69 mg/L in bedrock wells. Sulphate concentrations were highest in Zones 4a and 4b and showed a general trend of increasing concentration with depth in these two zones.
- Groundwater temperatures ranged from 0.0 to 4.3°C.
- Many monitoring wells showed considerable variability in analytical results over the course of the monitoring program suggesting there may be a strong seasonal influence on groundwater chemistry. Ongoing groundwater monitoring scheduled in 2016/2017 will provide additional data to characterize seasonal changes in groundwater quality and quantity.

## Metals

A site wide summary of the range and average concentration of key metals potentially associated with a massive sulphide ore deposit is provided in Table V. Zinc, lead and copper were selected as key parameters as these metals may be elevated in areas hydraulically downgradient of where groundwater contacts the deposit. Arsenic, cadmium and iron were selected as key parameters as these metals have been detected at concentrations above guidelines in multiple wells across the site over the monitoring program.

Note that all results presented and discussion is in reference to dissolved metals. Total metal concentrations have not been discussed as these concentrations are often dependent on well completion, well development and sampling method and are typically less representative of in situ groundwater quality and mobile dissolved phase concentrations.

The following points are noted in relation to key metals concentrations across the site from the 1995 and 2015/16 groundwater monitoring programs:

- Zinc concentrations were considerably higher in Zones 4a and 4b than any of the other three zones as expected due to the ABM deposit.
- Lead concentrations were considerably higher at Zone 4a than any of the other zones as expected due to the ABM deposit.
- Copper concentrations were relatively similar across the study area, but slightly higher at the ABM deposit.
- Iron concentrations are considerably higher in Zones 1, 4a and 4b than the other two zones.
- Across the study area copper and iron concentrations were similar in both bedrock and overburden monitoring wells.
- Average arsenic concentrations ranged between 0.31 and 43 µg/L. The average and maximum concentrations in Zone 4a were approximately ten times higher than the next highest zone, Zone 4b.
- Average and maximum selenium concentrations were higher in Zones 1, 2 and 3 than concentrations reported in the deposit vicinity (Zones 4a and b).
- Cadmium concentrations were highest in Zone 4a, with the maximum concentration almost ten times higher than the next highest zone, Zone 4b.
- On average, lead concentrations were higher in overburden wells than bedrock wells (7.8 µg/L and 0.46 µg/L respectively).
- On average, zinc concentrations were higher in overburden wells than bedrock wells (841 µg/L and 136 µg/L respectively).

Further discussion of major ion chemistry and metals concentrations within individual zones is provided in the following sections.



**Table V: Key Dissolved Metals Results, 2015/16 Groundwater Monitoring Program**

Zone	Number of Samples	Zinc (µg/L)	Lead (µg/L)	Copper (µg/L)	Iron (µg/L)	Arsenic (µg/L)	Selenium (µg/L)	Cadmium (µg/L)
Zone 1	17	0.87 - 24.9 (9.7)	0.01 - 1.36 (0.21)	<0.05 - 3.09 (0.45)	2.2 - 36,600 (6,705)	0.66 - 11.7 (2.5)	<0.04 - 6.2 (1.3)	<0.005 - 1.57 (0.39)
Zone 2	24	0.39 - 10.6 (2.7)	<0.005 - 0.259 (0.045)	<0.05 - 2.02 (0.51)	<1 - 934 (200)	0.06 - 2.29 (0.82)	<0.04 - 2.49 (0.7)	<0.005 - 0.175 (0.031)
Zone 3	13	0.25 - 5.03 (1.6)	<0.005 - 0.141 (0.042)	0.062 - 0.613 (0.29)	<1 - 129 (39)	0.098 - 0.88 (0.31)	0.326 - 6.27 (2.1)	<0.005 - 0.13 (0.034)
Zone 4a	26	0.21 - 5,080 (951)	<0.005 - 122 <sup>1</sup> (5) <sup>1</sup>	<0.05 - 6.44 (0.56)	2.4 - 10,400 (2,800)	0.024 - 181 (43)	<0.04 - 0.804 (0.15)	<0.005 - 31.6 (2.6)
Zone 4b	14	0.5 - 845 (65)	<0.005 - 4.06 (0.86)	<0.05 - 3.7 (0.54)	114 - 7,620 (2464)	0.407 - 10.3 (4.9)	<0.04 - 1.35 (0.12)	<0.005 - 3.75 (0.29)
Study Area	94	0.21 - 5,080 (206)	<0.005 - 122 <sup>1</sup> (1.2) <sup>1</sup>	<0.05 - 6.44 (0.47)	<1 - 36,600 (2442)	0.024 - 181 (10.3)	<0.04 - 6.2 (0.87)	<0.005 - 31.6 (0.67)

< – less than MDL

XX - XX – minimum and maximum range from all wells, 1995 & 2015/2016 groundwater monitoring program

(in brackets) – average concentration from all wells (concentrations less than MDL were conservatively assumed to be equal to the MDL), 1995 & 2015/2016 groundwater monitoring program

<sup>1</sup> value of 122 µg/L is potentially erroneous. Average Zone 4a lead concentration is 0.55 µg/L and average site lead concentration is 0.28 µg/L when value of 122 µg/L not included in calculation.

### 5.5.2.3 Discussion of Groundwater Chemistry, Zone 1 to Zone 4b

The following sections provide a more detailed discussion of major ion chemistry and metals concentrations in each of the five zones.

Major ion chemistry is determined through a review of groundwater samples chemical composition, taking into account all major anions and cations exceeding 10 meq-%<sup>1</sup>. The water type or hydrochemical facies is determined by listing the ions with concentrations greater than 10 meq-% in decreasing order (cations are listed first). Figures 8a through 8e show trilinear Piper Plots illustrating the major ion chemistry and hydrochemical facies for all groundwater samples collected during the September 2015 (or closest corresponding date) groundwater monitoring event. The September event was selected for Piper plots because it was the most complete round of monitoring (most wells sampled) during the 2015/16 program.

<sup>1</sup> The unit meq-% represents the percentage of cations and anions calculated from their milliequivalents per litre (meq/L). The unit meq/L is the molar concentration multiplied by the charge of the ions.

## Zones 1 to 3 (North of ABM Deposit)

### Zone 1

- In general, groundwater in Zone 1 can be described as calcium-magnesium-bicarbonate-sulphate type water (see Figure 8a). While there are no clear differences in major ion chemistry between the overburden and bedrock aquifers, the following points are noted:
  - BH95G-2, a shallow bedrock monitoring well (19.8 m bgs) which is the furthest north in the monitoring network, has a slightly higher proportion of magnesium and lower proportion of calcium than the other eight wells in this zone.
  - MW15-09D and MW15-10D have a lower proportion of sulphate than the other monitoring wells.
- Zone 1 reported the highest site wide TDS concentration at bedrock monitoring well MW15-10D. MW15-10D is a 31.5 m deep well and consistently reported TDS results over two times higher than any other well on site. There is insufficient information to determine the mechanism behind the high TDS at this location, although it is considered likely to be associated with groundwater having a comparatively long residence time in the bedrock aquifer, allowing the dissolution of more mineral species along its flow path.
- The average pH in Zone 1 was 0.3 units lower than the next highest zone. Of the nine wells in this area, three wells (two shallow bedrock [ $<50$  m deep] and one overburden) reported slightly acidic water quality, with pH ranging from 6.17 to 5.68 units, which is over 1.2 units below the site wide pH average.
- In general, metals concentrations in the bedrock aquifer are approximately equal to or higher than metals concentrations in the overburden aquifer.
- Average nitrate concentrations are higher in the bedrock aquifer than the overburden aquifer.
- Gas was observed to emanate from MW15-10D. A gas sample was collected by Tetra Tech EBA using appropriate safety equipment including a portable gas detector and self-contained breathing apparatus, assuming the gas could potentially be hazardous. The results of the gas sample indicate that the gas contained mostly carbon dioxide (782,000 ppmV) and nitrogen (100,000 ppmV) with small amounts of methane (15.3 ppmV) and hydrogen sulfide below the detection limit ( $<2,500$   $\mu\text{g/L}$ ). The laboratory certificate is included in Appendix G. Based on the results above, there does not seem to be an immediate hazard associated with the chemical composition of the gas emanating from MW15-10. However, as a precautionary measure we recommend that any person accessing this monitoring well wear a portable gas detector. A second person should be present at the site and stand back while the other person opens the well cap and measures the gas concentrations using the portable gas detector. Well sampling should only proceed if the gas composition has been deemed safe based on the readings from the portable gas detector.

### Zone 2

- The dominating cations in the groundwater were found to be calcium and magnesium, although the samples obtained from monitoring wells MW15-03S and MW15-05D contained significant amounts of sodium and lesser amounts of calcium (see Figure 8b). The dominating anions within the groundwater were found to be bicarbonate and sulphate. In general, the major ion chemistry is relatively similar for the samples collected from both overburden and bedrock wells and do not show any clear differences between the two aquifers.
- Zinc, lead and iron concentrations were all below the site wide averages and well below the site wide maximum concentrations.

- In general, metals concentrations in the bedrock aquifer are higher than concentrations in the overburden aquifer.
- Average nitrate and nitrite concentrations are higher in the bedrock aquifer than the overburden aquifer.

### Zone 3

- Groundwater quality was only obtained from wells screened in the shallow (<50 m deep) bedrock aquifer as there was insufficient water in the single overburden well in this zone to obtain a sample in the September 2015 monitoring round and the well was dry in the subsequent November 2015 and March 2016 monitoring rounds.
- In general, the major ion chemistry is relatively similar for all samples collected with the dominating cations calcium and magnesium and the dominating anions bicarbonate and sulphate (see Figure 8c).
- Zinc, lead and iron concentrations were all below the site wide averages and well below the site wide maximum concentrations.

### Zone 4a and 4b (ABM Deposit)

Tetra Tech EBA understands that the proposed mine design will require the excavation of an open pit. During pit excavation and mine operation, overburden and bedrock will be dewatered (through dewatering wells, trenches and/or sumps) to enable excavation and keep the pit from flooding.

Under the site's existing water licence (Yukon Territory Water Board Type A Water Use Licence Number QZ97-026 (Exp. September 28, 2018), Section E – Effluent Quality Standards [the Licence]), 14 analytical parameters are required to be monitored and are required to meet effluent quality criteria at two points of compliance. While Tetra Tech EBA understands that the current Licence is likely to be superseded, an updated licence would be expected to contain similar requirements to meet effluent discharge criteria.

Given the large volumes of groundwater expected to require disposal during initial dewatering and ongoing operation of the mine, groundwater would be expected to be a key contributor of water to be discharged under the Licence and may require treatment prior to discharge to ensure that effluent meets the discharge requirements. As the open pit is excavated to depth and moves from overburden to shallow bedrock and then deep bedrock, there is a possibility that the water quality may vary and treatment requirements may differ.

For the purpose of assisting in understanding groundwater chemistry at various depths and to assist in future water management and treatment design options, Tables 5A to 5E provides statistical calculations (minimum, maximum, median, mean, standard deviation and 90th percentile) for groundwater in Zone 4a and Zone 4b in overburden, shallow bedrock (<50 m depth) and deep bedrock (>50 m depth). Tetra Tech EBA notes that these values may be skewed by wells that were sampled multiple times during the 2015/16 program whereas other wells in the same zone may only have been sampled once. Additional statistical analysis is recommended following the incorporation of 2016/17 field monitoring program data.

The following points are noted in regards to the general groundwater quality in the pit area:

- Dissolved metals and dissolved phosphorus concentrations are considered to be representative of dissolved phase and mobile groundwater quality in the pit area.
- Total metals and total phosphorus concentrations are considered to have been strongly influenced by the presence of suspended solids introduced during the sampling process that have resulted in concentrations higher than those actually present and mobile in groundwater. Properly designed, constructed and developed

dewatering wells should minimise suspended solids and associated elevated metals and phosphorus concentrations.

- If groundwater pumped from dewatering wells (or sumps) exhibits high sediment concentrations, total metals and phosphorus concentrations shown in Tables 5A to 5E may be more representative of groundwater quality pumped from the pit area during dewatering. However, suspended solids would be removed from the water as a first step in water treatment if required.

Further discussion of water quality in Zone 4a and Zone 4b is provided in the following sections:

### **Zone 4a**

- The dominating cations in the groundwater are calcium and magnesium and the dominating anions are either sulphate or bicarbonate (see Figure 8d). Both overburden wells in Zone 4a (BH95G-23 and WW15-01) recorded proportionally high sulphate and low bicarbonate, while bedrock wells reported a wide spread of sulphate and bicarbonate proportions. There does not appear to be a clear correlation between groundwater chemistry, aquifer type or sample depth.
- Average pH is slightly more alkaline moving from overburden (7.02 units) through to deep bedrock (7.49 units).
- Sulphate concentrations are higher in Zones 4a than the other four zones, which is considered due to oxidation of sulphide in the mineral ore body within these zones. Sulphate concentrations are variable with depth, with both the maximum and minimum concentrations reported in the deep bedrock aquifer.
- Lead concentrations are higher in Zone 4a than the other zones, most likely due to dissolution into groundwater that contacts the ore deposit. There is no clear correlation of concentration with depth, with the highest lead concentration reported at overburden well WW15-01 at the completion of the 24 hr pumping test. The concentration was over 50 times higher than the next highest concentration, reported from a deep (125 m bgs) bedrock well. Lead concentrations increase approximately one order of magnitude from the shallow bedrock to the deep bedrock aquifer.

Tetra Tech EBA notes that the dissolved lead concentration at WW15-01 in October 2015 (122 µg/L) is potentially erroneous given that the dissolved concentration is higher than the total lead concentration and the result is over 100 times higher than that reported at the same well in August 2015. It is considered possible that during filtration a break in the filter has potentially allowed sediment into the dissolved sample, resulting in the elevated result. If the result of 122 µg/L is discounted, the average lead concentration in the overburden aquifer is similar to that of the deep bedrock aquifer.

- Average zinc concentrations are higher in Zone 4a than the other zones, most likely due to its dissolution into groundwater during contact with the ore deposit. Average and maximum zinc concentrations are highest in the overburden aquifer, with concentrations in the deep bedrock slightly lower. Concentrations in the shallow bedrock are approximately over two orders of magnitude lower than those in the overburden and deep bedrock aquifer.
- In general, variances in groundwater quality within Zone 4a are likely due to individual well locations in relation to the mineralized zones within the ABM deposit and groundwater flow direction. Wells with high concentrations are located close to or downgradient of the main mineralized zones, while wells with lower concentrations are screened either above or up/ cross-gradient of the ore zones. The number of samples per well and the time of year they were sampled are also likely to affect the variances in observed water quality with variable recharge rates between seasons (greatly increased over fall and early summer) potentially effecting shallow groundwater quality and flow direction in both the overburden and shallow bedrock aquifers.

- While the shallow bedrock wells appear to display different chemistry to the overburden and deep bedrock aquifers, particularly in respect to metals concentrations, this may be a function of well location, with these wells located close to the northern extent of the mineralized zone. Groundwater in the shallow bedrock aquifer further to the south and closer to the centre of the ore deposit may exhibit groundwater chemistry comparable to the overburden and deep bedrock aquifers.
- Dissolved hardness and dissolved metals results reported from the 1995 monitoring program from BH95G-21 and BH95G-23, were compared against 2015/16 results. RPD calculations indicated many 2015/16 concentration were comparable to those reported in 1995, although a number of analytes showed considerable difference, with RPD's of over 60%. While some of this variability may be attributed to seasonal variation, it may also be a function of numerous other variables including; sample sampling, storage, preservation and analysis methods. Flowing boreholes over the past 20 years also may have altered groundwater conditions, resulting in some of the variation in groundwater chemistry observed.

### Zone 4b

- The dominating cations in the groundwater in Zone 4b were found to be calcium and magnesium although the sample obtained from monitoring well MW15-11S contained significant amounts of sodium (see Figure 8e). The dominating anions within the groundwater were found to be bicarbonate and sulphate. There does not appear to be a clear correlation between groundwater chemistry, aquifer type or sample depth.
- Average and median sulphate concentrations are comparable in the shallow and deep bedrock aquifers and slightly higher than concentrations in the overburden aquifer.
- Average and median TDS concentrations increase with depth, almost doubling between the overburden and deep bedrock aquifers. Higher TDS concentrations (i.e. more dissolved minerals) of samples from the deep bedrock is likely associated with longer groundwater residence time and increased mineralisation of groundwater along the flow path with increasing depth.
- Zinc and lead concentrations in Zone 4b are lower than those in Zone 4a, however are still noticeably higher than each of the other zones. Zinc concentrations are highest in the shallow bedrock aquifer, almost two orders of magnitude higher than in the overburden or deep bedrock aquifers. However, zinc concentrations display variance even within the shallow bedrock aquifer, with over two orders of magnitude difference between the minimum and maximum values in this aquifer alone.
- Average lead concentrations are comparable in the shallow and deep bedrock aquifer and slightly higher than the overburden aquifer.
- The maximum nitrate concentration was reported from the overburden aquifer, and was almost an order of magnitude higher than the maximum concentration in the shallow bedrock aquifer. While maximum nitrate concentrations in each aquifer decreased with depth, each aquifer also reported concentrations below the LDL, indicating variability within each aquifer depth interval.
- pH, electrical conductivity, total dissolved solids, dissolved hardness, alkalinity, sulphate, ammonia, nitrate, nitrite, phosphorus and dissolved metals results reported from the 1995 monitoring program from BH95G-29 were compared against 2015/16 analytical results. Inorganic analyte results from 1995 correlated well with 2015 results with only phosphorus showing an RPD outside of  $\pm 30\%$ . Dissolved metals results were more variable with five of seven results showing RPD's greater than 50%. While some of this variability may be attributed to seasonal variation, it may also be a function of numerous other variables including; sampling, storage, preservation and analysis methods. Flowing boreholes over the past 20 years also may have altered groundwater conditions, resulting in some of the variation in groundwater chemistry observed.

#### 5.5.2.4 Comparison with Applicable Regulatory Water Quality Guidelines

Groundwater quality results were compared with the following regulatory guidelines and standards:

- Yukon CSR Schedule 3, Generic Numerical Water Quality Standards for Aquatic Life (CSR-AW) (Yukon Environment Act, Contaminated Sites Regulation, 2002).
- Federal Interim Groundwater (FIG) Quality Guidelines for Commercial and Industrial Land Uses and Protection of Freshwater Aquatic Life (FIG) (Environment Canada, 2012).
- Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Freshwater Aquatic Life (CCME-AW) (CCME, 1999).
- Yukon Territory Water Board Type A Water Use Licence Number QZ97-026 (Exp. September 28, 2018), Section E - Effluent Quality Standards (the Site Water Licence).

The Yukon CSR AW standards and FIG guidelines apply to dissolved metals rather than total metals. This is also in accordance with general industry practice of using dissolved rather than total metals to characterize groundwater quality. Total metal concentrations are often dependent on well completion, well development and sampling method and are typically less representative of in situ groundwater quality and mobile dissolved phase concentrations that discharge to surface. Dissolved metals were therefore used for comparison with the applicable regulatory water quality standards and guidelines. Similarly, for the reasons outlined above, only dissolved phosphorus results were compared against regulatory water quality standards and guidelines.

Results have also been compared against the Site Water Licence to provide an indication of which parameters exceed the licence maximum allowable discharge limits and may require treatment options to be implemented in order to meet licence requirements.

All exceedances of the aforementioned water quality standards and guidelines are shown in Tables 5A through 5E and maximum guideline exceedances from the 2015/16 monitoring program are detailed in Tables 7A through 7E. Tetra Tech EBA understands that the current Water Use Licence will expire during the permitting process and a new water licence will be applied for and that the parameter list and maximum allowable discharge limit may change from those shown in the attached tables.

The following key points are noted in regards to guideline exceedances:

- There are no obvious overall spatial trends or difference between aquifers with respect to exceedances of water quality guidelines.
- Groundwater collected from every well at KZK over the 2015/16 monitoring program reported at least one parameter that exceeded one or more FIG or CCME-AW guideline values.
- Field pH exceeded the lower range of the FIG and Site Water Licence in wells located in Zones 1, 2 and 4a indicating spatial variability in pH range across the site.
- Fluoride exceeded the FIG and CCME-AW guidelines in overburden and bedrock aquifers within Zone 1, 2, 4a and 4b. All fluoride results were below the CSR-AW guideline value.
- Sulphate concentrations exceeded the FIG in overburden and bedrock wells in Zones 3, 4a and 4b. All results were below the CSR-AW guideline value. There were proportionally more guideline exceedances in Zone 4b (6 of 7 wells exceeded) than Zone 4a (2 of 10 wells) and Zone 3 (1 of 4 wells). Higher sulphate concentrations in Zones 4a and 4b are considered due to contact of groundwater with the massive sulphide deposit, although



the single elevated concentration in Zone 3 (at MW15-01) indicates concentrations above guideline criteria are present outside of the area considered to be influenced by the ABM deposit.

- Ammonia exceeded the FIG and CCME-AW guideline criteria in a single well in Zone 4a (ART-4). ART-4 is believed to be a deep bedrock well (depth unknown) located at the northern extent of the proposed open pit.
- Cadmium exceedances of the FIG and CCME-AW guidelines were widespread across the site. The cadmium CSR guideline value was exceeded by one well in each of Zones 1 and 4b and two wells in Zone 4a. Exceedances of all guidelines were seen in both bedrock and overburden wells. There was a single exceedance of the Site Water Licence guideline, at WW15-01 (Zone 4a).
- Zinc exceeded the FIG guideline in at least one well in each of Zones 1, 2, 4a and 4b. Concentrations were substantially higher in Zones 4a and 4b where the Site Water Licence guideline was exceeded in multiple wells. There was no obvious correlation of exceedances with aquifer type. Higher concentrations in Zones 4a and 4b are considered due to the contact of groundwater with the zinc rich ABM deposit.
- Iron exceeded the FIG and CCME-AW guidelines in at least one well in each of Zones 1, 2, 4a and 4b.
- Chromium exceedances of the CCME-AW were only observed in two bedrock wells within Zone 1.
- Aluminum exceeded the FIG and CCME-AW in three wells in Zone 1 and one well in Zone 2. Exceedances were observed in both bedrock and overburden aquifers.
- Lead in one well WW15-01 (Zone 4a) exceeded the FIG, CCME-AW, CSR-AW and Site Water Licence guidelines. As discussed in previous sections, this result is potentially erroneous and more representative of the total lead concentration. When the lead result from the August 2015 sample round from WW15-01 is alternatively assessed, it falls below all guideline values.
- Copper in a single well in Zone 4a (BH95-22) exceeded the FIG and CCME-AW guideline values.
- Uranium exceeded the FIG and CCME-AW guideline values at a single well, BH95-131 in Zone 4b. This well is a deep bedrock well (approximately 126 m bgs) and is located close to the centre of the proposed open pit.
- Total suspended solids exceeded the Site Water Licence maximum allowable limit at least once in 32 of the 36 analysed wells. As previously discussed, elevated total suspended solids concentrations are considered to be a consequence of the sampling process rather than mobile concentrations in groundwater. Properly constructed and developed dewatering wells would be expected to at least partially mitigate elevated suspended solids concentrations.
- Selenium concentrations exceeded the FIG and CCME-AW guideline values in wells in Zones 1, 2, 3 and 4b. There were no exceedances in Zone 4a and only a single exceedance of both values in Zone 4b. Almost half the wells in Zones 1, 2 and 3 exceeded both guidelines. There were no clear trends in regards to exceedances in bedrock and overburden aquifers.
- Concentrations of arsenic exceeded the FIG and the CCME-AW in multiple wells within Zones 1, 4a and 4b. Concentrations were substantially higher in several wells in Zone 4a, where four of the ten wells sampled also exceeded the Site Water Licence maximum allowable limit guidelines.
- Phosphorus concentrations exceeded the CCME-AW guidelines for ultra-oligotrophic aquatic systems in wells in each of the five zones. Across the site, 30 of 37 wells sampled reported concentrations above the CCME-AW guideline. However, it should be noted that the phosphorus guideline is applied through a framework for the management of freshwater systems and does not apply to groundwater. The guideline value depends on

the trophic status of the aquatic system with the above referenced guideline for ultra-oligotrophic systems being the most stringent.

Tetra Tech EBA notes that while there are multiple exceedances of the applicable regulatory water quality guidelines, the concentrations of exceedances are considered to be representative of natural background conditions. Assessment against the guidelines presented above are for preliminary assessment and comparison purposes only at this baseline assessment stage. In due course and with sufficient data, site specific guideline values can be formulated that are representative of the actual groundwater quality across the study area.



## 6.0 CONCEPTUAL HYDROGEOLOGICAL MODEL

The conceptual hydrogeological model is intended to conceptually describe the existing local hydrogeological conditions in the area of the ABM deposit and conceptual open pits, storage areas, tailings management area, water management pond and polishing pond at KZK with respect to groundwater flow and groundwater quality. The conceptual model is based upon information gathered during the 1995 and 2015 hydrogeological field programs, along with other pertinent geological information available related to the KZK Project.

### 6.1 Hydrostratigraphy

The local hydrogeological system within the study area consists of a bedrock aquifer overlain across valley floors by an overburden aquifer. The overburden aquifer is inferred to be confined to semi-confined, at least in the area of the ABM deposit.

Based on the current level of subsurface information for the site, for the purpose of this baseline hydrogeology assessment, it is assumed that the bedrock aquifer consists of one aquifer. Even though this assumption is simplistic, it is supported by the fact that the bedrock aquifer consists of a similar lithology throughout the site. Hydraulic conductivities inferred from packer tests show a slight correlation with depth but do not suggest stratification of the aquifer based on a sudden change in hydraulic conductivity with depth, at least not within a depth of about 200 m bgs. Furthermore, interpolation of the observed groundwater elevations indicates a groundwater flow regime that agrees with anticipated groundwater flow directions based on the topography and therefore also supports the hypothesis of one hydraulically connected bedrock aquifer.

From first principles, groundwater flows from areas of higher piezometric elevations to lower piezometric elevations. Groundwater recharge occurs at higher elevations on mountain slopes where overburden is thin or absent ultimately discharging to the receiving water bodies at lower elevations in the valley (i.e., ponds, and Geona Creek). This flow pattern is confirmed by groundwater elevations in nested wells along the valley floor, with an upwards hydraulic gradient present from the bedrock aquifer to the overburden aquifer indicating discharge of groundwater to surface at the base of the valley.

#### 6.1.1 Overburden Aquifer

Overburden in the study area is primarily composed of till and glacial deposits ranging in thickness from a thin veneer on valley flanks, to more than 20 m near the centreline of the valley. Previous investigations have typically logged overburden deposits as an upper compact to dense brown sand with varying amounts of silt, gravel or cobble overlying a basal dense to very dense sand and gravel. An overburden aquifer over 10 m thick is present within the sediments along the valley floor. The thickness of the overburden deposits generally decreases with increasing elevation. Above about 1,500 m elevation, the surficial deposits consist of a layer of organic material less than 0.5 m thick, overlying colluvium. The latter originates from frost loosening of bedrock.

In the region of the ABM deposit, groundwater in the basal sand and gravel unit is believed to be confined to semi-confined by the overlying compact to dense sand. This was evidenced during the drilling of WW15-01 where the upper compact to dense sand layer was logged as damp, then saturated conditions were encountered immediately upon intercepting the underlying sand and gravel layer. At the completion of drilling and installation of the screen in the sand and gravel unit (see well log in Appendix B2), the water level rose approximately 6 m above the top of the sand and gravel and above the top of the inferred confining dense sand layer (Appendix B2), indicating a confining layer is present. The inference of a confining overburden unit is supported by the rapid response in the observation well during the pumping test at WW15-01, a reaction generally indicative of a confined aquifer.

Recharge to the overburden aquifer is expected to be through discharge from the underlying bedrock aquifer and infiltration of precipitation and snowmelt through surficial soils on valley flanks. Recharge through surface water infiltration may be limited due to the expected upwards hydraulic gradient in the overburden aquifer across much of the valley floor. At higher elevations where overburden thins, perched water may sit on top of the bedrock contact and migrate through higher permeability overburden in the direction of the surface dip. Towards the centre of the valley, groundwater is expected to move through the upper compact to dense sand layer and discharge to Geona Creek and low lying surface water bodies that line the valley floor.

Based on single-well response tests, Golder estimated the hydraulic conductivity of the overburden material ranges from about  $1 \times 10^{-6}$  m/s to about  $1 \times 10^{-5}$  m/s. However, Golder noted that most of these tests were conducted in material with a "significant fine-grained component" (likely the upper dense sand unit) and the bulk hydraulic conductivity of the overburden (including relatively "clean" sands and gravels in the basal unit) is likely higher, more likely in the range of  $1 \times 10^{-5}$  m/s to  $1 \times 10^{-4}$  m/s.

To better estimate the bulk hydraulic conductivity of the basal sand and gravel unit, Tetra Tech EBA conducted a long term (12 hr) pumping test at WW15-01 during the 2015 hydrogeological investigation. This test indicated that the hydraulic conductivity of the sand and gravel unit in the vicinity of the deposit to be approximately  $1.1 \times 10^{-4}$  m/s, which generally concurs with the hypothesis that the basal sand and gravel unit has a higher hydraulic conductivity.

Based on data collected from an observation well (BH95G-23) during the pumping test, the overburden aquifer has a storativity value of  $5.7 \times 10^{-4}$ , which is in line with typical literature values for storativity values in confined aquifers (e.g., Fetter, 2001). Tetra Tech EBA notes that during the pumping test conducted at WW15-01, water levels in BH95G-23 were observed to respond almost instantaneously to the pumping of WW15-01 and decreased a similar magnitude as in the pumping well (Figure E1). This response indicates both wells are screened in the same confined aquifer and that there is a direct hydraulic connection between the two wells. In areas where the overburden aquifer is unconfined or semi-confined, i.e., where the upper dense sand unit contains less fine sediments or where this unit is absent, the storativity of the overburden aquifer would be expected to be higher and more similar to the specific yield which can be estimated to be in the range of about 0.15-0.25 for a sand and gravel aquifer (e.g., Freeze and Cherry, 1979).

### 6.1.2 Bedrock Aquifer

The primary bedrock aquifer in the vicinity of the mineralized zones mainly consists of schistose felsic volcanics intersected with thick felsic tuff and sill/flow complexes that host the ore deposit.

Groundwater flow in bedrock aquifers predominantly occurs in secondary pore space (fractures and fault zones) as primary porosity is usually very small, or essentially non-existent as in the case of volcanic and metamorphic rocks like those encountered at KZK. Bedrock aquifers therefore typically act like confined aquifers. In general, groundwater flow in fractured rocks is complex and can vary greatly in direction and rate, depending on the local hydrogeological and structural geological conditions. Transmissivity values can change over several orders of magnitude within the same rock mass over short distances (scale of metres), and groundwater flow may be largely controlled by a few conductive fractures or other rock mass discontinuities.

Recharge to the bedrock aquifer will occur primarily through infiltration of precipitation and snow melt on valley peaks and flanks, where bedrock outcrops or overburden is thin. Within the study area, discharge occurs to the overlying overburden along the valley floor, and eventually to Geona Creek and/or its tributaries.

Results of packer tests conducted by Golder (1995) and Tetra Tech EBA (2015) vary over several orders of magnitude, ranging from between  $1 \times 10^{-6}$  m/s to  $1 \times 10^{-5}$  m/s in upper weathered and more fractured bedrock to  $1 \times 10^{-8}$  m/s to  $1 \times 10^{-7}$  m/s in deeper and relatively massive bedrock. Packer test results are only representative for

the short discrete test intervals and the immediate vicinity of the wellbore. Single features like fractures, faults, or shear zones can significantly affect and dominate the hydraulic conductivity of the test interval, which explains the variability of inferred hydraulic conductivities observed on site.

To better gauge the bulk hydraulic conductivity in the vicinity of the ABM deposit, a single long-term (24 hr) pumping test was conducted at bedrock well WW15-02 during the 2015 hydrogeological investigation program. WW15-02 is a 38.10 m deep open hole well, targeted to intercept the upper and more fractured bedrock zone. Testing at this location indicated the bedrock has a hydraulic conductivity of about  $2 \times 10^{-6}$  m/s. The geometric mean of  $5 \times 10^{-7}$  m/s for all packer tests and hydraulic response tests conducted in shallow bedrock (<50 m deep) agrees reasonably well with the results of the pumping test and provides a reasonable average hydraulic conductivity for the bedrock aquifer at KZK to depths of about 50 m bgs (see also Figure B).

Golder (1996) reported the volcanic rock assemblages which contain the ore zone as generally competent, and strong to very strong while the ore materials are massive and very strong, with little or no structure. The hydraulic conductivity of these rocks would be expected to be at the lower end of the primary bedrock unit (in the order of  $1 \times 10^{-8}$  or lower).

Several northeast to southwest trending faults are mapped as intersecting the deposit area, including the East Fault, Northwest Fault and Fault Creek Fault. Grain size analyses of fault gouge associated with these fault zones indicate that the gouge is comprised primarily of sand and gravel-sized material with a minor fine grained fraction (Golder, 1996). As the aforementioned three major faults within the area of the ABM deposit were only discovered and delineated during the 2015 exploration program, packer tests have not targeted these specific fault zones. However, based on the geological description of the gouge material, the fault zones would be expected to have a higher hydraulic conductivity than the adjacent bedrock (potentially in the order of 2 or more orders of magnitude) and may provide preferential groundwater flow paths.

## 6.2 Groundwater Flow Regime

The groundwater flow regime in the study area can generally be inferred from observed piezometric elevations as groundwater typically flows from areas with higher piezometric elevations to areas with lower piezometric elevations. Figures 9 and 10 (attached) show the inferred piezometric elevation contours for both the overburden and bedrock aquifers based on the September 2015 monitoring event. Based on the mountainous terrain that dominates the study area, it can be assumed that the groundwater flow is mainly controlled by the area's topographic features. As shown in these figures, groundwater flow mimics topography with groundwater flow from the topographically high mountain tops and slopes on either side of the valley toward discharge zones on the valley floors. At the base of the valley, the water table is at or very near the ground surface, while beneath the mountains it may be greater than 200 m below ground surface.

Recharge to the bedrock aquifer in the mountains would be expected to migrate into deep local flow paths, moving towards the valley through fractures and faults prior to discharging to the overburden aquifer. Groundwater then moves through the overburden aquifer prior to discharging to surface water features on the valley floor. On valley flanks, the water table is generally located within the competent bedrock. However, during periods of snow melt, it is expected that a perched or temporary water table develops within the fractured bedrock and overlying overburden.

Figure 11 shows a hydrogeological cross section through the ABM deposit and approximately perpendicular to the Geona valley axis. Given that the study area with the proposed mine infrastructure is restricted to the Geona valley and that groundwater flow is generally from the west and east valley walls toward Geona Creek, the cross section in Figure 11 would also be representative for other locations within the study area.

The flow regime is generally supported by hydraulic gradient data collected from nested monitoring wells and VWP across the study area. Table W presents data from nine nested wells located across the study area and Figure D shows piezometric elevations from two VWP, located in the vicinity of the ABM deposit.

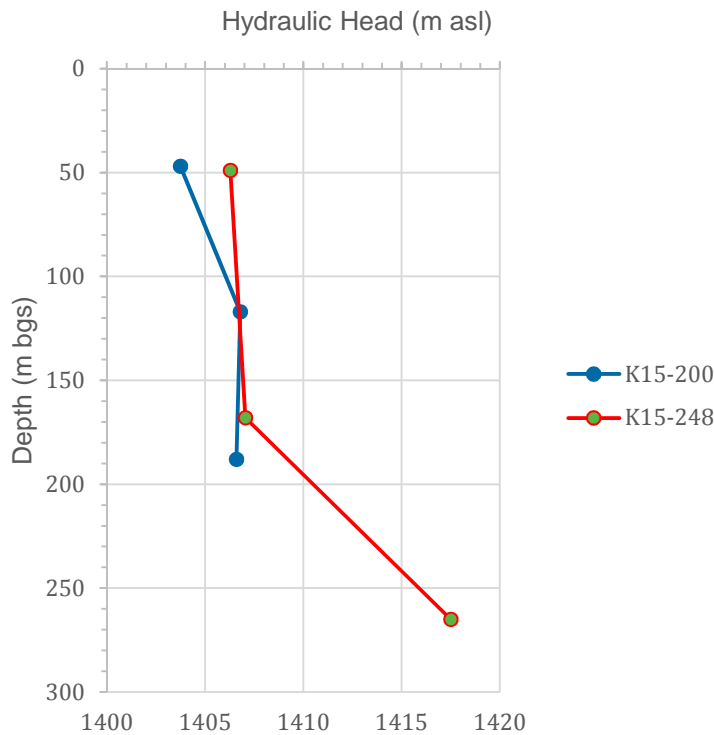
**Table W: Vertical Hydraulic Gradients at Nested Well Locations (September 2015)**

Monitoring Well Location	Groundwater Elevation, September 22/23, 2015 (m asl)		Vertical Hydraulic Gradient	Hydraulic Gradient Direction
	Shallow/Overburden	Deep/Bedrock		
MW15-03	1461.85	1463.41	-0.209	Upwards
MW15-04	1444.85	1444.87	-0.001	Upwards
MW15-07	1359.38	1360.86 <sup>1</sup>	-0.075	Upwards
MW15-08	1333.51 <sup>1</sup>	1332.78	0.032	Downwards
MW15-09	1319.56	1319.75	-0.008	Upwards
MW15-10 <sup>2</sup>	1318.86	1318.89 <sup>1</sup>	-0.001	Upwards
MW15-11 <sup>3</sup>	1385.01	1387.07	-0.092	Upwards
BH95G-25	1385.54	1382.52	0.325	Downwards
BH95G-33	1384.18	1384.65	-0.075	Upwards

<sup>1</sup> Well flowing over casing on date of gauging. Groundwater elevation is assumed to be the top of the casing.

<sup>2</sup> No data available on Sept. 22/23, 2015, data from September 4, 2015.

<sup>3</sup> No data available on Sept. 22/23, 2015, data from November 7, 2015.



**Figure D: Piezometric elevations (hydraulic heads) inferred from pore pressure measurements using VWPs at K15-200 and K15-248 (September 23, 2015)**

The data in Table W and Figure D shows a general upwards hydraulic gradient from deeper bedrock towards shallow overburden throughout the lower valley area. This data, along with the observation of multiple flowing boreholes across the site (in the range of 4 L/min up to 45 L/min) demonstrates the topographically controlled flow regime (driving head from higher elevations), with the discharge of groundwater from the bedrock aquifer to the overburden aquifer then to surface along the valley floor. The compact to dense sand layer noted to overlie the basal sand and gravel layer may act as a confining layer, limiting discharge where present or concentrating discharge in areas where the confining layer is thinner or absent (i.e. incised creeks, deep water bodies).

Tetra Tech EBA notes that downward hydraulic gradients are present at MW15-08 and BH95G-25. MW15-08S was flowing when monitored in August and September, 2015 (and frozen when visited in November 2015 and March 2016). While the reason for reversed gradient at these locations is unclear, it may be associated with localised confined/semi-confined overburden aquifers on the valley slopes, sourced from surface water infiltration or seepage from the bedrock aquifer at higher elevations up the slopes. Overall, areas along the lower valley where a downward hydraulic gradient is present would be considered to be limited and isolated, with the bulk movement of groundwater towards and discharging to surface on the valley floor.

Fault zones that have been observed to have permeable gouge material (sand and gravel), may offer preferential paths for groundwater flow. This is particularly noted for the Fault Creek Fault which extends several km to the southwest of the deposit area. As noted by Golder (1996) the water table is potentially deeper beneath the eastern valley flank than the western flank (although it is difficult to confirm given the limited number of wells at higher elevations), which may be due to the presence of permafrost on west-facing slopes. The permafrost would act as a confining or semi-confining layer depending on the spatial extent and thickness, thereby limiting recharge to the aquifer in this area which causes the groundwater table to be located at greater depth when compared to the east facing slopes where permafrost is believed to be mostly absent.

Table X presents approximate horizontal hydraulic gradients of the overburden and bedrock across the site based on the August/September groundwater elevation data.

**Table X: Groundwater Horizontal Hydraulic Gradients and Velocity**

Zone	Zone Features	Hydraulic Gradient (m/m)		Groundwater Velocity (m/day) <sup>1</sup>	
		Overburden	Bedrock	Overburden	Bedrock
Zone 1 (1)	Class A Storage Facility, Water Management Ponds	0.16	0.16	8 to 38	14 to 35
Zone 1 (2)	Mill and Polishing Pond	0.20	0.12	10 to 47	10 to 26
Zone 2 (1)	Overburden stockpile	0.21	0.25	11 to 50	22 to 55
Zone 2 (2)	Class C Storage Facility	0.31	0.27	16 to 74	23 to 59
Zone 3	Class B Storage Facility	0.12	0.15	6 to 29	13 to 33
Zone 4a	Open Pit	0.12	0.19	6 to 28	16 to 41
Zone 4b	Open Pit	0.29	0.06	15 to 69	5 to 13

<sup>1</sup> Porosity assumed to be 20% in overburden and 1% in bedrock.

The inferred horizontal hydraulic gradient based on groundwater elevations measured in August/September 2015 ranges from approximately 0.12 to 0.31 m/m in overburden and 0.06 to 0.27 m/m in the bedrock aquifer, measured in the direction of groundwater flow toward Geona Creek. Gradients are generally reflective of topography, being comparatively steeper in areas of steeper topography.

Tetra Tech EBA notes that the calculated horizontal hydraulic gradients are estimates based on extrapolation of inferred groundwater elevation contours in some areas where there is a sparse data set. This is particularly evident in area 4b where a hydraulic gradient of 0.06 m/m was calculated. This gradient was determined based data from a bedrock monitoring well located close to the valley floor (BH95-131) and a single inferred groundwater elevation contour (Figure 10). To the east of BH95-131 the surficial topography increases sharply and it would be expected that the groundwater elevation and hence gradient would reflect this increase. Tetra Tech EBA considers the hydraulic gradient through the east side of Zone 4b would likely be similar to the gradient in Zone 2, in the region of 0.2 to 0.3 m/m.

The average horizontal linear groundwater flow velocity in each zone can be estimated using a modification of Darcy's Law:

$$v = K \cdot i \cdot n^{-1}$$

where  $v$  is the groundwater flow velocity (m/s),  $K$  is the hydraulic conductivity of the aquifer (m/s),  $i$  is the hydraulic gradient (m/m), and  $n$  is the effective porosity of the aquifer material (-).

Using the maximum and minimum bulk hydraulic conductivities of the overburden and bedrock aquifers (determined from the 2016 packer tests, hydraulic response tests and pumping tests) and assuming an overburden porosity of 20% and a shallow fractured bedrock equivalent porosity of 1% (e.g., Freeze and Cherry, 1979), the maximum and minimum overburden and bedrock linear groundwater flow velocities were calculated. Estimated flow velocities are detailed in Table X.

As detailed in Table X, calculated groundwater velocities in the overburden range from between 8 and 74 m/day. Lower velocities would be expected in the upper dense sand unit, which has been estimated to have a hydraulic conductivity one to two orders of magnitude lower than the underlying basal sand and gravel unit. Groundwater velocity in the bedrock aquifer ranges from 5 to 59 m/day. Lower velocities would be expected in the deep bedrock, where lower hydraulic conductivities are seen.

It should be noted that local groundwater flow velocities can be much larger or smaller based on the local aquifer hydraulic conductivity and hydraulic gradient. For example, permeable faults can form preferential flow paths for groundwater with significantly higher flow velocities than the estimate above.

### 6.3 Permafrost

The permafrost (where present) acts as a confining or semi-confining layer depending on the spatial extent and thickness, thereby limiting recharge to the aquifer in this area which causes the groundwater table to be located at greater depth when compared to the east facing slopes where permafrost is believed to be mostly absent.

The KZK Project is located in an area with discontinuous permafrost. Cominco (1996) noted that permafrost is present on north and west facing slopes, especially above 1,400 m elevation, although permafrost had been observed as low as 1,250 m elevation. Geotechnical site investigations in the 1990s encountered permafrost in the northern portion of the proposed Class C storage facility and in some areas, especially the east valley slopes, along the Geona Creek valley. Permafrost was found to be mostly absent on the western valley walls as well as in the area of the proposed open pit, except for some localized ice lenses. Where permafrost is present it is believed to be warm permafrost with ground temperatures just below 0°C and therefore susceptible to disturbance.

Permafrost was not observed by Tetra Tech EBA during any of the 2015/16 monitoring program work, although it is noted that it was not in the scope of work to assess permafrost and drilling methods overseen by Tetra Tech EBA were not conducive to observing permafrost. All four ground temperature observation wells installed by Knight



Piesold as part of the preliminary geotechnical site investigations (see Sections 4.6 and 5.4) did not encounter any permafrost.

## **6.4 Groundwater – Surface Water Interaction**

Groundwater flow at KZK is generally controlled by topography and groundwater divides are assumed by Tetra Tech EBA to coincide with surface water divides. Groundwater is being recharged at higher elevations on the mountain slopes and generally flows down-valley mimicking the local topography. The groundwater eventually discharges to the receiving streams along the valley bottoms, mainly Geona Creek. Groundwater originating from the area of the proposed Class C storage facility likely discharges to the tributary of Geona Creek in the valley where the storage facility is located and/or to Geona Creek directly.

Geona Creek is the main groundwater discharge feature within the study area encompassing the KZK project with most facilities at lower elevation being located in discharge areas indicated by a vertical upward hydraulic gradient. The amount of baseflow, i.e., groundwater seepage into the creeks, depends on the hydraulic gradient and hydraulic conductivity of the shallow aquifer in the vicinity of the receiving stream. In general, the fraction of baseflow in the creek will be much larger in the winter when there is little or no surface runoff or shallow subsurface runoff (also referred to as interflow). The (late) winter creek discharge usually provides a good estimate of the baseflow as it amounts to nearly 100% of the total discharge observed during this time of the year.

## 7.0 SUITABILITY OF MONITORING WELL NETWORK

At the direction of BMC, the groundwater monitoring network was designed based on Cominco's (1996) mine design. The network was designed to fill data gaps in the historical monitoring well network and data set with the objective to assess baseline conditions across the site, with wells located generally hydraulically up and down gradient of, or near potential sources of groundwater impact (e.g. Class A, B, and C storage facilities, mill site). Monitoring wells were installed by Tetra Tech EBA during the 2015 field program in addition to historic monitoring wells that were upgraded and re-developed.

Following the installation of the network in 2015, the mine design has been amended, with locations of the Class A, B, and C storage facilities, as well as the mill moved and the open pit extended. Subsequently, in several locations where groundwater monitoring wells had previously been located upgradient of potential impact sources these wells are now within the source footprint and other potential impact sources have no up/down gradient monitoring locations. Tetra Tech EBA understands that additional monitoring wells have been installed by others during the summer 2016 field program. However, these additional monitoring wells will be reported under separate cover and have not been included in this report.

In light of the amended mine design, the following sections present a review and discussion of the adequacy of the groundwater monitoring network in relation to the current mine design (as of September 20, 2016) and the networks ability to adequately characterise baseline groundwater conditions.

### **Class A Storage Facility**

The area of the Class A Storage Facility has one nested groundwater monitoring well (MW15-07S and MW15-07D) located hydraulically downgradient of the southern edge of the proposed location. Tetra Tech EBA understands that two additional monitoring wells were installed in 2016, one upgradient of the Class A storage facility and one downgradient of the facility and associated seepage collection pond.

### **Mill Site**

The proposed mill site has been relocated to the south between the Class A and B storage facilities. There are currently no monitoring wells immediately up- or downgradient of this new proposed mill location. However, monitoring wells MW15-01 and the new upgradient monitoring well of the Class A storage facility provide data on the general upgradient area of the mill site. Monitoring well MW15-07 is located near the downgradient area of the mill and likely representative of the general groundwater conditions downgradient of the new mill location.

### **Class B Storage Facility**

The Class B storage facility area has two groundwater monitoring wells that are considered to be downgradient of the footprint of the Class B storage area, BH95G-32 and nested well pair BH95G-33S and BH95G-33D. There are two wells within the proposed footprint of the area (MW15-01 and MW15-02) and no upgradient monitoring locations.

Given the proximity of MW15-01 to the western extent of the Class B storage facility footprint and the fact that the site is undeveloped and groundwater is presently un-impacted by mining operations it can be considered to be representative of current upgradient baseline conditions and suitable to characterise baseline conditions within this area. Tetra Tech EBA notes that following the commencement of mine operations and deposition of waste rock in this area, this well may not be suitable for the assessment of background conditions.

Tetra Tech EBA understands that an additional monitoring well was installed downgradient of the seepage collection pond downgradient of the Class B storage facility during the 2016 field program.



## **Class C Storage Facility**

The Class C storage facility area has at least one well that is considered to be downgradient of the area footprint (BH95G-31) and two wells that are potentially downgradient (BH95G-30 and MW15-06). Two nested wells are located within the proposed footprint of the area (MW15-03S/ MW15-03D and MW15-04S/ MW15-04D). There are no wells upgradient of this area.

However, while nested well pair MW15-03S/ MW15-03D is located within the storage area footprint, Tetra Tech EBA consider that as the site is undeveloped and groundwater is presently un-impacted, groundwater conditions at this location would be generally representative of upgradient groundwater conditions and can be used to characterise baseline conditions within this area. Tetra Tech EBA notes that following the commencement of mine operations and deposition of waste rock in this area, this well will have to be decommissioned and will no longer be available for ongoing monitoring.

## **Overburden Stockpile**

There are no groundwater monitoring wells directly up or down gradient of the overburden stockpile. However, nested monitoring well pair MW15-05S/ MW15-05D, located on the southern extent of the areas footprint, is located cross gradient of the stockpile footprint and can be considered in a suitable location to characterise present upgradient groundwater conditions. Tetra Tech EBA understands that an additional monitoring well was installed downgradient of the overburden stockpile and the associated seepage collection pond during the 2016 field program.

## **ABM Open Pit**

The monitoring network within the proposed open pit is intended to assess overburden and bedrock baseline groundwater conditions in the footprint of the excavation area. There are considered to be sufficient wells within the northern pit area extent to adequately characterise baseline conditions. To the south where the proposed pit extent has been expanded to encompass the Krakatoa zone, Tetra Tech EBA understands that an additional monitoring well has been installed during the summer 2016 field program to further characterise conditions in the southern most section of the pit area.

There is a single well (BH95G-29) located to the south of the proposed open pit extent. This well could be used as a general offsite/upgradient monitoring well to assess baseline conditions in the upper valley outside of the general operational mine area.

Based on Tetra Tech EBA's understanding of existing groundwater conditions (see discussion in Section 6), the current groundwater monitoring network, in conjunction with additional monitoring wells installed during the summer 2016 field program, provides reasonable coverage in order to characterise baseline groundwater conditions.

## 8.0 SUMMARY AND CONCLUSIONS

Based on the results of the monitoring well drilling and completion, and the baseline hydrogeological assessment presented in this report, Tetra Tech EBA arrived at the following conclusions:

- A monitoring well network was successfully installed at KZK consisting of 11 new monitoring wells (eight of which are nested with shallow overburden and deeper bedrock piezometers) in addition to 14 historic monitoring wells that were re-developed and upgraded with standpipe extensions and protective casings.
- All monitoring wells were completed with 32 mm (1.25”) diameter PVC standpipes.
- In addition to the monitoring wells, two observations wells were installed with VWP's to monitor pore pressures at three different depths in each of the observation wells. The VWP observations wells were installed within the ABM deposit and proposed open pit. K15-200 is located west of Geona Creek whereas K15-248 is located on the east side of Geona Creek.
- Ground temperatures and permafrost conditions were assessed using subsurface temperature data from the VWP's and four ground temperature observation wells installed by Knight Piesold.
- Permafrost appears to be discontinuous and mostly restricted to north and west facing slopes at elevations above 1,400 m asl. No permafrost was encountered in any of the monitoring wells or ground temperature observation wells.
- The local groundwater regime consists of a bedrock aquifer overlain across valley floors by an overburden aquifer. The overburden aquifer is inferred to be confined to semi-confined, at least in the area of the ABM deposit.
- The overburden aquifer consists of till, glaciofluvial, and alluvial deposits with a coarse basal sand and gravel unit overlain by silty sand and gravel till. The overburden aquifer is typically between about 10 to 20 m thick along the valley bottom and thins out with increasing elevations.
- The primary bedrock aquifer in the vicinity of the ABM deposit mainly consists of schistose felsic volcanics intersected with thick felsic tuff and sill/flow complexes that host the ore deposit.
- The groundwater flow regime at the site is controlled by the steep terrain with groundwater flow from areas at higher elevations on the mountain slopes toward the valley bottoms with the groundwater flow generally mimicking the local topography and eventually discharging to Geona Creek.
- Hydraulic conductivities of the overburden aquifer were inferred from hydraulic response tests across the study area and one pumping test conducted in the area of the ABM deposit. The inferred hydraulic conductivities ranged from about  $1 \times 10^{-6}$  m/s to about  $1 \times 10^{-4}$  m/s with the highest values measured in the area of the ABM deposit (i.e., WW15-01 and MW15-11S).
- Hydraulic conductivities of the bedrock aquifer were inferred from packer tests conducted in select exploration drill holes in the area of the ABM deposit as well as select monitoring wells. In addition, hydraulic response tests and one pumping test in shallow bedrock were conducted. Inferred hydraulic conductivities ranged over several orders of magnitude from about  $3 \times 10^{-9}$  m/s to about  $4 \times 10^{-6}$  m/s. Hydraulic conductivity in bedrock is inferred to be largely controlled by fracture density and permeability. In general, the bedrock hydraulic conductivity tends to decrease with depth with the higher values found in shallow, weathered bedrock less than about 50 m deep, and smaller values ( $< 1 \times 10^{-7}$  m/s) in deeper, more competent bedrock at depth of more than about 50 m.

- Groundwater samples were collected from monitoring wells across the site during May, August/September, and November 2015 as well as March 2016. Seasonal groundwater monitoring is currently ongoing to further characterize baseline groundwater quality and seasonality.
- Groundwater quality was found to be variable across the site with individual areas discussed in detail in Section 5.5.
- Most groundwater samples showed a near neutral or slightly basic pH (between 7 and 8), with few samples, primarily in the northern part of the study area (Zone 1) showing slightly acidic pH values of less than 7.
- Groundwater samples had an average total dissolved solids concentration of 379 mg/L across the study area, suggesting moderately mineralized groundwater, with some samples from the northern part of the study area (Zone 1) and from the area of the ABM deposit (Zone 4) having significantly higher TDS concentrations.
- Hardness concentrations are variable across the site, ranging from about 80 to 2,100 mg/L. Maximum concentrations reported in Zones 1 and 2 were over two times higher than maximum concentrations in each of the other three zones. Average and maximum concentrations were typically higher in bedrock wells than overburden wells in each zone.
- Sulfate concentrations averaged 68 mg/L across the study area, with an average of 67 mg/L in overburden wells and 69 mg/L in bedrock wells. Sulphate concentrations were highest in Zones 4a and 4b and showed a general trend of increasing concentration with depth in the two zones.
- Various dissolved metals were found to exceed the FIG and CCME-AW water quality guidelines as well as the Water Use Licence (QZ97-026) Effluent Quality Criteria. Observed dissolved metals exceedances primarily include arsenic, cadmium, iron, lead, selenium, and zinc.
- Many monitoring wells showed considerable variability in analytical results over the course of the monitoring program suggesting there may be a strong seasonal influence on groundwater chemistry. Ongoing groundwater monitoring scheduled in 2016/2017 will provide additional data to characterize seasonal changes in groundwater quality and quantity.

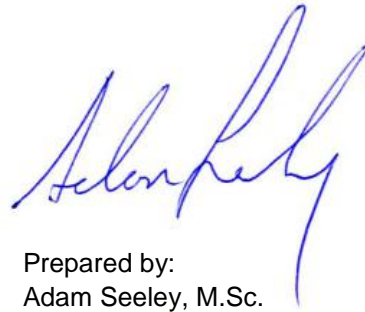
## 9.0 CLOSURE

We trust this report meets your present requirements. If you have any questions or comments, please contact the undersigned.


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# TABLES

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Table 1	Summary of Groundwater Monitoring Well Completion Details
Table 2	Summary of Groundwater Elevations
Table 3A	Summary of Hydraulic Test Results Conducted in Monitoring Well Boreholes
Table 3B	Summary of Packer Test Results Conducted in Exploration Boreholes
Table 4A	Monitoring Wells Packer Test Data Quality Analysis
Table 4B	Exploration Boreholes Packer Test Data Quality Analysis
Table 5A	Groundwater Analytical Results, Zone 1 (Tailing Management Facility, Mill Site, Polishing Pond, Water Management Pond)
Table 5B	Groundwater Analytical Results, Zone 2 (Class C Storage Facility and Overburden Stockpile)
Table 5C	Groundwater Analytical Results, Zone 3 (Class B Storage Facility)
Table 5D	Groundwater Analytical Results, Zone 4a (Open Pit - West)
Table 5E	Groundwater Analytical Results, Zone 4b (Open Pit - A Open Pit – West East)
Table 6	Groundwater Quality Assurance/Quality Control
Table 7A	Maximum Groundwater Guideline Exceedances, Zone 1 (Tailing Management Facility, Mill Site, Polishing Pond, Water Management Pond) (2015/16)
Table 7B	Maximum Groundwater Guideline Exceedances, Zone 2 (Class C Storage Facility and Overburden Stockpile) (2015/16)
Table 7C	Maximum Groundwater Guideline Exceedances, Zone 3 (Class B Storage Facility) (2015/16)
Table 7D	Maximum Groundwater Guideline Exceedances, Zone 4a (Open Pit – West)
Table 7E	Maximum Groundwater Guideline Exceedances, Zone 4b (Open Pit – East)

**Table 1: Summary of Groundwater Monitoring Well Completion Details**

Well ID	Eastings	Northings	Date Drilled	Aquifer Monitored	Stick Up	Well Depth	Screen Interval		Sand Pack		Bentonite Seal		Well Status as of March 2016	Comments
	UTM Nad83, Zone 9	mag			mbtopvc	From	To	From	To	From	To			
						mbg		mbg		mbg				
MW15-01	414472	6816559	August 11, 2015	Bedrock	1.29	20.03	10.0	18.8	9.3	21.0	0.5	9.3	Functional	Datalogger
MW15-02	414808	6816270	August 12, 2015	Bedrock	1.26	32.97	23.0	31.7	21.5	32.0	0.0	21.5	Freeze protection packer	Artesian
MW15-03S	416317	6816052	August 17, 2015	Overburden	0.99	8.42	4.1	7.1	3.2	7.7	0.0	3.2	Functional	-
MW15-03D	416317	6816052	August 17, 2015	Bedrock	0.99	16.94	10.1	16.0	9.3	16.6	7.7	9.3	Functional	-
MW15-04S	415786	6816156	August 15-16, 2015	Overburden	1.04	15.10	11.2	14.1	10.2	15.6	0.0	15.6	Functional	Datalogger
MW15-04D	415786	6816156	August 15-16, 2015	Bedrock	1.05	32.30	27.1	32.9	25.5	32.6	15.6	25.5	Functional	Datalogger
MW15-05S	415852	6816872	August 14, 2015	Overburden	1.07	8.09	4.6	7.6	5.2	10.3	10.3	20.8	Functional	-
MW15-05D	415852	6816872	August 14, 2015	Bedrock	0.00	28.56	22.4	29.8	20.8	30.0	0.2	5.2	Functional	-
MW15-06	415460	6816722	August 14, 2015	Overburden	0.98	10.02	6.5	9.4	6.0	9.7	0.0	6.0	Freeze protection packer	-
MW15-07S	414922	6817784	August 13, 2015	Overburden	0.90	11.01	8.1	11.0	6.7	12.1	0.0	6.8	Functional	Datalogger
MW15-07D	414922	6817784	August 13, 2015	Bedrock	0.91	33.14	26.3	32.1	25.3	32.0	11.9	25.3	Freeze protection packer	Artesian
MW15-08S	414904	6818518	August 12, 2015	Overburden	1.09	12.66	8.7	11.6	7.7	11.6	0.0	7.7	Freeze protection packer	Artesian
MW15-08D	414904	6818518	August 12, 2015	Bedrock	1.06	36.89	29.8	35.6	29.5	35.6	12.6	28.6	Frozen	-
MW15-09S	414709	6819177	August 10, 2015	Overburden	0.59	18.98	11.4	17.3	10.9	18.3	0.0	10.9	Frozen	-
MW15-09D	414709	6819177	August 10, 2015	Bedrock	0.57	41.32	35.1	40.9	33.8	40.9	18.3	33.8	Freeze protection packer	Artesian but not flowing
MW15-10S	414794	6819203	August 11, 2015	Overburden	0.88	10.45	6.6	9.6	5.9	10.7	0.0	5.9	Frozen	Artesian but not flowing
MW15-10D	414794	6819203	August 11, 2015	Bedrock	0.88	32.35	25.7	31.5	24.1	31.5	10.7	24.1	Functional	Artesian
MW15-11S	415079	6815119	November 6-7, 2015	Overburden	1.09	8.14	4.2	7.1	3.3	7.5	0.0	3.3	Functional	-
MW15-11D	415079	6815119	November 6-7, 2015	Bedrock	1.10	36.36	20.6	35.2	19.0	35.5	7.0	19.0	Frozen	Artesian
BH95G-2	414341	6819836	May 17, 1995	Bedrock	0.43	19.47	15.2	19.8	13.8	19.8	0.0	13.8	Functional	Datalogger
BH95G-21	414802	6815641	August 9, 1995	Bedrock	1.12	10.06	6.1	9.1	5.2	10.1	0.0	5.2	Functional	-
BH95G-22	414928	6815729	August 9, 1995	Bedrock	0.95	6.56	2.8	5.8	2.6	5.8	0.0	2.6	Functional	Datalogger
BH95G-23	414906	6815276	August 10, 1995	Overburden	1.21	13.56	9.8	12.8	8.9	12.8	1.2	8.9	Frozen	-
BH95G-24	415037	6815258	August 11, 1995	Bedrock	0.71	9.12	6.4	9.4	5.6	9.8	0.0	5.6	Frozen	-
BH95G-25D	415074	6815522	August 12, 1995	Bedrock	1.08	21.08	17.8	20.8	17.4	20.8	13.4	17.4	Functional	-
BH95G-25S	415073	6815522	August 12, 1995	Overburden	1.08	12.34	8.5	11.5	6.4	13.4	1.1	6.4	Functional	-
BH95G-29	415197	6814543	August 17-18, 1995	Overburden	1.07	16.51	15.6	18.6	14.3	19.2	0.8	14.3	Frozen	-
BH95G-30	415437	6816766	August 19-21, 1995	Bedrock	0.10	19.20	16.2	19.2	14.0	19.2	0.0	14.0	Frozen	Blocked at 8.66m, recovers when purged
BH95G-31	415199	6816129	August 21, 1995	Bedrock	1.02	8.70	7.0	10.0	2.5	10.1	0.0	2.5	Frozen	-
BH95G-32	415008	6816134	August 22-23, 1995	Bedrock	1.22	15.83	12.2	15.2	7.2	16.2	0.0	7.2	Functional	-
BH95G-33D	415130	6816745	August 24, 1995	Bedrock	1.17	12.92	9.1	12.1	8.0	13.1	5.8	8.0	Functional	Datalogger
BH95G-33S	415130	6816745	August 24, 1995	Overburden	1.16	6.44	2.8	5.8	1.2	6.0	0.0	1.2	Functional	-
BH95-129	414601	6815499	May 12, 1995	Bedrock	1.05	150.90	154.5	160.0	154.0	160.0	114.0	154.0	Functional	-
BH95-131	415182	6815377	May 13, 1995	Bedrock	1.07	128.00	123.5	128.0	119.0	128.0	80.0	119.0	Functional	Datalogger + Barologger
BH95-146	414898	6815504	May 21, 1995	Bedrock	1.04	137.73	134.1	138.7	189.0	194.5	140.0	189.0	Frozen	Artesian

**Notes:**

- "Functional" means that representative groundwater elevation or sample can be obtained from the well.
- 'mag' - meters above ground
- 'mbtopvc' - meters below top of PVC casing
- 'mbg' - meters below ground



Table 2: Summary of Groundwater Elevations

Well ID	UTM Coordinates, NAD83 Zone 9V		Ground Elevation m asl	Top of Casing Elevation m asl	Pipe Stick-Up m ag	May 2015 Monitoring			Aug/Sept 2015 Monitoring			September 22-23, 2015		November 2015 Monitoring			March 2016 Monitoring			
	Easting	Northing				Date	Water Level	GW Elevation	Date	Water Level	GW Elevation	Water Level	GW Elevation	Date	Water Level	GW Elevation	Date	Water Level	GW Elevation	
			mbtopvc	m asl	mbtopvc		m asl	mbtopvc		m asl	mbtopvc		m asl							
MW15-01	414472	6816559	1487.34	1488.54	1.20	Wells installed later in the summer				1-Sep	9.31	1479.23	11.42	1477.12	1-Nov	12.88	1475.66	14-Mar	13.41	1475.13
MW15-02	414808	6816270	1429.80	1431.19	1.39		1-Sep	0.00	1431.19	Flowing	1431.19	-	-	-	-	-	-	-	-	-
MW15-03S	416317	6816052	1465.22	1466.19	0.96		4-Sep	4.81	1461.38	4.34	1461.85	2-Nov	5.42	1460.77	13-Mar	7.31	1458.88			
MW15-03D	416317	6816052	1465.22	1466.18	0.96		4-Sep	3.09	1463.09	2.77	1463.41	2-Nov	3.27	1462.91	13-Mar	4.01	1462.17			
MW15-04S	415786	6816156	1451.04	1452.06	1.01		4-Sep	7.84	1444.22	7.21	1444.85	31-Oct	7.89	1444.17	13-Mar	10.45	1441.61			
MW15-04D	415786	6816156	1451.04	1452.07	1.02		4-Sep	7.79	1444.28	7.20	1444.87	31-Oct	7.88	1444.19	13-Mar	10.29	1441.78			
MW15-05S	415852	6816872	1463.77	1464.88	1.11		7-Sep	Dry	-	Dry	-	2-Nov	Dry	-	13-Mar	Dry	-			
MW15-05D	415852	6816872	1463.77	1464.88	1.11		7-Sep	11.38	1453.50	11.72	1453.16	2-Nov	12.23	1452.65	13-Mar	12.83	1452.05			
MW15-06	415460	6816722	1387.48	1388.56	1.08		7-Sep	0.39	1388.17	Flowing	1388.56	-	-	-	-	-	-			
MW15-07S	414922	6817784	1359.98	1360.90	0.92		6-Sep	1.55	1359.35	1.52	1359.38	5-Nov	1.63	1359.27	15-Mar	2.42	1358.48			
MW15-07D	414922	6817784	1359.98	1360.86	0.88		6-Sep	Flowing	1360.86	Flowing	1360.86	-	-	-	-	-	-			
MW15-08S	414904	6818518	1332.49	1333.51	1.02		2-Sep	Flowing	1333.51	Flowing	1333.51	-	-	-	-	-	-			
MW15-08D	414904	6818518	1332.49	1333.42	0.93		3-Sep	1.48	1331.94	0.64	1332.78	3-Nov	1.90	1331.52	16-Mar	Frozen @ 0.44	1332.98			
MW15-09S	414709	6819177	1319.16	1319.66	0.50		5-Sep	0.37	1319.29	0.10	1319.56	4-Nov	Frozen @ 0.43	1319.23	16-Mar	Frozen @ 0.43	1319.23			
MW15-09D	414709	6819177	1319.16	1319.75	0.59		5-Sep	0.02	1319.73	Flowing	1319.75	-	-	-	-	-	-			
MW15-10S	414794	6819203	1318.01	1318.92	0.90		4-Sep	0.06	1318.86	-	-	4-Nov	Frozen @ 0.63	1318.29	17-Mar	Frozen @ 0.04	1318.88			
MW15-10D	414794	6819203	1318.01	1318.89	0.88		4-Sep	Flowing	1318.89	-	-	4-Nov	Flowing	1318.89	17-Mar	0.00	1318.89			
MW15-11S	415079	6815119	1386.01	1387.14	1.13		Wells installed later in the fall			Wells installed later in the fall			7-Nov	2.13	1385.01	14-Mar	3.03	1387.14		
MW15-11D	415079	6815119	1386.01	1387.07	1.06		Wells installed later in the fall			Wells installed later in the fall			7-Nov	Flowing/frozen?	1387.07	14-Mar	Frozen @ 0.29	1386.78		
BH95G-2	414341	6819836	1348.59	1349.77	1.18		13-May	16.97	1332.05	22-Sep	4.89	1344.88	4.89	1344.88	5-Nov	7.22	1342.55	16-Mar	16.41	1333.36
BH95G-9	414535	6821022	1339.64	1340.00	0.36		13-May	11.01	1328.99	-	-	-	-	-	-	-	-	-	-	-
BH95G-21	414802	6815641	1402.38	1403.47	1.09	12-May	3.39	1399.05	6-Aug	3.23	1400.24	2.11	1401.36	30-Oct	2.48	1400.99	14-Mar	Frozen @ 3.29	1400.18	
BH95G-22	414928	6815729	1384.61	1385.52	0.91	12-May	3.79	1381.01	7-Aug	2.73	1382.79	2.30	1383.22	1-Nov	2.97	1382.55	14-Mar	4.45	1381.07	
BH95G-23	414906	6815276	1386.07	1387.18	1.11	-	-	-	9-Aug	1.21	1385.97	0.83	1386.35	31-Oct	Frozen @ 1.255	1385.93	14-Mar	Frozen @ 0.30	1386.88	
BH95G-24	415037	6815258	1384.32	1385.30	0.98	-	-	-	9-Aug	0.34	1384.96	Flowing	1385.30	31-Oct	Frozen @ 0.44	1384.86	14-Mar	Frozen @ 0.44	1384.86	
BH95G-25S	415073	6815522	1385.84	1386.92	1.08	10-May	3.04	1383.00	6-Aug	2.31	1384.61	1.38	1385.54	1-Nov	2.79	1384.13	14-Mar	4.06	1382.86	
BH95G-25D	415074	6815522	1385.84	1386.90	1.06	-	-	-	6-Aug	4.74	1382.16	4.38	1382.52	1-Nov	5.05	1381.85	14-Mar	5.62	1381.28	
BH95G-29	415197	6814543	1391.37	1392.56	1.18	-	-	-	9-Aug	0.28	1392.28	Flowing	1392.56	31-Oct	Frozen @ 0.73	1391.83	14-Mar	Frozen @ 0.73	1391.83	
BH95G-30	415437	6816766	1385.78	1386.88	1.10	9-May	Frozen @ 0.25	1385.63	6-Sep	Flowing	1386.88	Frozen @ 0.61	1386.27	2-Nov	Frozen @ 0.77	1386.11	13-Mar	Frozen @ 0.71	1386.17	
BH95G-31	415199	6816129	1390.67	1391.74	1.06	-	-	-	22-Sep	1.09	1390.65	1.09	1390.65	5-Nov	1.42	1390.32	15-Mar	Frozen @ 1.53	1390.21	
BH95G-32	415008	6816134	1386.24	1387.46	1.22	13-May	5.16	1381.31	22-Sep	4.95	1382.51	4.95	1382.51	5-Nov	5.34	1382.12	15-Mar	6.22	1381.24	
BH95G-33S	415130	6816745	1389.31	1390.48	1.17	-	-	-	22-Sep	6.30	1384.18	6.30	1384.18	3-Nov	Dry	-	15-Mar	Dry	-	
BH95G-33D	415130	6816745	1389.31	1390.48	1.16	13-May	6.16	1383.35	22-Sep	5.83	1384.65	5.83	1384.65	3-Nov	6.20	1384.28	15-Mar	7.00	1383.48	
BH95G-35	414570	6817696		1422.36	1422.36	13-May	3.96	2840.76	-	-	#VALUE!	-	#VALUE!	-	-	#VALUE!	-	-	#VALUE!	
BH95-129	414601	6815499	1443.64	1444.66	1.03	-	-	-	17-Aug	4.70	1439.96	5.63	1439.03	4-Nov	9.90	1434.76	14-Mar	13.81	1430.85	
BH95-131	415182	6815377	1416.17	1417.29	1.13	9-May	32.59	1383.77	19-Aug	30.76	1385.51	31.22	1386.07	31-Oct	31.88	1385.41	14-Mar	33.09	1384.20	
BH95-146	414898	6815504	1389.16	1390.23	1.07	11-May	Flowing	1389.30	10-Aug	Flowing	1390.23	Flowing	1390.23	2-Nov	Frozen @ -0.02	1390.25	14-Mar	Frozen @ -0.02	1390.25	
WW15-01	414893	6815295	1389.87	1390.57	0.70	Wells installed later in the summer			-	-	-	-	-	4-Oct	3.96	1386.61	-	-	-	
WW15-02	414839	6815767	1395.46	1396.30	0.84	21-Sep	0.06	1396.16	-	-	-	-	4-Oct	Flowing	1396.30	-	-	-		
ART - 3 (3)	414799	6815481	1399.80	1400.00	0.20	12-May	Flowing	1400.00	11-Aug	Flowing	1400.00	Flowing	1400.00	Wells decommissioned			Wells decommissioned			
ART - 3 (1)	414799	6815483	1399.62	1400.00	0.38	12-May	Flowing	1400.00	11-Aug	Flowing	1400.00	Flowing	1400.00	Wells decommissioned			Wells decommissioned			
ART - 4	414901	6815749	1381.87	1382.50	0.63	12-May	Flowing	1382.50	-	-	-	-	-	-	-	-	-	-	-	

"-": No measurements - well not included in monitoring as well was not accessible, well frozen or for other reasons constraining ability to measure.  
 Level of water frozen within standpipe  
 'm asl' - meters above sea level  
 'm ag' - meters above ground  
 'mbtopvc' - meters below top of PVC casing



**Table 3A: Summary of Hydraulic Test Results Conducted in Monitoring Well Boreholes**

Well ID	Screen Section		Inferred K	Packer Test Interval		Inferred K	Lithology Description
	From	To	Slug Testing	From	To	Packer Testing	
	m bgs		m/s	m bgs		m/s	
MW 15-01	10	18.8	1.2E-06	12.5	20.0	1.0E-06	Mafic intrusions, Carbonaceous Mudstone Schist
MW 15-02	23	31.7	-	12.5	32.0	1.9E-07	Carbonaceous Mudstone Schist
MW 15-03S	4.1	7.1	8.5E-06	-	-	-	Overburden (sand, gravel and cobbles) overlaying Carbonaceous Mudstone Schist
MW 15-03D	10.1	16	1.9E-06	-	-	-	Layers of Tuff Schist, Mafic Tuff Schist, Rhyolite Tuff Dominant Mudstone Schist and Carbonaceous Mudstone Schist
MW 15-04	-	-	-	16.4	26.9	4.2E-07	
MW 15-04S	11.2	14.1	1.1E-05	-	-	-	Overburden overlying Tuff Schist
MW 15-04D	27.1	32.9	9.2E-07	-	-	-	Tuff Schist
MW 15-05S	4.6	7.6	-	-	-	-	Overburden
MW 15-05D	22.4	29.8	1.3E-06	22.5	30.0	6.9E-08	Carbonaceous Mudstone Schist
MW 15-06	6.5	9.4	1.5E-06	-	-	-	Overburden (loose sand)
MW 15-07S	8.1	11	4.5E-06	-	-	-	Overburden (sand and gravel)
MW 15-07D	26.3	32.1	-	16.5	33.0	1.9E-07	Mafic Intrusions
MW 15-08S	8.7	11.6	-	-	-	-	Overburden (sand and gravel)
MW 15-08D	29.8	35.6	1.3E-07	19.5	36.0	4.3E-07	Mafic Tuff Schist
MW 15-09S	11.4	17.3	1.6E-06	-	-	-	Overburden (sand and gravel)
MW 15-09D	35.1	40.9	-	34.5	39.0	1.0E-05	Mafic Volcanic Schist
MW 15-10S	6.6	9.6	2.0E-06	-	-	-	Overburden
MW 15-10D	25.7	31.5	-	28.5	33.0	4.8E-06	Mafic Volcanic Schist with layers of Carbonaceous Mudstone Schist
MW 15-11S	4.15	7.05	3.6E-05	-	-	-	Overburden
MW 15-11D	20.6	35.2	-	-	-	-	Tuff Schist, Rhyolite Schist and Mafic Intrusions

Notes:

Poor data quality - provided for qualitative purpose only

**Table 3B: Summary of Packer Test Results Conducted in Exploration Boreholes**

Hole ID	Dip	Test Number	Test Interval		Depth		Inferred Hydraulic Conductivity K	Lithology Description
			From	to	From	To	Geometric Mean	
	Degree		m ah	m bgs	m/s			
K15-204	-60	1	21.5	35.0	18.6	30.3	<1E-09	Rhyolite Schist with Carbonaceous Content
		2	72.5	95.0	62.8	82.3	1.5E-08	Rhyolite Schist with Carbonaceous Content and Tuff Schist
		3	123.5	149.0	107.0	129.0	1.1E-08	Rhyolite Schist, Tuff Schist and Mafic Intrusion
K15-206	-65	1	13.5	24.0	12.2	21.8	6.4E-08	Tuff Schist
		2	52.5	57.0	47.6	51.7	4.0E-06	Tuff Schist
		3	94.5	114.0	85.6	103.3	3.0E-09	Rhyolite Schist and Tuff Schist
		4	211.5	237.0	191.7	214.8	3.2E-07	Rhyolite Schist and Tuff Schist
K15-200	-70	1	9.0	19.5	8.5	18.3	9.4E-07	Rhyolite Schist and Tuff Schist
		2	64.5	75.0	60.6	70.5	8.1E-07	Tuff Schist
		3	103.5	106.5	97.3	101.5	4.2E-08	Carbonaceous Mudstone Schist
		4	127.5	138.0	119.8	129.7	2.1E-08	Rhyolite Schist
		5B	198.0	211.5	187.5	200.2	9.5E-09	Rhyolite Schist and Tuff Schist
K15-202	-60	1	21.5	32	18.6	27.7	1.2E-06	Rhyolite Schist and Tuff Schist
		2	57.5	71	49.8	61.5	9.8E-07	Mafic Intrusion
K15-242	-65	1	27.5	38.0	24.9	33.5	9.2E-07	Tuff Schist and Mafic Intrusion
		2	69.5	86.0	63.9	78.8	6.7E-09	Rhyolite Schist with Carbonaceous Content and Carbonaceous Mudstone Schist
		3	117.5	125.0	106.5	113.3	6.5E-09	Rhyolite Schist with Mafic Intrusion
		4	132.5	161.0	120.1	145.9	9.3E-08	Mafic Intrusion and Rhyolite Schist
K15-248	-75	1	46.5	52.5	44.9	50.7	8.0E-09	Carbonaceous Mudstone Schist overlaying Tuff Schist
		2	169.5	175.5	163.7	169.5	2.0E-08	Tuff Schist and Mafic Intrusion
		3	226.5	240.0	218.8	231.8	5.5E-09	Tuff Schist
		4	244.5	279.0	236.2	269.5	7.3E-09	Rhyolite Schist
K15-265	-55	1	70.5	90.0	57.8	73.7	5.6E-08	Tuff Schist and Mafic Intrusion
		2	133.5	153.0	109.4	125.3	4.3E-08	Tuff Schist
		3	190.5	201.0	156.0	164.6	3.7E-07	Massive sulfides and Rhyolite Schist
		4	271.5	285.0	222.4	233.5	3.8E-09	Tuff Schist
K15-330	90	1	31.35	34.45	31.35	34.45	8E-06	Sedimentary Schist
		2	34.35	38.95	34.35	38.95	1E-05	Sedimentary Schist, Mafic Tuff Schist, Sedimentary Mudstone Schist
		3	37.35	41.95	37.35	41.95	1E-06	Mafic Tuff Schist, Sedimentary Mudstone Schist
		4	41.85	46.45	41.85	46.45	7E-06	Mafic Tuff Schist, Sedimentary Mudstone Schist
		5	41.85	50.95	41.85	50.95	4E-06	Mafic Tuff Schist, Sedimentary Mudstone Schist
K15-331	90	1	18.25	23	18.25	23	1E-06	Mafic Tuff Schist, Sedimentary Mudstone Schist
		2	24.25	32	24.25	32	4E-07	Mafic Tuff Schist, Sedimentary Mudstone Schist
K15-333	90	1	9.25	17	9.25	17	3E-07	Sedimentary Mudstone Schist
		2	18.25	26	18.25	26	1E-07	Mafic Tuff Schist
		3	27.25	35	27.25	35	6E-07	Mafic Tuff Schist
		4	36.25	44	36.25	44	9E-07	Mafic Tuff Schist
		5	45.25	53	45.25	53	7E-07	Mafic Tuff Schist
		6	54.25	62	54.25	62	6E-07	Mafic Tuff Schist
		7	63.25	71.35	63.25	71.35	8E-07	Mafic Tuff Schist
K15-334	90	1	18.9	23.5	18.9	23.5	2E-07	Mafic Intrusion
		2	18.9	26.5	18.9	26.5	2E-06	Mafic Intrusion
		3	18.9	28.3	18.9	28.3	5E-06	Mafic Intrusion
		5	29.4	41.5	29.4	41.5	2E-05	Mafic Intrusion, Sedimentary Mudstone Schist
		6	33.9	41.5	33.9	41.5	4E-05	Sedimentary Mudstone Schist
		7	41.4	50.5	41.4	50.5	1E-05	Sedimentary Mudstone Schist
		1	6.58	11.33	6.58	11.33	4E-07	Sedimentary Mudstone Schist
K15-335	90	2	12.58	20.33	12.58	20.33	1E-07	Sedimentary Mudstone Schist, Mafic Tuff Schist
		4	18.58	32.33	18.58	32.33	2E-06	Sedimentary Mudstone Schist, Mafic Tuff Schist
		1	21.9	25	21.9	25	3E-05	Mafic Ash Tuff Schist
K15-336	90	2	24.9	28	24.9	28	7E-06	Mafic Ash Tuff Schist
		3	27.9	34	27.9	34	2E-05	Mafic Ash Tuff Schist, Sedimentary Mudstone Schist
		4	35.4	40	35.4	40	8E-06	Sedimentary Mudstone Schist, Mafic Ash Tuff Schist
		5	39.9	46	39.9	46	7E-07	Sedimentary Mudstone Schist, Mafic Ash Tuff Schist
		6	45.9	50.5	45.9	50.5	7E-07	Sedimentary Mudstone Schist

**Notes:**

Poor data quality - provided for qualitative purpose only  
 Packer tests conducted by Knight Piesold

**Table 4A: Monitoring Wells Packer Test Data Quality Analysis**

Well ID	Dip	Test Interval		Diagnostic Plot Analysis (see Figure 5)	Data Quality		
	Degree	From	to		Good	Moderate	Poor
		m bg					
MW15-01	-90	12.5	20.0	Laminar flow	X		
MW15-02		12.5	32.0	Some dilation, and possibly some clogging during decreasing pressures			X
MW15-05D		22.5	30.0	Some enhancement		X	
MW15-07D		16.5	33.0	Possibly some dilation and clogging during decreasing pressures		X	
MW15-08D		19.5	36.0	Laminar flow, possibly some clogging during decreasing pressures	X		
MW15-09D		34.5	39.0	Turbulent flow due to higher conductivity, artesian well		X	
MW15-10D		28.5	33.0	Laminar flow, possibly some dilation	X		

**Notes:**

Poor data quality - provided for qualitative purpose only

**Table 4B: Exploration Boreholes Packer Test Data Quality Analysis**

Hole ID	Dip Degree	Test Number	Test Interval		Diagnostic Plot Analysis (see Figure 5)	Data Quality		
			From m	to m ah		Good	Moderate	Poor
K15-204	-60	1	21.5	35.0	No flow, conductivity lower than method limit		X	
		2	72.5	95.0	Clogging			X
		3	123.5	149.0	Laminar flow, possibly some dilation	X		
K15-206	-65	1	13.5	24.0	Laminar flow	X		
		2	52.5	57.0	Limited data		X	
		3	94.5	114.0	Laminar flow, very little flow, lower limit of method	X		
		4	211.5	237.0	Laminar flow	X		
K15-200	-70	1	9.0	19.5	Limited data		X	
		2	64.5	75.0	Laminar flow, possibly minor clogging	X		
		3	103.5	106.5	Some clogging			X
		4	127.5	138.0	Possibly some dilation, and clogging during decreasing pressures			X
		5B	198.0	211.5	Dilation		X	
K15-202	-60	1	21.5	32.0	Turbulent flow due to higher conductivity, artesian well		X	
		2	57.5	71.0	Turbulent flow due to higher conductivity, artesian well		X	
K15-242	-65	1	27.5	38.0	Laminar flow	X		
		2	69.5	86.0	Laminar flow, very little flow, lower limit of method	X		
		3	117.5	125.0	Very little flow, lower limit of method, possibly some clogging			X
		4	132.5	161.0	Laminar flow	X		
K15-248	-75	1	46.5	52.5	Very little flow, lower limit of method, possibly some dilation			X
		2	169.5	175.5	Laminar flow, step 3 shows low flow		X	
		3	226.5	240.0	Laminar flow, step 1 shows high flow		X	
		4	244.5	279.0	Laminar flow	X		
K15-265	-55	1	70.5	90.0	Laminar flow	X		
		2	133.5	153.0	Laminar flow, possibly minor clogging	X		
		3	190.5	201.0	Laminar flow	X		
		4	271.5	285.0	Laminar flow, very little flow, lower limit of method	X		
K15-330	90	1	31.35	34.45	Dilation		X	
		2	34.35	38.95	Laminar flow		X	
		3	37.35	41.95	Laminar flow	X		
		4	41.85	46.45	Dilation			X
		5	41.85	50.95	Wash-out			X
K15-331	90	1	18.25	23	Void Filling		X	
		2	24.25	32	Laminar flow	X		
K15-333	90	1	9.25	17	Laminar flow	X		
		2	18.25	26	Laminar flow	X		
		3	27.25	35	Laminar flow	X		
		4	36.25	44	Laminar flow	X		
		5	45.25	53	Void Filling		X	
		6	54.25	62	Void Filling		X	
		7	63.25	71.35	Void Filling		X	
K15-334	90	1	18.9	23.5	Void Filling		X	
		2	18.9	26.5	Laminar flow			X
		3	18.9	28.3	Laminar flow			X
		5	29.4	41.5	Wash-out			X
		6	33.9	41.5	Dilation			X
		7	41.4	50.5	Laminar flow			X
		K15-335	90	1	6.58	11.33	Laminar flow	X
2	12.58			20.33	Laminar flow	X		
4	18.58			32.33	Laminar flow	X		
K15-336	90	1	21.9	25	Turbulent flow			X
		2	24.9	28	Laminar flow			X
		3	27.9	34	Laminar flow	X		
		4	35.4	40	Laminar flow			X
		5	39.9	46	Void Filling			X
		6	45.9	50.5	Laminar flow	X		

**Notes:**

Poor data quality - provided for qualitative purpose only  
 Packer tests conducted by Knight Piesold

**Table 5A: Groundwater Analytical Results, Zone 1 (Tailing Management Facility, Mill Site, Polishing Pond, Water Management Pond)**

Parameter	Unit	RDL	Water Use Licence QZ97-026 Part E - Effluent Quality Standards	Federal Interim Guideline - Commercial/Industrial <sup>1</sup>		CCME - AW (Freshwater) <sup>2</sup>	Well ID	BH95G-2				MW15-07S		
				Aquifer & Approx. Sample Depth (mbg)	Bedrock 17.5				Overburden 9.55					
					Yukon CSR - AW (Freshwater) <sup>3</sup>		BH95-2	BH95G-2	BH95G-2	BH95G-2	MW15-07S	MW15-07S	MW15-07S	
							13-May-2015	22-Sep-2015	5-Nov-2015	16-Mar-2016	6-Sep-2015	5-Nov-2015	15-Mar-2016	
<b>Field</b>														
Field pH	pH Units		6.5-9	6.5-9	6.5-9	6.5-9	-	7.25	7.53	7.71	7.54	7.23	7.68	7.62
Field Electric Conductivity	µS/cm		-	-	-	-	-	258.2	585.7	516	570	425.6	360	400
Field Temperature	°C		-	-	-	-	-	2.7	-1.9	-0.1	0.63	-0.9	0	0.42
Field Dissolved Oxygen	mg/L		-	-	-	-	-	5.92	5.33	3.7	3.9	0.48	1.5	3
Field Redox	mV		-	-	-	-	-	-	-	-	400	-	-	-17
<b>Physical Parameters</b>														
pH	pH Units		6.5-9	6.5-9	6.5-9	6.5-9	-	8.12	8.32	8.18	8.18	7.9	8.1	8.01
Acidity (pH 4.5)	µg/L	500	-	-	-	-	-	<500	<500	<500	<500	<500	<500	<500
Acidity (pH 8.3)	µg/L	500	-	-	-	-	-	<500	<500	4310	<500	3660	2990	<500
Electrical Conductivity (EC)	µS/cm	1	-	-	-	-	-	263	518	564	554	385	393	389
Total Dissolved Solids (TDS)	µg/L	1000	-	-	-	-	-	176000	316000	310000	358000	238000	250000	226000
Total Suspended Solids (TSS)	µg/L	1000	15,000	-	-	See note <sup>4</sup>	-	-	54300	162000	1230000	3840000	6590000	2940000
Hardness as CaCO <sub>3</sub>	mg/L	0.5	-	-	-	-	-	226	306	289	381	480	453	419
Dissolved Hardness	mg/L	0.5	-	-	-	-	-	136	305	325	297	205	191	192
Alkalinity (total as CaCO <sub>3</sub> )	µg/L	500	-	-	-	-	-	128000	247000	260000	258000	168000	173000	177000
Alkalinity (pp as CaCO <sub>3</sub> )	µg/L	500	-	-	-	-	-	<500	2540	<500	<500	<500	<500	<500
Bicarbonate	µg/L	500	-	-	-	-	-	157000	295000	317000	315000	205000	211000	216000
Carbonate	µg/L	500	-	-	-	-	-	<500	3050	<500	<500	<500	<500	<500
Hydroxide	µg/L	500	-	-	-	-	-	<500	<500	<500	<500	<500	<500	<500
Chloride	mg/L	0.5	-	120	120	120	-	1.2	0.96	0.79	0.63	0.84	0.94	<0.50
Fluoride	µg/L	10	-	120	120	120	3000	40	59	57	47	300	300	280
Sulphate	mg/L	0.5	-	100	100	-	1000	7.43	45.2	51.1	52.1	32.6	33.2	32.5
Orthophosphate (as P)	µg/L	1	-	-	-	-	-	16	7.3	6.2	34	6.9	<1.0	14
Turbidity	NTU	0.1	-	-	-	-	-	1530	2.27	55.3	-	1430	1600	-
Anions Total	meq/L		-	-	-	-	-	2.9	-	6.3	-	4.1	4.2	-
Cations Total	meq/L		-	-	-	-	-	2.7	-	6.5	-	4.3	4	-
Ionic Balance	N/A	0.01	-	-	-	-	-	0.96	1	1	0.95	1.1	0.96	0.96
<b>Nutrients</b>														
Ammonia	µg/L	5	2500	4840-231,000 <sup>5</sup>	4840-231,000 <sup>5</sup>	4840-231,000 <sup>5</sup>	3700-18,500 <sup>6</sup>	51	9.7	51	43	62	53	66
Total Kjeldahl Nitrogen (TKN)	µg/L	20	-	-	-	-	-	<1000	<20	29	198	132	113	126
Nitrate (as NO <sub>3</sub> -N)	µg/L	2	-	13,000	13,000	13,000	400,000	1360	387	407	441	<2.0	4.8	<2.0
Nitrite (as NO <sub>2</sub> -N)	µg/L	2	-	60	60	60	200-400 <sup>7</sup>	<2.0	<2.0	2	3.4	<2.0	<2.0	<2.0
Nitrate and Nitrite (as N)	µg/L	2	-	-	-	-	400,000	1360	387	409	444	<2.0	4.8	<2.0
Nitrogen (Total)	µg/L	20	-	-	-	-	-	<1000	327	438	643	132	118	126
Phosphorus, total	µg/L	2	-	-	-	-	-	8660	31.4	442	1220	2500	1030	1970

**Notes:**

- <sup>1</sup> Environment Canada (Revised March 2014). Guidance Document on Federal Interim Groundwater Quality Guidelines (FIGQG) for Federal Contaminated Sites, Tier 1 guidelines for fine and coarse grained soil under Commercial/Industrial land use
  - <sup>2</sup> Canadian Council of Ministers of the Environment (CCME) (Updated 2014). Canadian Water Quality Guidelines for the Protection of Aquatic Life (Freshwater)
  - <sup>3</sup> Environment Act. Contaminated Sites Regulation (CSR) (2002). Schedule 3, Generic Numerical Water Standards for Aquatic Life (AW)
  - <sup>4</sup> Maximum increase of 25 mg/L from background levels
  - <sup>5</sup> Standard varies with pH and temperature. Values shown based on field pH hrange of 5.68 to 7.71 and temperature range of -2.7 °C to 3.3 °C
  - <sup>6</sup> Guideline varies with pH. Values shown based on field pH range of 5.68 to 7.71
  - <sup>7</sup> Guideline varies with chloride. Values shown based on chloride range of <0.50 mg/L to 3.8 mg/L
  - <sup>8</sup> Guideline applied is for ultra-oligotrophic
  - <sup>9</sup> Guideline varies with hardness. Value shown based on hardness range of 200 mg/L to 2120 mg/L for total metals, and 136 mg/L to 2180 mg/L for dissolved metals
  - <sup>10</sup> Guideline is for Chromium VI
  - "-" No applicable standard or not analyzed
- Shaded - Greater than Federal Interim Guideline  
 BOLD - Greater than CCME AW Guideline  
 Underlined - Greater than Yukon CSR Guideline  
 RED - Greater than current Site Water Licence QZ97-026

Table 5A: Groundwater Analytical Results, Zone 1 (Tailing Management Facility, Mill Site, Polishing Pond, Water Man)

Parameter	Unit	RDL	Water Use Licence QZ97-026 Part E - Effluent Quality Standards	Federal Interim Guideline - Commercial/Industrial <sup>1</sup>		CCME - AW (Freshwater) <sup>2</sup>	Well ID	MW15-07D	MW15-08S	MW15-08D		MW15-09S	MW15-09D	MW15-10S	MW15-10D		
				Aquifer & Approx. Sample Depth (mbg)	Bedrock 29.2		Overburden 10.15	Bedrock 32.7		Overburden 14.35	Bedrock 38	Overburden 8.1	Bedrock 28.6				
				Yukon CSR - AW (Freshwater) <sup>3</sup>	MW15-07D		MW15-08S	MW15D-08D	MW15-08D	MW15-09S	MW15-09D	MW15-10S	MW15-10D	MW15-10D	MW15-10D		
				Fine	Coarse		6-Sep-2015	2-Sep-2015	3-Sep-2015	3-Nov-2015	5-Sep-2015	5-Sep-2015	4-Sep-2015	4-Sep-2015	4-Nov-2015	17-Mar-2016	
<b>Field</b>																	
Field pH	pH Units		6.5-9	6.5-9	6.5-9	6.5-9	-	7.5	7.67	7.22	7.28	7.37	5.68	6.17	6.03	5.9	6.02
Field Electric Conductivity	µS/cm		-	-	-	-	-	449	394.9	618	548	441.9	834	812	3186	2693	3127
Field Temperature	°C		-	-	-	-	-	0.5	1.1	3.3	-2.3	-0.3	0.6	-0.1	1	-2.7	2
Field Dissolved Oxygen	mg/L		-	-	-	-	-	3	10.58	6.1	5.27	0.4	4.23	3.96	2.12	3.27	3
Field Redox	mV		-	-	-	-	-	-	-	-	-	-	-	-	-	-	126
<b>Physical Parameters</b>																	
pH	pH Units		6.5-9	6.5-9	6.5-9	6.5-9	-	8.03	8.26	7.96	8.05	8.12	6.3	6.73	6.79	6.77	5.00
Acidity (pH 4.5)	µg/L	500	-	-	-	-	-	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500
Acidity (pH 8.3)	µg/L	500	-	-	-	-	-	4790	<500	5630	5270	4940	299000	125000	359000	395000	352000
Electrical Conductivity (EC)	µS/cm	1	-	-	-	-	-	415	372	540	539	413	813	853	3000	2850	2970
Total Dissolved Solids (TDS)	µg/L	1000	-	-	-	-	-	250000	228000	342000	338000	238000	478000	486000	1950000	1940000	1960000
Total Suspended Solids (TSS)	µg/L	1000	15,000	-	-	See note <sup>4</sup>	-	1800	<1000	43400	242000	102000	284000	1200000	367000	302000	428000
Hardness as CaCO <sub>3</sub>	mg/L	0.5	-	-	-	-	-	213	200	350	361	202	396	757	1810	2120	1760
Dissolved Hardness	mg/L	0.5	-	-	-	-	-	215	211	310	269	221	402	378	2180	2020	1910
Alkalinity (total as CaCO <sub>3</sub> )	µg/L	500	-	-	-	-	-	191000	175000	250000	245000	204000	421000	418000	1810000	1840000	323000
Alkalinity (pp as CaCO <sub>3</sub> )	µg/L	500	-	-	-	-	-	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500
Bicarbonate	µg/L	500	-	-	-	-	-	233000	213000	305000	299000	249000	513000	510000	2210000	2240000	394000
Carbonate	µg/L	500	-	-	-	-	-	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500
Hydroxide	µg/L	500	-	-	-	-	-	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500
Chloride	mg/L	0.5	-	120	120	120	-	<0.50	0.87	1.3	0.96	1.1	1.1	2.5	3.4	3.8	2.8
Fluoride	µg/L	10	-	120	120	120	3000	340	93	610	540	250	730	190	1300	1300	1300
Sulphate	mg/L	0.5	-	100	100	100	1000	27.3	23.9	43.9	45	20.9	15.3	47.8	12	1.01	5.19
Orthophosphate (as P)	µg/L	1	-	-	-	-	-	2.9	<1.0	4.5	3.8	1.5	3	2.1	9.2	8.1	2.9
Turbidity	NTU	0.1	-	-	-	-	-	5.32	<0.10	52.6	149	33.9	135	3750	186	188	-
Anions Total	meq/L		-	-	-	-	-	4.4	-	-	5.9	4.6	8.8	9.4	37	37	-
Cations Total	meq/L		-	-	-	-	-	4.6	-	-	6	5	8.9	9	47	43	-
Ionic Balance	N/A	0.01	-	-	-	-	-	1	1.1	1.1	1	0.96	1	0.95	1.3	1.2	6.1
<b>Nutrients</b>																	
Ammonia	µg/L	5	2500	4840-231,000 <sup>5</sup>	4840-231,000 <sup>5</sup>	4840-231,000 <sup>5</sup>	3700-18,500 <sup>6</sup>	43	11	130	120	94	100	670	300	240	280
Total Kjeldahl Nitrogen (TKN)	µg/L	20	-	-	-	-	-	49	58	161	550	110	136	4740	348	269	274
Nitrate (as NO <sub>3</sub> -N)	µg/L	2	-	13,000	13,000	13,000	400,000	<2.0	215	<2.0	4.7	36	2.1	43.5	7.5	5.1	2
Nitrite (as NO <sub>2</sub> -N)	µg/L	2	-	60	60	60	200-400 <sup>7</sup>	<2.0	<2.0	<2.0	<2.0	6	<2.0	7.6	<2.0	<2.0	<2.0
Nitrate and Nitrite (as N)	µg/L	2	-	-	-	-	400,000	<2.0	215	<2.0	4.7	42	2.1	51.1	7.5	5.1	2
Nitrogen (Total)	µg/L	20	-	-	-	-	-	49	273	161	555	152	138	4790	356	274	276
Phosphorus, total	µg/L	2	-	-	-	-	-	2.4	2.6	79.5	4.8	41.1	1160	13400	483	253	252

**Notes:**

- <sup>1</sup> Environment Canada (Revised March 2014). Guidance Document on Federal Interim Groundwater Quality Guidelines (FIGQG) for Federal Contaminated Sites, Tier 1 guidelines for fine and coarse grained soil under Commercial/Industrial land use
  - <sup>2</sup> Canadian Council of Ministers of the Environment (CCME) (Updated 2014). Canadian Water Quality Guidelines for the Protection of Aquatic Life (Freshwater)
  - <sup>3</sup> Environment Act. Contaminated Sites Regulation (CSR) (2002). Schedule 3, Generic Numerical Water Standards for Aquatic Life (AW)
  - <sup>4</sup> Maximum increase of 25 mg/L from background levels
  - <sup>5</sup> Standard varies with pH and temperature. Values shown based on field pH hrange of 5.68 to 7.71 and temperature range of -2.7 °C to 3.3 °C
  - <sup>6</sup> Guideline varies with pH. Values shown based on field pH range of 5.68 to 7.71
  - <sup>7</sup> Guideline varies with chloride. Values shown based on chloride range of <0.50 mg/L to 3.8 mg/L
  - <sup>8</sup> Guideline applied is for ultra-oligotrophic
  - <sup>9</sup> Guideline varies with hardness. Value shown based on hardness range of 200 mg/L to 2120 mg/L for total metals, and 136 mg/L to 2180 mg/L for dissolved metals
  - <sup>10</sup> Guideline is for Chromium VI
  - "-" No applicable standard or not analyzed
- Shaded** - Greater than Federal Interim Guideline  
**BOLD** - Greater than CCME AW Guideline  
Underlined - Greater than Yukon CSR Guideline  
**RED** - Greater than current Site Water Licence QZ97-026

Table 5A: Groundwater Analytical Results, Zone 1 (Tailing Management Facility, Mill Site, Polishing Pond, Water Man)

Parameter	Unit	RDL	Water Use Licence QZ97-026 Part E - Effluent Quality Standards	Federal Interim Guideline - Commercial/Industrial <sup>1</sup>		CCME - AW (Freshwater) <sup>2</sup>	Well ID	Statistical Analysis												
				Aquifer & Approx. Sample Depth (mbg)	Overburden					Bedrock										
					Yukon CSR - AW (Freshwater) <sup>3</sup>		MIN	MAX	MEDIAN	MEAN	STDV	90th PERCENTILE	MIN	MAX	MEDIAN	MEAN	STDV	90th PERCENTILE		
<b>Field</b>																				
Field pH	pH Units		6.5-9	6.5-9	6.5-9	6.5-9	-	6.17	7.68	7.50	7.29	0.58	7.68	5.68	7.71	7.25	6.88	1.88	7.54	
Field Electric Conductivity	µS/cm		-	-	-	-	-	360.00	812.00	412.80	472.40	168.72	626.95	258.20	3186.00	585.70	1216.81	1161.10	3127.00	
Field Temperature	°C		-	-	-	-	-	-0.90	1.10	-0.05	0.04	0.68	0.76	-2.70	3.30	0.60	0.34	1.89	2.70	
Field Dissolved Oxygen	mg/L		-	-	-	-	-	0.40	10.58	2.25	3.32	3.82	7.27	2.12	6.10	3.90	4.17	1.57	5.92	
Field Redox	mV		-	-	-	-	-	-17.00	-17.00	-	-	-	-	126.00	400.00	263.00	263.00	204.13	-	
<b>Physical Parameters</b>																				
pH	pH Units		6.5-9	6.5-9	6.5-9	6.5-9	-	6.73	8.26	8.06	7.85	0.56	8.19	5.00	8.32	8.03	7.43	2.14	8.18	
Acidity (pH 4.5)	µg/L	500	-	-	-	-	-	<500	<500	-	-	-	-	<500	<500	-	-	-	-	
Acidity (pH 8.3)	µg/L	500	-	-	-	-	-	<500	125000	3325	22932	50034	64970	<500	395000	5270	129682	172873	359000	
Electrical Conductivity (EC)	µS/cm	1	-	-	-	-	-	372	853	391	468	189	633	263	3000	554	1184	1135	2970	
Total Dissolved Solids (TDS)	µg/L	1000	-	-	-	-	-	226000	486000	238000	277667	102422	368000	176000	1960000	342000	765273	761563	1950000	
Total Suspended Solids (TSS)	µg/L	1000	15,000	-	-	See note <sup>4</sup>	-	<1000	12000000	3390000	4245500	4531712	9295000	1800	1230000	263000	311450	347915	508200	
Hardness as CaCO <sub>3</sub>	mg/L	0.5	-	-	-	-	-	200	757	436	419	207	619	213	2120	361	747	743	1810	
Dissolved Hardness	mg/L	0.5	-	-	-	-	-	191	378	208	233	72	300	136	2180	310	761	816	2020	
Alkalinity (total as CaCO <sub>3</sub> )	µg/L	500	-	-	-	-	-	168000	418000	176000	219167	98227	311000	128000	1840000	258000	543000	628184	1810000	
Alkalinity (pp as CaCO <sub>3</sub> )	µg/L	500	-	-	-	-	-	<500	<500	-	-	-	-	<500	2540	500	685	619	500	
Bicarbonate	µg/L	500	-	-	-	-	-	205000	510000	214500	267333	119891	379500	157000	2240000	315000	661636	765987	2210000	
Carbonate	µg/L	500	-	-	-	-	-	<500	<500	-	-	-	-	<500	3050	500	732	763	500	
Hydroxide	µg/L	500	-	-	-	-	-	<500	<500	-	-	-	-	<500	500	-	-	-	-	
Chloride	mg/L	0.5	-	120	120	120	-	<0.5	2.50	0.91	1.13	0.70	1.80	<0.5	3.80	1.10	1.59	1.13	3.40	
Fluoride	µg/L	10	-	120	120	120	3000	93	300	265	236	81	300	40	1300	540	575	527	1300	
Sulphate	mg/L	0.5	-	100	100	100	1000	20.9	47.8	32.6	31.8	9.4	40.5	1.0	52.1	27.3	27.8	20.7	51.1	
Orthophosphate (as P)	µg/L	1	-	-	-	-	-	<1	14	2	4	5	10	2.9	34	6.2	8.9	9.1	16.0	
Turbidity	NTU	0.1	-	-	-	-	-	<0.1	3750	1430	1363	1532	2890	2.3	1530	135	256	463	456	
Anions Total	meq/L		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cations Total	meq/L		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Ionic Balance	N/A	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Nutrients</b>																				
Ammonia	µg/L	5	2500	4840-231,000 <sup>5</sup>	4840-231,000 <sup>5</sup>	4840-231,000 <sup>5</sup>	3700-18,500 <sup>6</sup>	11	670	64	159	252	382	10	300	100	124	105	280	
Total Kjeldahl Nitrogen (TKN)	µg/L	20	-	-	-	-	-	58	4740	120	880	1891	2436	<20	1000	198	276	285	550	
Nitrate (as NO <sub>3</sub> -N)	µg/L	2	-	13,000	13,000	13,000	400,000	<2	215	20	51	83	129	<2	1360	5	238	403	441	
Nitrite (as NO <sub>2</sub> -N)	µg/L	2	-	60	60	60	200-400 <sup>7</sup>	<2	7.60	2.00	3.60	2.53	6.80	<2	3.40	2.00	2.13	0.54	2.00	
Nitrate and Nitrite (as N)	µg/L	2	-	-	-	-	400,000	<2	215	23	53	82	133	<2	1360	5	239	403	444	
Nitrogen (Total)	µg/L	20	-	-	-	-	-	118	4790	142	932	1891	2532	49	1000	327	383	280	643	
Phosphorus, total	µg/L	2	-	-	-	-	-	3	13400	1500	3157	5117	7950	2.4	8660	253	1144	2434	1220	

**Notes:**

- <sup>1</sup> Environment Canada (Revised March 2014). Guidance Document on Federal Interim Groundwater Quality Guidelines (FIGQG) for Federal Contaminated Sites, Tier 1 guidelines for fine and coarse grained soil under Commercial/Industrial land use
  - <sup>2</sup> Canadian Council of Ministers of the Environment (CCME) (Updated 2014). Canadian Water Quality Guidelines for the Protection of Aquatic Life (Freshwater)
  - <sup>3</sup> Environment Act. Contaminated Sites Regulation (CSR) (2002). Schedule 3, Generic Numerical Water Standards for Aquatic Life (AW)
  - <sup>4</sup> Maximum increase of 25 mg/L from background levels
  - <sup>5</sup> Standard varies with pH and temperature. Values shown based on field pH range of 5.68 to 7.71 and temperature range of -2.7 °C to 3.3 °C
  - <sup>6</sup> Guideline varies with pH. Values shown based on field pH range of 5.68 to 7.71
  - <sup>7</sup> Guideline varies with chloride. Values shown based on chloride range of <0.50 mg/L to 3.8 mg/L
  - <sup>8</sup> Guideline applied is for ultra-oligotrophic
  - <sup>9</sup> Guideline varies with hardness. Value shown based on hardness range of 200 mg/L to 2120 mg/L for total metals, and 136 mg/L to 2180 mg/L for dissolved metals
  - <sup>10</sup> Guideline is for Chromium VI
  - \*- No applicable standard or not analyzed
- Shaded - Greater than Federal Interim Guideline  
 BOLD - Greater than CCME AW Guideline  
 Underlined - Greater than Yukon CSR Guideline  
 RED - Greater than current Site Water Licence QZ97-026



Table 5A: Groundwater Analytical Results, Zone 1 (Tailing Management Facility, Mill Site, Polishing Pond, Water Management Pond)

Parameter	Unit	RDL	Water Use Licence QZ97-026 Part E - Effluent Quality Standards	Federal Interim Guideline - Commercial/Industrial <sup>1</sup>		CCME - AW (Freshwater) <sup>2</sup>	Well ID	BH95G-2				MW15-07S		
				Aquifer & Approx. Sample Depth (mbg)	Bedrock 17.5				Overburden 9.55					
					Yukon CSR - AW (Freshwater) <sup>3</sup>		BH95-2	BH95G-2	BH95G-2	BH95G-2	BH95G-2	MW15-07S	MW15-07S	MW15-07S
							13-May-2015	22-Sep-2015	5-Nov-2015	16-Mar-2016	6-Sep-2015	5-Nov-2015	15-Mar-2016	
<b>Carbon</b>														
Dissolved Organic Carbon (DOC)	µg/L	500	-	-	-	-	-	-	-	-	1770	-	-	2450
Total Organic Carbon (TOC)	µg/L	500	-	-	-	-	-	9140	600	<500	-	<500	<500	-
<b>Dissolved Metals</b>														
Aluminum	µg/L	0.5	-	5,100 <sup>6</sup>	5,100 <sup>6</sup>	5,100 <sup>6</sup>	-	9.11	1.61	24.4	1.49	3.02	23.9	1.94
Antimony	µg/L	0.02	-	2000	2000	-	200	0.098	0.021	<0.020	<0.020	<0.020	0.023	<0.020
Arsenic	µg/L	0.02	50	5	5	5	50	0.163	0.155	0.085	0.066	2.64	5.07	2.5
Barium	µg/L	0.02	-	500	500	-	10,000	31.5	25.8	24.7	28.3	35.5	34.1	33
Beryllium	µg/L	0.01	-	5.3	5.3	-	53	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Bismuth	µg/L	0.005	-	-	-	-	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Boron	µg/L	10	-	5000	5000	1500	50,000	<10	<10	<10	<10	<10	<10	<10
Cadmium	µg/L	0.005	7	0.017	0.017	0.09	0.5-0.6 <sup>9</sup>	1.23	1.45	1.57	1.56	<0.0050	0.015	<0.0050
Calcium	µg/L	50	-	-	-	-	-	34700	71400	80000	70500	64500	59900	60700
Chromium	µg/L	0.1	-	8.9	8.9	1 <sup>10</sup>	10 <sup>10</sup>	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cobalt	µg/L	0.005	-	-	-	-	9	0.0257	0.009	0.009	0.008	0.128	0.517	0.177
Copper	µg/L	0.05	15	3.1-4.0 <sup>9</sup>	3.1-4.0 <sup>9</sup>	3.1-4.0 <sup>9</sup>	60-90 <sup>9</sup>	3.09	0.236	0.368	0.567	0.107	0.219	0.093
Iron	µg/L	1	-	300	300	300	-	17.7	2.2	2.6	24.4	357	307	592
Lead	µg/L	0.005	26	4.7-7.0 <sup>9</sup>	4.7-7.0 <sup>9</sup>	4.7-7.0 <sup>9</sup>	60-160 <sup>9</sup>	0.0554	0.018	0.061	0.034	0.016	0.057	0.01
Lithium	µg/L	0.5	-	-	-	-	-	0.95	1.45	1.54	1.55	7.35	6.24	7.2
Magnesium	µg/L	50	-	-	-	-	-	11800	30700	30400	29300	10800	9960	9870
Manganese	µg/L	0.05	-	-	-	-	-	1.93	0.258	0.446	0.475	172	155	161
Mercury	µg/L	0.002	-	0.016	0.016	0.026	1	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Molybdenum	µg/L	0.05	-	73	73	73	10,000	0.339	2.14	1.94	1.89	0.407	0.837	0.339
Nickel	µg/L	0.02	-	120-150 <sup>9</sup>	120-150 <sup>9</sup>	120-150 <sup>9</sup>	1100-1500 <sup>9</sup>	1.02	0.409	0.439	0.491	0.29	1.25	0.631
Phosphorus	µg/L	2	-	-	-	4 <sup>8</sup>	-	16.4	7.4	9.7	7	5.8	6.9	3.1
Potassium	µg/L	50	-	-	-	-	-	425	428	445	445	1470	1390	1460
Selenium	µg/L	0.04	15	1	1	1	10	1.36	5.05	6.23	4.85	<0.040	<0.040	<0.040
Silicon	µg/L	50	-	-	-	-	-	2940	2230	2230	2210	6640	6460	6890
Silver	µg/L	0.005	-	0.1	0.1	0.25	15 <sup>9</sup>	0.0113	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Sodium	µg/L	50	-	-	-	-	-	377	696	726	738	4050	3560	3410
Strontium	µg/L	0.05	-	-	-	-	-	103	227	247	239	272	264	277
Sulphur	µg/L	3000	-	-	-	-	-	<3000	15300	17200	17600	13000	11800	11100
Thallium	µg/L	0.002	-	0.8	0.8	0.8	3	0.0077	0.004	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Tin	µg/L	0.2	-	-	-	-	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Titanium	µg/L	0.5	-	100	100	-	1000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Uranium	µg/L	0.002	-	15	15	15	3000	0.254	3.22	3.16	2.93	1.68	2	1.49
Vanadium	µg/L	0.2	-	-	-	-	-	<0.20	0.2	<0.20	<0.20	<0.20	<0.20	<0.20
Zinc	µg/L	0.1	110	10	10	30	900-2400 <sup>9</sup>	20.5	22.9	24.5	24.9	4.38	1.07	1.28
Zirconium	µg/L	0.1	-	-	-	-	-	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10

**Notes:**

- <sup>1</sup> Environment Canada (Revised March 2014). Guidance Document on Federal Interim Groundwater Quality Guidelines (FIGQG) for Federal Contaminated Sites, Tier 1 guidelines for fine and coarse grained soil under Commercial/Industrial land use
- <sup>2</sup> Canadian Council of Ministers of the Environment (CCME) (Updated 2014). Canadian Water Quality Guidelines for the Protection of Aquatic Life (Freshwater)
- <sup>3</sup> Environment Act. Contaminated Sites Regulation (CSR) (2002). Schedule 3, Generic Numerical Water Standards for Aquatic Life (AW)
- <sup>4</sup> Maximum increase of 25 mg/L from background levels
- <sup>5</sup> Standard varies with pH and temperature. Values shown based on field pH range of 5.68 to 7.71 and temperature range of -2.7 °C to 3.3 °C
- <sup>6</sup> Guideline varies with pH. Values shown based on field pH range of 5.68 to 7.71
- <sup>7</sup> Guideline varies with chloride. Values shown based on chloride range of <0.50 mg/L to 3.8 mg/L
- <sup>8</sup> Guideline applied is for ultra-oligotrophic
- <sup>9</sup> Guideline varies with hardness. Value shown based on hardness range of 200 mg/L to 2120 mg/L for total metals, and 136 mg/L to 2180 mg/L for dissolved metals
- <sup>10</sup> Guideline is for Chromium VI
- "-" No applicable standard or not analyzed
- Shaded - Greater than Federal Interim Guideline
- BOLD - Greater than CCME AW Guideline
- Underlined - Greater than Yukon CSR Guideline
- RED - Greater than current Site Water Licence QZ97-026



Table 5A: Groundwater Analytical Results, Zone 1 (Tailing Management Facility, Mill Site, Polishing Pond, Water Man)

Parameter	Unit	RDL	Water Use Licence QZ97-026 Part E - Effluent Quality Standards	Federal Interim Guideline - Commercial/Industrial <sup>1</sup>		CCME - AW (Freshwater) <sup>2</sup>	Well ID	MW15-07D	MW15-08S	MW15-08D		MW15-09S	MW15-09D	MW15-10S	MW15-10D		
				Aquifer & Approx. Sample Depth (mbg)	Bedrock 29.2		Overburden 10.15	Bedrock 32.7		Overburden 14.35	Bedrock 38	Overburden 8.1	Bedrock 28.6				
				Yukon CSR - AW (Freshwater) <sup>3</sup>	MW15-07D		MW15-08S	MW15D-08D	MW15-08D	MW15-09S	MW15-09D	MW15-10S	MW15-10D	MW15-10D	MW15-10D		
					6-Sep-2015		2-Sep-2015	3-Sep-2015	3-Nov-2015	5-Sep-2015	5-Sep-2015	4-Sep-2015	4-Sep-2015	4-Nov-2015	17-Mar-2016		
<b>Carbon</b>																	
Dissolved Organic Carbon (DOC)	µg/L	500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2120
Total Organic Carbon (TOC)	µg/L	500	-	-	-	-	-	<500	760	530	930	<500	<500	3900	<500	<500	-
<b>Dissolved Metals</b>																	
Aluminum	µg/L	0.5	-	5, 100 <sup>6</sup>	5, 100 <sup>6</sup>	5, 100 <sup>6</sup>	-	12.4	2.01	3.56	3.61	1.8	<b>170</b>	<b>8.18</b>	<b>438</b>	<b>298</b>	<b>243</b>
Antimony	µg/L	0.02	-	2000	2000	-	<u>200</u>	<0.020	<0.020	0.073	0.135	0.207	0.303	0.055	0.077	0.064	0.042
Arsenic	µg/L	0.02	<b>50</b>	5	5	<b>5</b>	<u>50</u>	0.245	0.357	2.62	4.96	0.537	<b>8.48</b>	<b>11.7</b>	1.67	1.09	0.782
Barium	µg/L	0.02	-	500	500	-	<u>10,000</u>	40.2	63.1	34.4	46.3	181	90	126	442	415	415
Beryllium	µg/L	0.01	-	5.3	5.3	-	<u>53</u>	<0.010	<0.010	<0.010	<0.010	<0.010	0.111	0.041	1.19	1.05	1.03
Bismuth	µg/L	0.005	-	-	-	-	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.012	<0.0050
Boron	µg/L	10	-	5000	5000	<b>1500</b>	<u>50,000</u>	<10	<10	<10	<10	17	<10	11	<10	11	15
Cadmium	µg/L	0.005	<b>7</b>	0.017	0.017	<b>0.09</b>	<u>0.5-0.6<sup>9</sup></u>	<0.0050	0.059	0.018	0.032	0.046	0.008	<b>0.19</b>	<b>0.148</b>	<b>0.172</b>	<b>0.135</b>
Calcium	µg/L	50	-	-	-	-	-	62500	74500	84800	76500	69600	133000	132000	725000	673000	641000
Chromium	µg/L	0.1	-	8.9	8.9	<b>1<sup>10</sup></b>	<u>10<sup>10</sup></u>	<0.10	<0.10	<0.10	<0.10	<0.10	<b>3.04</b>	0.27	<b>5.39</b>	<b>1.55</b>	<b>1.13</b>
Cobalt	µg/L	0.005	-	-	-	-	<u>9</u>	0.031	0.649	0.295	0.709	0.966	0.389	2.86	1.27	0.833	0.503
Copper	µg/L	0.05	<b>15</b>	3.1-4.0 <sup>9</sup>	3.1-4.0 <sup>9</sup>	<b>3.1-4.0<sup>9</sup></b>	<u>60-90<sup>9</sup></u>	0.089	0.706	<0.05	0.087	0.106	0.416	0.182	0.262	0.993	0.151
Iron	µg/L	1	-	300	300	<b>300</b>	-	<b>498</b>	4.3	<b>655</b>	<b>563</b>	<b>1310</b>	<b>12300</b>	<b>4250</b>	<b>36600</b>	<b>30000</b>	<b>26500</b>
Lead	µg/L	0.005	<b>26</b>	4.7-7.0 <sup>9</sup>	4.7-7.0 <sup>9</sup>	<b>4.7-7.0<sup>9</sup></b>	<u>60-160<sup>9</sup></u>	0.081	0.012	0.012	0.019	0.011	0.121	0.153	1.36	1.23	0.346
Lithium	µg/L	0.5	-	-	-	-	-	12.9	2.06	39.3	28.2	3.81	33.9	6.5	249	237	235
Magnesium	µg/L	50	-	-	-	-	-	14400	5970	23800	18900	11400	17100	11600	90800	83400	75800
Manganese	µg/L	0.05	-	-	-	-	-	61.4	18	181	191	493	805	484	5410	5090	4690
Mercury	µg/L	0.002	-	0.016	0.016	<b>0.026</b>	<u>1</u>	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Molybdenum	µg/L	0.05	-	73	73	<b>73</b>	<u>10,000</u>	0.058	2.57	0.433	6.64	8.11	9.25	1.58	1.32	0.45	0.488
Nickel	µg/L	0.02	-	120-150 <sup>9</sup>	120-150 <sup>9</sup>	<b>120-150<sup>9</sup></b>	<u>1100-1500<sup>9</sup></u>	0.036	4.89	1.28	3.27	0.604	0.659	3.1	2.33	1.45	0.994
Phosphorus	µg/L	2	-	-	-	<b>4<sup>8</sup></b>	-	<b>5.3</b>	3.3	<b>5</b>	3.7	<b>8.7</b>	<b>8.4</b>	<b>16.8</b>	<b>15.1</b>	3.9	<b>12</b>
Potassium	µg/L	50	-	-	-	-	-	1630	1470	4540	3910	1890	4260	3120	10200	9830	8710
Selenium	µg/L	0.04	<b>15</b>	1	1	<b>1</b>	<u>10</u>	<0.040	<b>1.48</b>	<0.040	0.272	0.721	0.062	<b>1.72</b>	0.066	0.043	<0.040
Silicon	µg/L	50	-	-	-	-	-	7860	3570	12200	9900	4020	10300	5310	39900	41800	36500
Silver	µg/L	0.005	-	0.1	0.1	<b>0.25</b>	<u>15<sup>9</sup></u>	<0.0050	0.012	0.006	<0.0050	<0.0050	<0.0050	<0.0050	0.008	0.012	0.01
Sodium	µg/L	50	-	-	-	-	-	4410	1210	5690	11800	6030	5030	25900	25000	23600	25100
Strontium	µg/L	0.05	-	-	-	-	-	325	229	385	317	262	488	668	2780	2800	2740
Sulphur	µg/L	3000	-	-	-	-	-	9900	9000	15200	15900	8300	7600	16800	3600	4000	4600
Thallium	µg/L	0.002	-	0.8	0.8	<b>0.8</b>	<u>3</u>	<0.0020	0.004	0.003	0.002	<0.0020	<0.0020	0.002	0.015	0.003	0.003
Tin	µg/L	0.2	-	-	-	-	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.23	<0.20
Titanium	µg/L	0.5	-	100	100	-	<u>1000</u>	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.57	2.09	0.76	1.11
Uranium	µg/L	0.002	-	15	15	<b>15</b>	<u>3000</u>	1.16	2.21	1.03	1.43	2.09	3.65	4.33	0.649	0.562	0.984
Vanadium	µg/L	0.2	-	-	-	-	-	<0.20	<0.20	<0.20	<0.20	<0.20	0.45	<0.20	<0.20	0.64	1.55
Zinc	µg/L	0.1	<b>110</b>	10	10	<b>30</b>	<u>900-2400<sup>9</sup></u>	0.87	4.12	1.61	3.09	1.38	5.68	7.44	<b>10.5</b>	<b>21.7</b>	<b>9.57</b>
Zirconium	µg/L	0.1	-	-	-	-	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.11	1.58	2.09	1.55

**Notes:**

- <sup>1</sup> Environment Canada (Revised March 2014). Guidance Document on Federal Interim Groundwater Quality Guidelines (FIGQG) for Federal Contaminated Sites, Tier 1 guidelines for fine and coarse grained soil under Commercial/Industrial land use
- <sup>2</sup> Canadian Council of Ministers of the Environment (CCME) (Updated 2014). Canadian Water Quality Guidelines for the Protection of Aquatic Life (Freshwater)
- <sup>3</sup> Environment Act, Contaminated Sites Regulation (CSR) (2002). Schedule 3, Generic Numerical Water Standards for Aquatic Life (AW)
- <sup>4</sup> Maximum increase of 25 mg/L from background levels
- <sup>5</sup> Standard varies with pH and temperature. Values shown based on field pH range of 5.68 to 7.71 and temperature range of -2.7 °C to 3.3 °C
- <sup>6</sup> Guideline varies with pH. Values shown based on field pH range of 5.68 to 7.71
- <sup>7</sup> Guideline varies with chloride. Values shown based on chloride range of <0.50 mg/L to 3.8 mg/L
- <sup>8</sup> Guideline applied is for ultra-oligotrophic
- <sup>9</sup> Guideline varies with hardness. Value shown based on hardness range of 200 mg/L to 2120 mg/L for total metals, and 136 mg/L to 2180 mg/L for dissolved metals
- <sup>10</sup> Guideline is for Chromium VI
- "-" No applicable standard or not analyzed
- Shaded** - Greater than Federal Interim Guideline
- BOLD** - Greater than CCME AW Guideline
- Underlined - Greater than Yukon CSR Guideline
- RED** - Greater than current Site Water Licence QZ97-026

Table 5A: Groundwater Analytical Results, Zone 1 (Tailing Management Facility, Mill Site, Polishing Pond, Water Man)

Parameter	Unit	RDL	Water Use Licence QZ97-026 Part E - Effluent Quality Standards	Federal Interim Guideline - Commercial/Industrial <sup>1</sup>		CCME - AW (Freshwater) <sup>2</sup>	Well ID Aquifer & Approx. Sample Depth (mbg) Yukon CSR - AW (Freshwater) <sup>3</sup>	Statistical Analysis											
				Fine	Coarse			Overburden					Bedrock						
								MIN	MAX	MEDIAN	MEAN	STDV	90th PERCENTILE	MIN	MAX	MEDIAN	MEAN	STDV	90th PERCENTILE
<b>Carbon</b>																			
Dissolved Organic Carbon (DOC)	µg/L	500	-	-	-	-	-	2450	2450	2450	2450	#DIV/0!	2450	1770	2120	1945	1945	1136	2085
Total Organic Carbon (TOC)	µg/L	500	-	-	-	-	-	500	3900	500	1232	1496	2644	500	9140	500	1522	2739	2572
<b>Dissolved Metals</b>																			
Aluminum	µg/L	0.5	-	5, 100 <sup>6</sup>	5, 100 <sup>6</sup>	5, 100 <sup>6</sup>	-	1.8	24	3	7	9	16	1.5	<b>438</b>	12	110	150	<b>298</b>
Antimony	µg/L	0.02	-	2000	2000	-	200	<0.02	0.21	0.02	0.06	0.07	0.13	<0.02	0.30	0.06	0.08	0.25	0.14
Arsenic	µg/L	0.02	<b>50</b>	5	5	5	50	0.36	<b>11.7</b>	2.6	3.8	4.2	<b>8.4</b>	0.1	<b>8.5</b>	0.8	1.8	2.5	4.96
Barium	µg/L	0.02	-	500	500	-	<u>10,000</u>	33	181	49	79	61	154	25	442	40	145	177	415
Beryllium	µg/L	0.01	-	5.3	5.3	-	<u>53</u>	<0.01	0.041	0.01	0.02	0.01	0.03	<0.01	1.190	0.01	0.31	0.51	1.05
Bismuth	µg/L	0.005	-	-	-	-	-	<0.005	<0.005	-	-	-	-	0.005	0.012	0.01	0.01	0.26	0.01
Boron	µg/L	10	-	5000	5000	1500	<u>50,000</u>	<10	17.00	10.00	11.33	2.80	14.00	<10	15.00	10.00	10.55	3.13	11.00
Cadmium	µg/L	0.005	<b>7</b>	0.017	0.017	<b>0.09</b>	<u>0.5-0.6<sup>9</sup></u>	<0.005	<b>0.19</b>	0.03	0.05	0.07	<b>0.12</b>	<0.005	<b>1.57</b>	<b>0.15</b>	<b>0.58</b>	0.68	<b>1.56</b>
Calcium	µg/L	50	-	-	-	-	-	59900	132000	67050	76867	27569	103250	34700	725000	80000	241127	278874	673000
Chromium	µg/L	0.1	-	8.9	8.9	1 <sup>10</sup>	<u>10<sup>10</sup></u>	<0.1	0.27	0.10	0.13	0.07	0.19	<0.1	5.39	0.10	1.07	1.63	3.04
Cobalt	µg/L	0.005	-	-	-	-	<u>9</u>	0.13	2.86	0.58	0.88	1.02	1.91	0.008	1.27	0.30	0.37	0.43	0.83
Copper	µg/L	0.05	<b>15</b>	3.1-4.0 <sup>9</sup>	3.1-4.0 <sup>9</sup>	<b>3.1-4.0<sup>9</sup></b>	<u>60-90<sup>9</sup></u>	0.093	0.71	0.14	0.24	0.24	0.46	<0.05	3.09	0.26	0.57	0.84	0.99
Iron	µg/L	1	-	300	300	<b>300</b>	-	4.30	<b>4250.00</b>	<b>474.50</b>	<b>1136.72</b>	1587.33	<b>2780.00</b>	2.20	<b>36600.00</b>	<b>563.00</b>	<b>9742.08</b>	13938.46	<b>30000.00</b>
Lead	µg/L	0.005	<b>26</b>	4.7-7.0 <sup>9</sup>	4.7-7.0 <sup>9</sup>	<b>4.7-7.0<sup>9</sup></b>	<u>60-160<sup>9</sup></u>	0.010	0.15	0.01	0.04	0.06	0.11	0.012	1.36	0.06	0.30	0.51	1.23
Lithium	µg/L	0.5	-	-	-	-	-	2.1	7.4	6.4	5.5	2.1	7.3	0.95	249.0	28.2	76.4	103.6	237.0
Magnesium	µg/L	50	-	-	-	-	-	5970	11600	10380	9933	2068	11500	11800	90800	29300	38764	30275	83400
Manganese	µg/L	0.05	-	-	-	-	-	18	493	167	247	195	489	0.26	5410	181	1494	2244	5090
Mercury	µg/L	0.002	-	0.016	0.016	<b>0.026</b>	<u>1</u>	<0.002	<0.002	-	-	-	-	<0.002	<0.002	-	-	-	-
Molybdenum	µg/L	0.05	-	73	73	<b>73</b>	<u>10,000</u>	0.34	8.1	1.2	2.3	3.0	5.3	0.058	9.3	1.3	2.3	2.8	6.6
Nickel	µg/L	0.02	-	120-150 <sup>9</sup>	120-150 <sup>9</sup>	<b>120-150<sup>9</sup></b>	<u>1100-1500<sup>9</sup></u>	0.29	4.9	0.9	1.8	1.8	4.0	0.036	3.3	1.0	1.1	0.9	2.3
Phosphorus	µg/L	2	-	-	-	<b>4<sup>8</sup></b>	-	3	<b>17</b>	<b>6</b>	<b>7</b>	<b>5</b>	<b>13</b>	3.7	<b>16</b>	<b>7</b>	<b>9</b>	<b>5</b>	<b>15</b>
Potassium	µg/L	50	-	-	-	-	-	1390	3120	1470	1800	671	2505	425	10200	3910	4075	3891	9830
Selenium	µg/L	0.04	<b>15</b>	1	1	1	<u>10</u>	<0.04	<b>1.7</b>	0.4	0.7	0.8	<b>1.6</b>	<0.04	<b>6.2</b>	0.1	<b>1.6</b>	2.3	<b>5.1</b>
Silicon	µg/L	50	-	-	-	-	-	3570	6890	5885	5482	1421	6765	2210	41800	9900	15279	15828	39900
Silver	µg/L	0.005	-	0.1	0.1	<b>0.25</b>	<u>15<sup>9</sup></u>	<0.005	0.012	0.005	0.006	0.003	0.009	<0.005	0.012	0.005	0.007	0.258	0.011
Sodium	µg/L	50	-	-	-	-	-	1210	25900	3805	7360	9212	15965	377	25100	5030	9379	10194	25000
Strontium	µg/L	0.05	-	-	-	-	-	229	668	268	329	167	473	103	2800	325	968	1144	2780
Sulphur	µg/L	3000	-	-	-	-	-	8300	16800	11450	11667	3063	14900	3000	17600	9900	10355	6448	17200
Thallium	µg/L	0.002	-	0.8	0.8	<b>0.8</b>	<u>3</u>	<0.002	0.004	0.002	0.002	0.001	0.003	<0.002	0.015	0.003	0.004	0.259	0.008
Tin	µg/L	0.2	-	-	-	-	-	<0.2	0.2	-	-	-	-	<0.2	0.23	0.20	0.20	0.20	0.20
Titanium	µg/L	0.5	-	100	100	-	<u>1000</u>	<0.5	0.57	0.50	0.51	0.03	0.54	<0.5	2.09	0.50	0.72	0.47	1.11
Uranium	µg/L	0.002	-	15	15	<b>15</b>	<u>3000</u>	1.5	4.3	2.0	2.3	1.0	3.3	0.25	3.7	1.2	1.7	1.2	3.2
Vanadium	µg/L	0.2	-	-	-	-	-	<0.2	<0.2	-	-	-	-	<0.2	1.55	0.20	0.39	0.42	0.64
Zinc	µg/L	0.1	<b>110</b>	10	10	<b>30</b>	<u>900-2400<sup>9</sup></u>	1.1	7.4	2.8	3.3	2.5	5.9	0.9	<b>24.9</b>	<b>10.5</b>	<b>13.3</b>	10.0	<b>24.5</b>
Zirconium	µg/L	0.1	-	-	-	-	-	<0.1	0.11	0.10	0.10	0.00	0.11	<0.1	2.09	0.10	0.55	0.75	1.58

**Notes:**  
<sup>1</sup> Environment Canada (Revised March 2014). Guidance Document on Federal Interim Groundwater Quality Guidelines (FIGQG) for Federal Contaminated Sites, Tier 1 guidelines for fine and coarse grained soil under Commercial/Industrial land use  
<sup>2</sup> Canadian Council of Ministers of the Environment (CCME) (Updated 2014). Canadian Water Quality Guidelines for the Protection of Aquatic Life (Freshwater)  
<sup>3</sup> Environment Act. Contaminated Sites Regulation (CSR) (2002). Schedule 3, Generic Numerical Water Standards for Aquatic Life (AW)  
<sup>4</sup> Maximum increase of 25 mg/L from background levels  
<sup>5</sup> Standard varies with pH and temperature. Values shown based on field pH range of 5.68 to 7.71 and temperature range of -2.7 °C to 3.3 °C  
<sup>6</sup> Guideline varies with pH. Values shown based on field pH range of 5.68 to 7.71  
<sup>7</sup> Guideline varies with chloride. Values shown based on chloride range of <0.50 mg/L to 3.8 mg/L  
<sup>8</sup> Guideline applied is for ultra-oligotrophic  
<sup>9</sup> Guideline varies with hardness. Value shown based on hardness range of 200 mg/L to 2120 mg/L for total metals, and 136 mg/L to 2180 mg/L for dissolved metals  
<sup>10</sup> Guideline is for Chromium VI  
 \* - No applicable standard or not analyzed  
**Shaded** - Greater than Federal Interim Guideline  
**BOLD** - Greater than CCME AW Guideline  
Underlined - Greater than Yukon CSR Guideline  
**RED** - Greater than current Site Water Licence QZ97-026

Table 5A: Groundwater Analytical Results, Zone 1 (Tailing Management Facility, Mill Site, Polishing Pond, Water Management Pond)

Parameter	Unit	RDL	Water Use Licence QZ97-026 Part E - Effluent Quality Standards	Federal Interim Guideline - Commercial/Industrial <sup>1</sup>		CCME - AW (Freshwater) <sup>2</sup>	Well ID	BH95G-2				MW15-07S		
				Aquifer & Approx. Sample Depth (mbg)	Bedrock 17.5				Overburden 9.55					
					Yukon CSR - AW (Freshwater) <sup>3</sup>		BH95-2	BH95G-2	BH95G-2	BH95G-2	BH95G-2	MW15-07S	MW15-07S	MW15-07S
							13-May-2015	22-Sep-2015	5-Nov-2015	16-Mar-2016	6-Sep-2015	5-Nov-2015	15-Mar-2016	
<b>Total Metals</b>														
Aluminum	µg/L	0.5	-	5, 100 <sup>6</sup>	5, 100 <sup>6</sup>	5, 100 <sup>6</sup>	-	12700	40.5	167	3930	26800	5140	10800
Antimony	µg/L	0.02	-	2000	2000	-	200	1.4	0.205	0.052	0.502	0.102	0.052	<0.050
Arsenic	µg/L	0.02	50	5	5	5	50	45.1	0.274	0.767	12.5	29.4	9.36	12.1
Barium	µg/L	0.02	-	500	500	-	10,000	307	27	33.1	100	416	308	264
Beryllium	µg/L	0.01	-	5.3	5.3	-	53	0.647	<0.010	0.021	0.263	1.65	0.95	0.733
Bismuth	µg/L	0.005	-	-	-	-	-	0.48	0.006	0.008	0.11	0.483	0.093	0.035
Boron	µg/L	10	-	5000	5000	1500	50,000	<50	<10	<10	<50	<50	<10	<50
Cadmium	µg/L	0.005	7	0.017	0.017	0.09	0.6 <sup>9</sup>	25.5	1.71	2.75	11.3	0.624	0.51	0.486
Calcium	µg/L	50	-	-	-	-	-	54500	71200	67400	87000	144000	154000	133000
Chromium	µg/L	0.1	-	8.9	8.9	1 <sup>10</sup>	10 <sup>10</sup>	34.9	<0.10	0.67	12.4	118	28.4	52.8
Cobalt	µg/L	0.005	-	-	-	-	9	39.4	0.17	0.768	11.7	44.6	12.3	27.4
Copper	µg/L	0.05	15	4.0 <sup>9</sup>	4.0 <sup>9</sup>	4.0 <sup>9</sup>	90 <sup>9</sup>	330	1.24	7.81	120	239	168	139
Iron	µg/L	1	-	300	300	300	-	59900	95	898	18500	71500	26200	30900
Lead	µg/L	0.005	26	7.0 <sup>9</sup>	7.0 <sup>9</sup>	7.0 <sup>9</sup>	110-160 <sup>9</sup>	169	0.946	10.6	58.8	29.8	24.8	19.1
Lithium	µg/L	0.5	-	-	-	-	-	11	1.26	1.51	5.69	26.5	11.4	16.6
Magnesium	µg/L	50	-	-	-	-	-	21700	31100	29400	39700	29300	16800	21100
Manganese	µg/L	0.05	-	-	-	-	-	894	3.08	30.5	251	1790	1720	1330
Mercury	µg/L	0.002	-	0.016	0.016	0.026	1	0.0024	<0.0020	<0.0020	0.0025	<0.0020	<0.0020	<0.0020
Molybdenum	µg/L	0.05	-	73	73	73	10,000	24.6	2.25	1.8	5.5	2.1	1.61	0.396
Nickel	µg/L	0.02	-	150 <sup>9</sup>	150 <sup>9</sup>	150 <sup>9</sup>	1500 <sup>9</sup>	201	0.922	2.26	68.6	119	26.4	63
Phosphorus	µg/L	2	-	-	-	4 <sup>8</sup>	-	5610	25.8	245	1420	2360	3090	2200
Potassium	µg/L	50	-	-	-	-	-	3290	462	466	1430	5080	3250	3420
Selenium	µg/L	0.04	15	1	1	1	10	5.03	5.48	5.3	5.95	2.13	0.15	0.432
Silicon	µg/L	50	-	-	-	-	-	21500	2300	2350	8200	37200	12500	20500
Silver	µg/L	0.005	-	0.1	0.1	0.25	15 <sup>9</sup>	4.6	0.028	0.189	0.521	3.19	0.646	0.771
Sodium	µg/L	50	-	-	-	-	-	500	719	689	870	3860	3530	3960
Strontium	µg/L	0.05	-	-	-	-	-	212	234	250	269	452	487	433
Sulphur	µg/L	3000	-	-	-	-	-	<15,000	15500	17300	22000	<15,000	11000	<15,000
Thallium	µg/L	0.002	-	0.8	0.8	0.8	3	0.307	0.013	0.007	0.081	0.306	0.098	0.098
Tin	µg/L	0.2	-	-	-	-	-	2.23	<0.20	<0.20	1.58	0.86	<0.20	<0.20
Titanium	µg/L	0.5	-	100	100	-	1000	284	1.54	5.09	86.6	193	159	60
Uranium	µg/L	0.002	-	15	15	15	3000	4.82	3.2	3.2	4.38	6.95	9.86	5.95
Vanadium	µg/L	0.2	-	-	-	-	-	97	0.59	0.85	21.5	101	26.1	42.5
Zinc	µg/L	0.1	110	10	10	30	1650-2400 <sup>9</sup>	2200	36.6	68.1	1090	223	76.5	116
Zirconium	µg/L	0.1	-	-	-	-	-	22.3	<0.10	0.2	4.89	10.3	6.7	0.7
Laboratory Work Order Number								B540423	B584163	B5A0147	B621096	B577997	B5A0147	B621096

**Notes:**

- <sup>1</sup> Environment Canada (Revised March 2014). Guidance Document on Federal Interim Groundwater Quality Guidelines (FIGQG) for Federal Contaminated Sites, Tier 1 guidelines for fine and coarse grained soil under Commercial/Industrial land use
- <sup>2</sup> Canadian Council of Ministers of the Environment (CCME) (Updated 2014). Canadian Water Quality Guidelines for the Protection of Aquatic Life (Freshwater)
- <sup>3</sup> Environment Act. Contaminated Sites Regulation (CSR) (2002). Schedule 3, Generic Numerical Water Standards for Aquatic Life (AW)
- <sup>4</sup> Maximum increase of 25 mg/L from background levels
- <sup>5</sup> Standard varies with pH and temperature. Values shown based on field pH range of 5.68 to 7.71 and temperature range of -2.7 °C to 3.3 °C
- <sup>6</sup> Guideline varies with pH. Values shown based on field pH range of 5.68 to 7.71
- <sup>7</sup> Guideline varies with chloride. Values shown based on chloride range of <0.50 mg/L to 3.8 mg/L
- <sup>8</sup> Guideline applied is for ultra-oligotrophic
- <sup>9</sup> Guideline varies with hardness. Value shown based on hardness range of 200 mg/L to 2120 mg/L for total metals, and 136 mg/L to 2180 mg/L for dissolved metals
- <sup>10</sup> Guideline is for Chromium VI
- "-" No applicable standard or not analyzed
- Shaded - Greater than Federal Interim Guideline
- BOLD** - Greater than CCME AW Guideline
- Underlined - Greater than Yukon CSR Guideline
- RED** - Greater than current Site Water Licence QZ97-026

Table 5A: Groundwater Analytical Results, Zone 1 (Tailing Management Facility, Mill Site, Polishing Pond, Water Man)

Parameter	Unit	RDL	Water Use Licence QZ97-026	Federal Interim Guideline - Commercial/Industrial <sup>1</sup>		CCME - AW (Freshwater) <sup>2</sup>	Well ID	MW15-07D	MW15-08S	MW15-08D		MW15-09S	MW15-09D	MW15-10S	MW15-10D		
				Aquifer & Approx. Sample Depth (mbg)	Bedrock 29.2		Overburden 10.15	Bedrock 32.7		Overburden 14.35	Bedrock 38	Overburden 8.1	Bedrock 28.6				
				Yukon CSR - AW (Freshwater) <sup>3</sup>	MW15-07D		MW15-08S	MW15D-08D	MW15-08D	MW15-09S	MW15-09D	MW15-10S	MW15-10D	MW15-10D	MW15-10D		
Part E - Effluent Quality Standards	Fine	Coarse	6-Sep-2015	2-Sep-2015	3-Sep-2015	3-Nov-2015	5-Sep-2015	5-Sep-2015	4-Sep-2015	4-Sep-2015	4-Nov-2015	17-Mar-2016					
<b>Total Metals</b>																	
Aluminum	µg/L	0.5	-	5, 100 <sup>6</sup>	5, 100 <sup>6</sup>	5, 100 <sup>6</sup>	-	6.77	25	3170	7170	862	6830	80400	6970	4130	3010
Antimony	µg/L	0.02	-	2000	2000	-	200	<0.020	<0.020	0.092	0.178	0.258	0.356	0.38	0.163	0.083	0.058
Arsenic	µg/L	0.02	50	5	5	5	50	0.255	0.356	6.9	12.4	1.73	9.88	50.8	4.51	3.02	2.48
Barium	µg/L	0.02	-	500	500	-	10,000	37	62.2	44.1	75.8	186	228	1800	458	469	423
Beryllium	µg/L	0.01	-	5.3	5.3	-	53	<0.010	<0.010	0.117	0.269	0.064	0.247	6.4	1.09	1.25	1.11
Bismuth	µg/L	0.005	-	-	-	-	-	<0.0050	<0.0050	0.012	0.105	0.027	<0.020	3.05	1.21	0.741	0.22
Boron	µg/L	10	-	5000	5000	1500	50,000	<10	<10	<10	<50	<50	<50	<250	<50	<50	<50
Cadmium	µg/L	0.005	7	0.017	0.017	0.09	0.6 <sup>9</sup>	<0.0050	0.059	0.096	0.212	0.129	0.357	6.15	2.57	1.31	4.3
Calcium	µg/L	50	-	-	-	-	-	62900	69900	96100	97300	63700	126000	204000	599000	699000	587000
Chromium	µg/L	0.1	-	8.9	8.9	1 <sup>10</sup>	10 <sup>10</sup>	<0.10	<0.10	13.8	30.5	4.7	31.6	215	21.5	16.8	13.4
Cobalt	µg/L	0.005	-	-	-	-	9	0.023	0.619	3.16	5.8	1.79	5.28	115	7.45	4.88	4.12
Copper	µg/L	0.05	15	4.0 <sup>9</sup>	4.0 <sup>9</sup>	4.0 <sup>9</sup>	90 <sup>9</sup>	<0.050	0.701	2.72	6.2	5.43	16.9	415	26	14.5	17.1
Iron	µg/L	1	-	300	300	300	-	461	51.2	7050	11000	2920	27900	170000	38500	39200	28200
Lead	µg/L	0.005	26	7.0 <sup>9</sup>	7.0 <sup>9</sup>	7.0 <sup>9</sup>	110-160 <sup>9</sup>	0.021	0.017	1.24	6.57	2.6	4.52	270	65.7	33.8	29.6
Lithium	µg/L	0.5	-	-	-	-	-	12	1.94	41	42.1	4.31	42.6	77.3	207	266	216
Magnesium	µg/L	50	-	-	-	-	-	13500	6100	26600	28600	10400	19900	60300	75100	90700	70400
Manganese	µg/L	0.05	-	-	-	-	-	58	17.9	323	430	421	981	5040	4680	5380	4320
Mercury	µg/L	0.002	-	0.016	0.016	0.026	1	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Molybdenum	µg/L	0.05	-	73	73	73	10,000	0.081	2.6	0.644	5.46	7.18	17.1	4.36	3.93	3.48	2.57
Nickel	µg/L	0.02	-	150 <sup>9</sup>	150 <sup>9</sup>	150 <sup>9</sup>	1500 <sup>9</sup>	0.031	4.72	7.62	19.5	2.86	3.78	254	12	7.77	5.69
Phosphorus	µg/L	2	-	-	-	4 <sup>8</sup>	-	3.8	3	88	157	68	719	5910	429	233	241
Potassium	µg/L	50	-	-	-	-	-	1530	1420	4910	4990	1920	5510	16000	9780	10900	8430
Selenium	µg/L	0.04	15	1	1	1	10	<0.040	1.56	<0.040	0.421	0.721	0.986	2.97	0.97	0.367	0.218
Silicon	µg/L	50	-	-	-	-	-	8360	3640	16900	23400	5190	17900	68900	41800	49200	36800
Silver	µg/L	0.005	-	0.1	0.1	0.25	15 <sup>9</sup>	<0.0050	<0.0050	0.625	0.543	0.292	2.04	7.64	1.73	0.677	0.657
Sodium	µg/L	50	-	-	-	-	-	4200	1160	5870	10700	4730	4970	22500	21600	24200	24000
Strontium	µg/L	0.05	-	-	-	-	-	321	217	407	411	237	501	960	2360	2810	2500
Sulphur	µg/L	3000	-	-	-	-	-	9900	8600	15400	17000	<15,000	<15,000	<75,000	<15,000	<15,000	<15,000
Thallium	µg/L	0.002	-	0.8	0.8	0.8	3	<0.0020	0.004	0.018	0.035	0.016	0.049	1.52	0.107	0.034	0.036
Tin	µg/L	0.2	-	-	-	-	-	<0.20	<0.20	0.33	0.52	<0.20	0.82	1.4	0.36	<0.20	<0.20
Titanium	µg/L	0.5	-	100	100	-	1000	<0.50	1.52	90.3	198	36	309	646	277	214	119
Uranium	µg/L	0.002	-	15	15	15	3000	1.08	2.2	1.41	3.01	2.43	4.95	21.9	0.813	0.682	1.8
Vanadium	µg/L	0.2	-	-	-	-	-	<0.20	<0.20	16.4	30.5	3.23	28.1	262	20.7	12.7	9.5
Zinc	µg/L	0.1	110	10	10	30	1650-2400 <sup>9</sup>	0.98	4.06	9.51	23.1	9.6	45.8	917	42.6	33.5	19.2
Zirconium	µg/L	0.1	-	-	-	-	-	<0.10	<0.10	1.34	2.23	0.69	1.46	5.18	3.9	2.78	0.73
Laboratory Work Order Number								B577997	B577626	B577626	B599724	B577997	B577997	B577997	B577997	B599724	B621096

Notes:

- <sup>1</sup> Environment Canada (Revised March 2014). Guidance Document on Federal Interim Groundwater Quality Guidelines (FIGQG) for Federal Contaminated Sites, Tier 1 guidelines for fine and coarse grained soil under Commercial/Industrial land use
- <sup>2</sup> Canadian Council of Ministers of the Environment (CCME) (Updated 2014). Canadian Water Quality Guidelines for the Protection of Aquatic Life (Freshwater)
- <sup>3</sup> Environment Act. Contaminated Sites Regulation (CSR) (2002). Schedule 3, Generic Numerical Water Standards for Aquatic Life (AW)
- <sup>4</sup> Maximum increase of 25 mg/L from background levels
- <sup>5</sup> Standard varies with pH and temperature. Values shown based on field pH range of 5.68 to 7.71 and temperature range of -2.7 °C to 3.3 °C
- <sup>6</sup> Guideline varies with pH. Values shown based on field pH range of 5.68 to 7.71
- <sup>7</sup> Guideline varies with chloride. Values shown based on chloride range of <0.50 mg/L to 3.8 mg/L
- <sup>8</sup> Guideline applied is for ultra-oligotrophic
- <sup>9</sup> Guideline varies with hardness. Value shown based on hardness range of 200 mg/L to 2120 mg/L for total metals, and 136 mg/L to 2180 mg/L for dissolved metals
- <sup>10</sup> Guideline is for Chromium VI
- "-" No applicable standard or not analyzed
- Shaded - Greater than Federal Interim Guideline
- BOLD - Greater than CCME AW Guideline
- Underlined - Greater than Yukon CSR Guideline
- RED - Greater than current Site Water Licence QZ97-026

**Table 5A: Groundwater Analytical Results, Zone 1 (Tailing Management Facility, Mill Site, Polishing Pond, Water Man)**

Parameter	Unit	RDL	Water Use Licence QZ97-026 Part E - Effluent Quality Standards	Federal Interim Guideline - Commercial/Industrial <sup>1</sup>		CCME - AW (Freshwater) <sup>2</sup>	Well ID	Statistical Analysis																				
				Aquifer & Approx. Sample Depth (mbg)	Overburden					Bedrock																		
					Yukon CSR - AW (Freshwater) <sup>3</sup>		MIN	MAX	MEDIAN	MEAN	STDV	90th PERCENTILE	MIN	MAX	MEDIAN	MEAN	STDV	90th PERCENTILE										
<b>Total Metals</b>																												
Aluminum	µg/L	0.5	-	5, 100 <sup>6</sup>	5, 100 <sup>6</sup>	5, 100 <sup>6</sup>	-	25	80400	7970	20671	30862	53600	7	12700	3930	4375	3891	7170									
Antimony	µg/L	0.02	-	2000	2000	-	<u>200</u>	<0.02	0.38	0.08	0.14	0.14	0.32	<0.02	1.40	0.16	0.28	0.42	0.50									
Arsenic	µg/L	0.02	50	5	5	5	<u>50</u>	0.36	51	11	17	19	40	0.26	45	4.5	9	12	13									
Barium	µg/L	0.02	-	500	500	-	<u>10,000</u>	62	1800	286	506	645	1108	27	469	100	200	184	458									
Beryllium	µg/L	0.01	-	5.3	5.3	-	<u>53</u>	<0.01	6.4	0.8	1.6	2.4	4.0	<0.01	1.3	0.3	0.5	0.5	1.1									
Bismuth	µg/L	0.005	-	-	-	-	-	<0.005	3.1	0.1	0.6	1.2	1.8	<0.005	1.2	0.1	0.3	0.4	0.7									
Boron	µg/L	10	-	5000	5000	1500	<u>50,000</u>	<10	250	50	70	90	150	<10	50	50	35	22	50									
Cadmium	µg/L	0.005	7	0.017	0.017	0.09	<u>0.6<sup>9</sup></u>	0.059	6.2	0.5	1.3	2.4	3.4	<0.005	25.5	1.7	4.6	7.4	11.3									
Calcium	µg/L	50	-	-	-	-	-	63700	204000	138500	128100	53372	179000	54500	699000	96100	231582	254038	599000									
Chromium	µg/L	0.1	-	8.9	8.9	1 <sup>10</sup>	<u>10<sup>10</sup></u>	<0.1	215	41	70	83	167	<0.1	35	14	16	13	32									
Cobalt	µg/L	0.005	-	-	-	-	<u>9</u>	0.62	115	20	34	43	80	0.023	39	5	8	11	12									
Copper	µg/L	0.05	15	4.0 <sup>9</sup>	4.0 <sup>9</sup>	4.0 <sup>9</sup>	<u>90<sup>9</sup></u>	0.70	415	154	161	156	327	<0.05	330	14.5	49	95	120									
Iron	µg/L	1	-	300	300	300	-	51	170000	28550	50262	64038	120750	95	59900	18500	21064	19588	39200									
Lead	µg/L	0.005	26	7.0 <sup>9</sup>	7.0 <sup>9</sup>	7.0 <sup>9</sup>	<u>110-160<sup>9</sup></u>	0.017	270	22	58	105	150	0.021	169	11	35	49	66									
Lithium	µg/L	0.5	-	-	-	-	-	1.9	77	14	23	28	52	1.26	266	41	77	98	216									
Magnesium	µg/L	50	-	-	-	-	-	6100	60300	18950	24000	19552	44800	13500	90700	29400	40609	27264	75100									
Manganese	µg/L	0.05	-	-	-	-	-	18	5040	1525	1720	1776	3415	3.1	5380	430	1577	2057	4680									
Mercury	µg/L	0.002	-	0.016	0.016	0.026	<u>1</u>	<0.002	<0.002	-	-	-	-	<0.002	0.0025	0.002	0.002	0.029	0.002									
Molybdenum	µg/L	0.05	-	73	73	73	<u>10,000</u>	0.40	7.2	2.4	3.0	2.4	5.8	0.08	24.6	3.5	6.1	7.5	17.1									
Nickel	µg/L	0.02	-	150 <sup>9</sup>	150 <sup>9</sup>	150 <sup>9</sup>	<u>1500<sup>9</sup></u>	2.86	254	45	78	96	187	0.031	201	8	30	58	69									
Phosphorus	µg/L	2	-	-	-	4 <sup>9</sup>	-	3.00	5910	2280	2272	2187	4500	3.8	5610	241	834	1578	1420									
Potassium	µg/L	50	-	-	-	-	-	1420	16000	3335	5182	5453	10540	462	10900	4910	4700	3788	9780									
Selenium	µg/L	0.04	15	1	1	1	<u>10</u>	0.15	3.0	1.1	1.3	1.1	2.6	<0.04	6.0	0.97	2.3	5.5										
Silicon	µg/L	50	-	-	-	-	-	3640	68900	16500	24655	24902	53050	2300	49200	17900	20792	16312	41800									
Silver	µg/L	0.005	-	0.1	0.1	0.25	<u>15<sup>9</sup></u>	<0.005	7.6	0.7	2.1	2.9	5.4	<0.005	4.6	0.6	1.1	2.0										
Sodium	µg/L	50	-	-	-	-	-	1160	22500	3910	6623	7871	13615	500	24200	4970	8938	9610	24000									
Strontium	µg/L	0.05	-	-	-	-	-	217	960	443	464	268	724	212	2810	407	934	1037	2500									
Sulphur	µg/L	3000	-	-	-	-	-	8600	75000	15000	23267	25483	45000	9900	22000	15000	15645	5261	17300									
Thallium	µg/L	0.002	-	0.8	0.8	0.8	<u>3</u>	0.004	1.5	0.1	0.3	0.6	0.91	<0.002	0.307	0.035	0.063	0.256	0.107									
Tin	µg/L	0.2	-	-	-	-	-	<0.2	1.4	0.2	0.5	0.5	1.1	<0.2	2.2	0.3	0.6	0.7	1.6									
Titanium	µg/L	0.5	-	100	100	-	<u>1000</u>	1.5	646	110	183	239	420	<0.5	309	119	144	120	284									
Uranium	µg/L	0.002	-	15	15	15	<u>3000</u>	2.2	22	6	8	7	16	0.68	5.0	3	3	2	5									
Vanadium	µg/L	0.2	-	-	-	-	-	<0.2	262	34	73	100	182	<0.2	97	16	22	27	31									
Zinc	µg/L	0.1	110	10	10	30	<u>1650-2400<sup>9</sup></u>	4.1	917	96	224	349	570	0.98	2200	37	324	673	1090									
Zirconium	µg/L	0.1	-	-	-	-	-	<0.1	10.3	2.9	3.9	4.1	8.5	<0.1	22.3	1.5	3.6	6.1	4.9									
Laboratory Work Order Number																												

**Notes:**  
<sup>1</sup> Environment Canada (Revised March 2014). Guidance Document on Federal Interim Groundwater Quality Guidelines (FIGQG) for Federal Contaminated Sites, Tier 1 guidelines for fine and coarse grained soil under Commercial/Industrial land use  
<sup>2</sup> Canadian Council of Ministers of the Environment (CCME) (Updated 2014). Canadian Water Quality Guidelines for the Protection of Aquatic Life (Freshwater)  
<sup>3</sup> Environment Act. Contaminated Sites Regulation (CSR) (2002). Schedule 3, Generic Numerical Water Standards for Aquatic Life (AW)  
<sup>4</sup> Maximum increase of 25 mg/L from background levels  
<sup>5</sup> Standard varies with pH and temperature. Values shown based on field pH range of 5.68 to 7.71 and temperature range of -2.7 °C to 3.3 °C  
<sup>6</sup> Guideline varies with pH. Values shown based on field pH range of 5.68 to 7.71  
<sup>7</sup> Guideline varies with chloride. Values shown based on chloride range of <0.50 mg/L to 3.8 mg/L  
<sup>8</sup> Guideline applied is for ultra-oligotrophic  
<sup>9</sup> Guideline varies with hardness. Value shown based on hardness range of 200 mg/L to 2120 mg/L for total metals, and 136 mg/L to 2180 mg/L for dissolved metals  
<sup>10</sup> Guideline is for Chromium VI  
 \* - No applicable standard or not analyzed  
 Shaded - Greater than Federal Interim Guideline  
 BOLD - Greater than CCME AW Guideline  
 Underlined - Greater than Yukon CSR Guideline  
 RED - Greater than current Site Water Licence QZ97-026



Table 5B: Groundwater Analytical Results, Zone 2 (Class C Storage Facility and Overburden Stockpile)

Parameter	Unit	RDL	Water Use Licence QZ97-026 Part E - Effluent Quality Standards	Federal Interim Guideline - Commercial/Industrial <sup>1</sup>		CCME - AW (Freshwater) <sup>2</sup>	Well ID	BH95G-30	BH95G-31				MW15-03S			MW15-03D			
				Aquifer & Approx. Sample Depth (mbg)	Bedrock 17.7		Bedrock 8.5				Overburden 5.6			Bedrock 13.05					
				Yukon CSR - AW (Freshwater) <sup>3</sup>	BH95G-30		BH95G-31	BH95G-31	BH95G-31	BH95G-31	MW15-03S	MW15-03S	MW15-03S	MW15-03D	MW15-03D	DUP02	MW15-03D	DUP01	
					6-Sep-2015		1995	22-Sep-2015	5-Nov-2015	4-Sep-2015	2-Nov-2015	13-Mar-2016	4-Sep-2015	2-Nov-2015		13-Mar-2016			
<b>Field</b>																			
Field pH	pH Units		6.5-9	6.5-9	6.5-9	6.5-9	-	7.57	-	8.1	7.95	7.65	8.02	6.06	7.52	7.64	-	7.32	-
Field Electric Conductivity	µS/cm		-	-	-	-	-	402.2	-	307.3	265	313.9	211	266	403	375	-	394	-
Field Temperature	°C		-	-	-	-	-	-0.6	-	-0.2	1.2	0.5	0.8	1.02	0	1.1	-	1.41	-
Field Dissolved Oxygen	mg/L		-	-	-	-	-	10.94	-	11.24	8	5.48	2.9	6.7	0.52	1.3	-	3	-
Field Redox	mV		-	-	-	-	-	-	-	-	-	-	-	66	-	-	-	-73	-
<b>Physical Parameters</b>																			
pH	pH Units		6.5-9	6.5-9	6.5-9	6.5-9	-	8.17	-	8.17	8.16	7.98	8.24	8.03	8.04	8.29	8.29	8.02	8.19
Acidity (pH 4.5)	µg/L	500	-	-	-	-	-	<500	-	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500
Acidity (pH 8.3)	µg/L	500	-	-	-	-	-	<500	-	<500	720	2240	1280	<500	7270	4260	3610	<500	<500
Electrical Conductivity (EC)	µS/cm	1	-	-	-	-	-	386	-	286	289	300	269	265	388	395	402	394	391
Total Dissolved Solids (TDS)	µg/L	1000	-	-	-	-	-	216000	-	174000	172000	210000	190000	168000	226000	240000	260000	230000	246000
Total Suspended Solids (TSS)	µg/L	1000	15,000	-	-	See note <sup>4</sup>	-	970000	-	5060000	713000	262000	821000	2340000	8300	3500	3400	61700	15200
Hardness as CaCO <sub>3</sub>	mg/L	0.5	-	-	-	-	-	196	-	432	152	152	159	378	196	199	207	199	199
Dissolved Hardness	mg/L	0.5	-	-	-	-	-	203	143	142	162	129	135	145	207	210	208	201	198
Alkalinity (total as CaCO <sub>3</sub> )	µg/L	500	-	-	-	-	-	180000	-	126000	127000	114000	129000	125000	179000	188000	187000	194000	195000
Alkalinity (pp as CaCO <sub>3</sub> )	µg/L	500	-	-	-	-	-	<500	-	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500
Bicarbonate	µg/L	500	-	-	-	-	-	220000	-	154000	155000	139000	157000	152000	219000	229000	228000	237000	238000
Carbonate	µg/L	500	-	-	-	-	-	<500	-	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500
Hydroxide	µg/L	500	-	-	-	-	-	<500	-	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500
Chloride	mg/L	0.5	-	120	120	120	-	0.87	-	0.54	0.6	1.7	0.99	0.59	1.7	1.1	1.6	<0.50	0.58
Fluoride	µg/L	10	-	120	120	120	3000	140	-	100	100	120	69	99	170	150	150	150	150
Sulphate	mg/L	0.5	-	100	100	-	1000	22.4	-	20	20.4	33.3	11.6	14.6	25.3	24	23.9	21.3	21.3
Orthophosphate (as P)	µg/L	1	-	-	-	-	-	3.4	-	4.5	6.2	2	4.1	8.6	1.3	1.8	2.1	4.9	4.2
Turbidity	NTU	0.1	-	-	-	-	-	38.4	-	2450	323	172	275	-	4.69	3.59	3.18	-	-
Anions Total	meq/L		-	-	-	-	-	4.1	-	-	3	3	2.9	-	4.2	4.3	4.3	-	-
Cations Total	meq/L		-	-	-	-	-	4.2	-	-	3.4	3.3	2.9	-	4.4	4.4	4.4	-	-
Ionic Balance	N/A	0.01	-	-	-	-	-	1	-	1	1.1	1.1	1	1.1	1.1	1	1	0.98	0.96
<b>Nutrients</b>																			
Ammonia	µg/L	5	2500	2330-231,000 <sup>5</sup>	2330-231,000 <sup>5</sup>	2330-231,000 <sup>5</sup>	3700-18,500 <sup>6</sup>	47	-	220	200	42	27	48	300	160	150	88	110
Total Kjeldahl Nitrogen (TKN)	µg/L	20	-	-	-	-	-	244	-	431	160	111	73	316	972	225	202	150	138
Nitrate (as NO <sub>3</sub> -N)	µg/L	2	-	13,000	13,000	13,000	400,000	279	-	192	199	45.4	72.3	58	2.2	2.7	<2.0	<2.0	<2.0
Nitrite (as NO <sub>2</sub> -N)	µg/L	2	-	60	60	60	200-400 <sup>7</sup>	13	-	7.5	3.2	6.7	<2.0	9.3	<2.0	<2.0	<2.0	<2.0	<2.0
Nitrate and Nitrite (as N)	µg/L	2	-	-	-	-	400,000	292	-	199	202	52.1	72.3	67.3	2.2	2.7	<2.0	<2.0	<2.0
Nitrogen (Total)	µg/L	20	-	-	-	-	-	535	-	630	362	163	145	384	975	228	202	150	138
Phosphorus, total	µg/L	2	-	-	-	-	-	228	-	4670	1090	397	2150	3710	7.2	9.2	5.8	12.3	16.4

**Notes:**

- <sup>1</sup> Environment Canada (Revised March 2014). Guidance Document on Federal Interim Groundwater Quality Guidelines (FIGQG) for Federal Contaminated Sites, Tier 1 guidelines for fine and coarse grained soil under Commercial/Industrial land use
- <sup>2</sup> Canadian Council of Ministers of the Environment (CCME) (Updated 2014). Canadian Water Quality Guidelines for the Protection of Aquatic Life (Freshwater)
- <sup>3</sup> Environment Act. Contaminated Sites Regulation (CSR) (2002). Schedule 3, Generic Numerical Water Standards for Aquatic Life (AW)
- <sup>4</sup> Maximum increase of 25 mg/L from background levels
- <sup>5</sup> Standard varies with pH and temperature. Values shown based on field pH range of 6.06 to 8.10 and temperature range of -1 °C to 3.2 °C
- <sup>6</sup> Guideline varies with pH. Values shown based on field pH range of 6.06 to 8.10
- <sup>7</sup> Guideline varies with chloride. Values shown based on chloride range of <0.50 mg/L to 3.2 mg/L
- <sup>8</sup> Guideline applied is for ultra-oligotrophic
- <sup>9</sup> Guideline varies with hardness. Value shown based on hardness range of 147 mg/L to 2530 mg/L for total metals, and 78.9 mg/L to 212 mg/L for dissolved metals
- <sup>10</sup> Guideline is for Chromium VI
- \* No applicable standard or not analyzed
- Shaded - Greater than Federal Interim Guideline
- BOLD - Greater than CCME AW Guideline
- Underlined - Greater than Yukon CSR Guideline
- RED - Greater than current Site Water Licence QZ97-026

Table 5B: Groundwater Analytical Results, Zone 2 (Class C Storage Facility and Overburden Stockpile)

Parameter	Unit	RDL	Water Use Licence QZ97-026 Part E - Effluent Quality Standards	Federal Interim Guideline - Commercial/Industrial <sup>1</sup>		CCME - AW (Freshwater) <sup>2</sup>	Well ID Aquifer & Approx. Sample Depth (mbg) Yukon CSR - AW (Freshwater) <sup>3</sup>	MW15-04S				MW15-04D			MW15-05D			MW15-06	
				Fine	Coarse			Overburden 12.65				Bedrock 30			Bedrock 26.1			Overburden 7.95	
								MW15-04S	DUP03	MW15-04S	MW15-04S	MW15-04D	MW15-04D	DUP01	MW15-04D	MW15-05D	MW15-05D	MW15-05D	MW15-06
								4-Sep-2015	31-Oct-2015	13-Mar-2016	4-Sep-2015	31-Oct-2015	13-Mar-2016	7-Sep-2015	2-Nov-2015	13-Mar-2016	7-Sep-2015		
<b>Field</b>																			
Field pH	pH Units		6.5-9	6.5-9	6.5-9	6.5-9	-	7.78	-	7.84	7.86	7.7	7.92	-	7.74	7.56	7.66	7.57	7.36
Field Electric Conductivity	µS/cm		-	-	-	-	-	251	-	242.5	235	307.3	396	-	291	468.6	344	380	413.4
Field Temperature	°C		-	-	-	-	-	0.3	-	-0.8	1.38	0.9	-0.7	-	1.73	-0.7	0.1	0.12	-1
Field Dissolved Oxygen	mg/L		-	-	-	-	-	8.72	-	-	10.6	2.1	280	-	3.3	7.89	5.7	8.3	8.86
Field Redox	mV		-	-	-	-	-	-	-	-	62	-	-	-	-33	-	-	67	-
<b>Physical Parameters</b>																			
pH	pH Units		6.5-9	6.5-9	6.5-9	6.5-9	-	8.12	7.66	8.22	7.99	7.96	8.23	8.23	8.05	8.19	8.14	7.55	8.07
Acidity (pH 4.5)	µg/L	500	-	-	-	-	-	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500
Acidity (pH 8.3)	µg/L	500	-	-	-	-	-	840	2350	880	<500	1860	1830	1270	<500	<500	3250	<500	<500
Electrical Conductivity (EC)	µS/cm	1	-	-	-	-	-	239	242	242	239	291	344	354	292	437	397	384	366
Total Dissolved Solids (TDS)	µg/L	1000	-	-	-	-	-	136000	152000	170000	160000	168000	266000	264000	182000	250000	262000	222000	220000
Total Suspended Solids (TSS)	µg/L	1000	15,000	-	-	See note <sup>4</sup>	-	2590000	4350000	1620000	3500000	5030000	5570000	5180000	2530000	1970000	1560000	4970000	1340000
Hardness as CaCO <sub>3</sub>	mg/L	0.5	-	-	-	-	-	313	285	802	308	646	2530	1460	147	338	247	222	196
Dissolved Hardness	mg/L	0.5	-	-	-	-	-	127	119	121	119	147	78.9	89	143	154	206	193	212
Alkalinity (total as CaCO <sub>3</sub> )	µg/L	500	-	-	-	-	-	117000	114000	116000	117000	132000	140000	139000	137000	183000	160000	185000	171000
Alkalinity (pp as CaCO <sub>3</sub> )	µg/L	500	-	-	-	-	-	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500
Bicarbonate	µg/L	500	-	-	-	-	-	142000	139000	142000	143000	161000	171000	169000	167000	223000	195000	225000	209000
Carbonate	µg/L	500	-	-	-	-	-	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500
Hydroxide	µg/L	500	-	-	-	-	-	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500
Chloride	mg/L	0.5	-	120	120	120	-	0.96	0.82	0.68	<0.50	0.97	2.6	3.2	<0.50	1.8	<0.50	<0.50	0.8
Fluoride	µg/L	10	-	120	120	120	3000	100	100	82	78	230	240	250	200	180	120	110	110
Sulphate	mg/L	0.5	-	100	100	100	1000	10.1	10.7	10.3	10	19.9	34.8	36.8	18.8	42.2	32.8	29.2	21.8
Orthophosphate (as P)	µg/L	1	-	-	-	-	-	3.4	2.3	3.5	13	2.3	2.9	1.8	4.7	1.4	2.3	3.7	3.5
Turbidity	NTU	0.1	-	-	-	-	-	2070	2220	1310	-	3820	2890	2710	-	904	72.2	-	42.6
Anions Total	meq/L		-	-	-	-	-	2.6	2.5	2.6	-	3.1	3.6	3.6	-	4.6	3.9	-	3.9
Cations Total	meq/L		-	-	-	-	-	2.7	2.5	2.5	-	3.2	4	4.2	-	4.7	4.3	-	4.3
Ionic Balance	N/A	0.01	-	-	-	-	-	1	0.99	0.98	0.98	1	1.1	1.1	0.96	1	1.1	0.93	1.1
<b>Nutrients</b>																			
Ammonia	µg/L	5	2500	2330-231,000 <sup>5</sup>	2330-231,000 <sup>5</sup>	2330-231,000 <sup>5</sup>	3700-18,500 <sup>6</sup>	88	37	47	90	110	47	65	48	36	<5	26	31
Total Kjeldahl Nitrogen (TKN)	µg/L	20	-	-	-	-	-	209	183	75	275	180	142	170	46	173	23	88	71
Nitrate (as NO <sub>3</sub> -N)	µg/L	2	-	13,000	13,000	13,000	400,000	155	158	204	202	<2.0	3.6	5	6.1	122	207	217	313
Nitrite (as NO <sub>2</sub> -N)	µg/L	2	-	60	60	60	200-400 <sup>7</sup>	<2.0	5.4	<2.0	7.2	2.7	2.2	<2.0	<2.0	16.1	3	2	7.2
Nitrate and Nitrite (as N)	µg/L	2	-	-	-	-	400,000	155	163	204	209	4.5	5.8	5	6.1	138	210	219	320
Nitrogen (Total)	µg/L	20	-	-	-	-	-	364	346	279	484	184	148	175	53	311	233	307	391
Phosphorus, total	µg/L	2	-	-	-	-	-	2310	3.3	2500	2660	8240	9090	9580	162	274	43.1	139	67.2

**Notes:**  
<sup>1</sup> Environment Canada (Revised March 2014). Guidance Document on Federal Interim Groundwater Quality Guidelines (FIGQG) for Federal Contaminated Sites, Tier 1 guidelines for fine and coarse grained soil under Commercial/Industrial land use  
<sup>2</sup> Canadian Council of Ministers of the Environment (CCME) (Updated 2014). Canadian Water Quality Guidelines for the Protection of Aquatic Life (Freshwater)  
<sup>3</sup> Environment Act. Contaminated Sites Regulation (CSR) (2002). Schedule 3, Generic Numerical Water Standards for Aquatic Life (AW)  
<sup>4</sup> Maximum increase of 25 mg/L from background levels  
<sup>5</sup> Standard varies with pH and temperature. Values shown based on field pH range of 6.06 to 8.10 and temperature range of -1 °C to 3.2 °C  
<sup>6</sup> Guideline varies with pH. Values shown based on field pH range of 6.06 to 8.10  
<sup>7</sup> Guideline varies with chloride. Values shown based on chloride range of <0.50 mg/L to 3.2 mg/L  
<sup>8</sup> Guideline applied is for ultra-oligotrophic  
<sup>9</sup> Guideline varies with hardness. Value shown based on hardness range of 147 mg/L to 2530 mg/L for total metals, and 78.9 mg/L to 212 mg/L for dissolved metals  
<sup>10</sup> Guideline is for Chromium VI  
 -\* No applicable standard or not analyzed  
**Shaded** - Greater than Federal Interim Guideline  
**BOLD** - Greater than CCME AW Guideline  
Underlined - Greater than Yukon CSR Guideline  
**RED** - Greater than current Site Water Licence QZ97-026

Table 5B: Groundwater Analytical Results, Zone 2 (Class C Storage Facility and Overburden Stockpile)

Parameter	Unit	RDL	Water Use Licence QZ97-026	Federal Interim Guideline - Commercial/Industrial <sup>1</sup>		CCME - AW (Freshwater) <sup>2</sup>	Well ID	Statistical Analysis													
				Part E - Effluent Quality Standards	Fine			Coarse	Aquifer & Approx. Sample Depth (mbg)	Overburden						Bedrock					
										Yukon CSR - AW (Freshwater) <sup>3</sup>	MIN	MAX	MEDIAN	MEAN	STDV	90th PERCENTILE	MIN	MAX	MEDIAN	MEAN	STDV
<b>Field</b>																					
Field pH	pH Units		6.5-9	6.5-9	6.5-9	6.5-9	-	6.06	8.02	7.78	7.51	0.67	7.924	7.32	8.1	7.65	7.69	0.21	7.94		
Field Electric Conductivity	µS/cm		-	-	-	-	-	211	413.4	251	276.11	68.40	353.7	265	468.6	377.5	361.12	58.84	402.84		
Field Temperature	°C		-	-	-	-	-	-1	1.38	0.5	0.31	0.90	1.164	-0.7	1.73	0.11	0.36	0.87	1.37		
Field Dissolved Oxygen	mg/L		-	-	-	-	-	2.9	10.6	7.71	7.21	2.77	9.73	0.52	280	6.795	28.52	79.28	11.18		
Field Redox	mV		-	-	-	-	-	62	66	64	64.00	2.83	65.6	-73	67	-33	-13.00	72.11	66.58		
<b>Physical Parameters</b>																					
pH	pH Units		6.5-9	6.5-9	6.5-9	6.5-9	-	7.98	8.24	8.07	8.09	0.11	8.228	7.55	8.29	8.165	8.10	0.19	8.27		
Acidity (pH 4.5)	µg/L	500	-	-	-	-	-	<500	<500	-	-	-	-	<500	<500	-	-	-	-		
Acidity (pH 8.3)	µg/L	500	-	-	-	-	-	<500	2240	840	962.86	631.97	1664	<500	7270	610	1878.57	2043.10	4000.00		
Electrical Conductivity (EC)	µS/cm	1	-	-	-	-	-	239	366	265	274.29	46.04	326.4	286	437	387	362.57	51.52	400.00		
Total Dissolved Solids (TDS)	µg/L	1000	-	-	-	-	-	136000	220000	170000	179142.86	29367.94	214000	168000	266000	228000	222428.57	35188.97	261200.00		
Total Suspended Solids (TSS)	µg/L	1000	15,000	-	-	See note <sup>4</sup>	-	134000	3500000	1620000	1609571.43	1270413.30	2954000	3400	5570000	375000	1450792.86	2114634.99	5048000.00		
Hardness as CaCO <sub>3</sub>	mg/L	0.5	-	-	-	-	-	152	802	308	329.71	225.37	547.6	147	2530	203	422.14	621.27	606.64		
Dissolved Hardness	mg/L	0.5	-	-	-	-	-	119	212	129	141.14	32.45	171.8	78.9	210	195.5	175.21	38.58	207.60		
Alkalinity (total as CaCO <sub>3</sub> )	µg/L	500	-	-	-	-	-	114000	171000	117000	127000.00	20141.17	145800	126000	195000	179500	165214.29	26870.57	191600.00		
Alkalinity (pp as CaCO <sub>3</sub> )	µg/L	500	-	-	-	-	-	<500	<500	-	-	-	-	<500	<500	-	-	-	-		
Bicarbonate	µg/L	500	-	-	-	-	-	139000	209000	143000	154857.14	24721.30	177800	154000	238000	219500	201571.43	32740.74	233800.00		
Carbonate	µg/L	500	-	-	-	-	-	<500	<500	-	-	-	-	<500	<500	-	-	-	-		
Hydroxide	µg/L	500	-	-	-	-	-	<500	<500	-	-	-	-	<500	<500	-	-	-	-		
Chloride	mg/L	0.5	-	120	120	120	-	<0.5	1.7	0.8	0.89	0.40	1.274	<0.5	2.6	0.735	1.03	0.66	1.76		
Fluoride	µg/L	10	-	120	120	120	3000	69	120.0	99	94.00	18.34	114	100	240	150	156.43	44.13	218.00		
Sulphate	mg/L	0.5	-	100	100	100	1000	10	33.3	11.6	15.96	8.73	26.4	18.8	42.2	23.15	25.45	6.88	34.00		
Orthophosphate (as P)	µg/L	1	-	-	-	-	-	2	13	3.5	5.44	3.93	10.36	1.3	6.2	3.15	3.26	1.49	5.68		
Turbidity	NTU	0.1	-	-	-	-	-	42.6	2070	275	773.92	882.22	1766	3.18	3820	197.6	1050.91	1446.50	2890.00		
Anions Total	meq/L		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Cations Total	meq/L		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Ionic Balance	N/A	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
<b>Nutrients</b>																					
Ammonia	µg/L	5	2500	2330-231,000 <sup>5</sup>	2330-231,000 <sup>5</sup>	2330-231,000 <sup>5</sup>	3700-18,500 <sup>6</sup>	27	90	47	53.29	25.61	88.8	<5	300	99	110.50	86.03	212.00		
Total Kjeldahl Nitrogen (TKN)	µg/L	20	-	-	-	-	-	71	316	111	161.43	104.13	291.4	23	972	166.5	226.71	235.66	375.16		
Nitrate (as NO <sub>3</sub> -N)	µg/L	2	-	13,000	13,000	13,000	400,000	45.4	313	155	149.96	98.03	247.6	<2	279	4.85	88.47	107.28	235.36		
Nitrite (as NO <sub>2</sub> -N)	µg/L	2	-	60	60	60	200-400 <sup>7</sup>	<2	9.3	6.7	5.20	3.10	8.04	<2	16.1	2.1	4.41	4.57	11.02		
Nitrate and Nitrite (as N)	µg/L	2	-	-	-	-	400,000	52.1	320	155	154.24	98.03	253.4	<2	292	5.95	91.95	110.43	239.64		
Nitrogen (Total)	µg/L	20	-	-	-	-	-	145	484	364	315.71	125.70	428.2	53	975	230.5	318.29	245.68	592.00		
Phosphorus, total	µg/L	2	-	-	-	-	-	67.2	3710	2310	1970.60	1292.77	3080	5.8	9090	150.5	1713.36	3193.74	6812.00		

**Notes:**

- <sup>1</sup> Environment Canada (Revised March 2014). Guidance Document on Federal Interim Groundwater Quality Guidelines (FIGQG) for Federal Contaminated Sites, Tier 1 guidelines for fine and coarse grained soil under Commercial/Industrial land use
- <sup>2</sup> Canadian Council of Ministers of the Environment (CCME) (Updated 2014). Canadian Water Quality Guidelines for the Protection of Aquatic Life (Freshwater)
- <sup>3</sup> Environment Act. Contaminated Sites Regulation (CSR) (2002). Schedule 3, Generic Numerical Water Standards for Aquatic Life (AW)
- <sup>4</sup> Maximum increase of 25 mg/L from background levels
- <sup>5</sup> Standard varies with pH and temperature. Values shown based on field pH range of 6.06 to 8.10 and temperature range of -1 °C to 3.2 °C
- <sup>6</sup> Guideline varies with pH. Values shown based on field pH range of 6.06 to 8.10
- <sup>7</sup> Guideline varies with chloride. Values shown based on chloride range of <0.50 mg/L to 3.2 mg/L
- <sup>8</sup> Guideline applied is for ultra-oligotrophic
- <sup>9</sup> Guideline varies with hardness. Value shown based on hardness range of 147 mg/L to 2530 mg/L for total metals, and 78.9 mg/L to 212 mg/L for dissolved metals
- <sup>10</sup> Guideline is for Chromium VI
- \*- No applicable standard or not analyzed
- Shaded - Greater than Federal Interim Guideline
- BOLD - Greater than CCME AW Guideline
- Underlined - Greater than Yukon CSR Guideline
- RED - Greater than current Site Water Licence QZ97-026



Table 5B: Groundwater Analytical Results, Zone 2 (Class C Storage Facility and Overburden Stockpile)

Parameter	Unit	RDL	Water Use Licence QZ97-026 Part E - Effluent Quality Standards	Federal Interim Guideline - Commercial/Industrial <sup>1</sup>		CCME - AW (Freshwater) <sup>2</sup>	Well ID	BH95G-30	BH95G-31				MW15-03S			MW15-03D			
				Aquifer & Approx. Sample Depth (mbg)	Bedrock 17.7		Bedrock 8.5				Overburden 5.6			Bedrock 13.05					
				Yukon CSR - AW (Freshwater) <sup>3</sup>	BH95G-30		BH95G-31	BH95G-31	BH95G-31	BH95G-31	MW15-03S	MW15-03S	MW15-03S	MW15-03D	MW15-03D	DUP02	MW15-03D	DUP01	
				6-Sep-2015	1995		22-Sep-2015	5-Nov-2015	4-Sep-2015	2-Nov-2015	13-Mar-2016	4-Sep-2015	2-Nov-2015	13-Mar-2016					
<b>Carbon</b>																			
Dissolved Organic Carbon (DOC)	µg/L	500	-	-	-	-	-	-	-	-	-	-	-	3070	-	-	-	1960	2540
Total Organic Carbon (TOC)	µg/L	500	-	-	-	-	850	-	2400	<500	3400	1400	-	2000	1170	910	-	-	-
<b>Dissolved Metals</b>																			
Aluminum	µg/L	0.5	-	5, 100 <sup>5</sup>	5, 100 <sup>6</sup>	5, 100 <sup>6</sup>	-	12.9	15	3.75	85.2	3.24	26.6	11.4	7.92	14.4	7.81	2.76	2.5
Antimony	µg/L	0.02	-	2000	2000	-	200	0.02	-	0.059	0.108	0.046	0.04	0.05	3.46	1.93	1.74	0.228	0.221
Arsenic	µg/L	0.02	50	5	5	5	50	0.062	0.06	0.124	0.137	0.158	0.207	0.255	2.08	2.29	2.27	1.82	1.83
Barium	µg/L	0.02	-	500	500	-	10,000	74.5	97	127	146	46.2	45.9	52.4	49.1	50.1	46	47.1	48
Beryllium	µg/L	0.01	-	5.3	5.3	-	53	<0.010	-	<0.010	<0.010	<0.010	<0.010	<0.010	0.022	<0.010	<0.010	<0.010	<0.010
Bismuth	µg/L	0.005	-	-	-	-	-	<0.0050	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Boron	µg/L	10	-	5000	5000	1500	50,000	<10	-	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cadmium	µg/L	0.005	7	0.017	0.017	0.09	0.3-0.6 <sup>9</sup>	0.095	0.02	0.02	0.023	0.022	0.033	0.022	0.01	<0.0050	<0.0050	<0.0050	<0.0050
Calcium	µg/L	50	-	-	-	-	-	69700	-	52200	59800	42900	45600	49900	56400	57600	56500	54800	53400
Chromium	µg/L	0.1	-	8.9	8.9	1 <sup>10</sup>	10 <sup>10</sup>	0.1	11	<0.10	0.23	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cobalt	µg/L	0.005	-	-	-	-	9	0.056	0.4	0.027	0.162	0.536	0.606	0.37	0.308	0.134	0.128	0.09	0.089
Copper	µg/L	0.05	15	2-4 <sup>9</sup>	2-4 <sup>9</sup>	2-4 <sup>9</sup>	40-90 <sup>9</sup>	0.623	0.7	0.453	1.32	0.344	0.38	2.02	0.206	0.091	0.094	<0.050	0.052
Iron	µg/L	1	-	300	300	300	-	14.9	54	<1.0	87.5	47.4	112	47.2	355	806	779	911	934
Lead	µg/L	0.005	26	2.4-7.0 <sup>9</sup>	2.4-7.0 <sup>9</sup>	2.4-7.0 <sup>9</sup>	50-110 <sup>9</sup>	0.044	<0.1	0.016	0.259	0.007	0.058	0.055	0.044	0.014	0.047	<0.0050	<0.0050
Lithium	µg/L	0.5	-	-	-	-	-	1.93	-	1	1.02	1.93	0.87	1.22	6.75	6.7	5.88	6.54	6.1
Magnesium	µg/L	50	-	-	-	-	-	6940	-	2920	3130	5240	5100	4850	16200	16200	16400	15600	15800
Manganese	µg/L	0.05	-	-	-	-	-	8.36	10	0.728	1.21	161	135	107	71.7	73.8	73.3	66.2	66.7
Mercury	µg/L	0.002	-	0.016	0.016	0.026	1	0.0054	-	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Molybdenum	µg/L	0.05	-	73	73	73	10,000	2.16	0.5	1.78	-	10.4	7.46	8.89	4.7	3.72	3.25	3.96	3.92
Nickel	µg/L	0.02	-	80-150 <sup>9</sup>	80-150 <sup>9</sup>	80-150 <sup>9</sup>	650-1500 <sup>9</sup>	0.471	8	0.403	0.597	2.15	2.1	1.66	1.02	0.455	0.476	0.248	0.255
Phosphorus	µg/L	2	-	-	-	4 <sup>8</sup>	-	8.4	-	2.8	9	3.4	10.5	7.2	4.9	4.1	4.4	7.6	5.7
Potassium	µg/L	50	-	-	-	-	-	1910	-	2880	3150	1500	1320	1410	2870	2680	2690	2640	2700
Selenium	µg/L	0.04	15	1	1	1	10	2.11	<0.05	1.36	1.66	0.209	0.189	0.297	0.256	<0.040	<0.040	<0.040	<0.040
Silicon	µg/L	50	-	-	-	-	-	3330	-	2790	2970	2950	2810	2510	3920	4130	4020	4910	4830
Silver	µg/L	0.005	-	0.1	0.1	0.25	0.5, 15 <sup>9</sup>	<0.0050	<0.01	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Sodium	µg/L	50	-	-	-	-	-	1440	-	1020	1090	16100	2610	2230	2890	2710	2700	2720	2740
Strontium	µg/L	0.05	-	-	-	-	-	238	-	176	197	145	139	163	252	244	243	269	266
Sulphur	µg/L	3000	-	-	-	-	-	8100	-	6800	7300	12500	3800	4900	10000	8200	8200	7900	7700
Thallium	µg/L	0.002	-	0.8	0.8	0.8	3	<0.0020	-	0.006	0.002	0.006	0.008	0.002	0.007	<0.0020	<0.0020	<0.0020	<0.0020
Tin	µg/L	0.2	-	-	-	-	-	<0.20	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Titanium	µg/L	0.5	-	100	100	-	1000	0.54	-	<0.50	3.57	<0.50	1.16	0.57	0.57	0.62	<0.50	<0.50	<0.50
Uranium	µg/L	0.002	-	15	15	15	3000	2.59	-	1.05	1.2	0.783	0.884	0.854	2.05	3.02	2.7	1.84	1.83
Vanadium	µg/L	0.2	-	-	-	-	-	<0.20	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Zinc	µg/L	0.1	110	10	10	30	75-1650 <sup>9</sup>	7.59	3	0.85	2.6	1.58	0.9	10.6	2.38	0.48	0.39	0.84	0.57
Zirconium	µg/L	0.1	-	-	-	-	-	<0.10	-	<0.10	<0.10	<0.10	<0.10	<0.10	0.23	0.43	0.42	1.01	0.95

**Notes:**

- <sup>1</sup> Environment Canada (Revised March 2014). Guidance Document on Federal Interim Groundwater Quality Guidelines (FIGQG) for Federal Contaminated Sites, Tier 1 guidelines for fine and coarse grained soil under Commercial/Industrial land use
  - <sup>2</sup> Canadian Council of Ministers of the Environment (CCME) (Updated 2014). Canadian Water Quality Guidelines for the Protection of Aquatic Life (Freshwater)
  - <sup>3</sup> Environment Act. Contaminated Sites Regulation (CSR) (2002). Schedule 3, Generic Numerical Water Standards for Aquatic Life (AW)
  - <sup>4</sup> Maximum increase of 25 mg/L from background levels
  - <sup>5</sup> Standard varies with pH and temperature. Values shown based on field pH range of 6.06 to 8.10 and temperature range of -1 °C to 3.2 °C
  - <sup>6</sup> Guideline varies with pH. Values shown based on field pH range of 6.06 to 8.10
  - <sup>7</sup> Guideline varies with chloride. Values shown based on chloride range of <0.50 mg/L to 3.2 mg/L
  - <sup>8</sup> Guideline applied is for ultra-oligotrophic
  - <sup>9</sup> Guideline varies with hardness. Value shown based on hardness range of 147 mg/L to 2530 mg/L for total metals, and 78.9 mg/L to 212 mg/L for dissolved metals
  - <sup>10</sup> Guideline is for Chromium VI
  - \* - No applicable standard or not analyzed
- Shaded - Greater than Federal Interim Guideline  
**BOLD** - Greater than CCME AW Guideline  
Underlined - Greater than Yukon CSR Guideline  
**RED** - Greater than current Site Water Licence QZ97-026

Table 5B: Groundwater Analytical Results, Zone 2 (Class C Storage Facility and Overburden Stockpile)

Parameter	Unit	RDL	Water Use Licence QZ97-026 Part E - Effluent Quality Standards	Federal Interim Guideline - Commercial/Industrial <sup>1</sup>		CCME - AW (Freshwater) <sup>2</sup>	Well ID Aquifer & Approx. Sample Depth (mbg) Yukon CSR - AW (Freshwater) <sup>3</sup>	MW15-04S				MW15-04D				MW15-05D			MW15-06
				Fine	Coarse			Overburden 12.65				Bedrock 30				Bedrock 26.1			Overburden 7.95
								MW15-04S	DUP03	MW15-04S	MW15-04S	MW15-04D	MW15-04D	DUP01	MW15-04D	MW15-05D	MW15-05D	MW15-05D	MW15-06
				4-Sep-2015	31-Oct-2015			13-Mar-2016	4-Sep-2015	31-Oct-2015	13-Mar-2016	7-Sep-2015	2-Nov-2015	13-Mar-2016	7-Sep-2015				
<b>Carbon</b>																			
Dissolved Organic Carbon (DOC)	µg/L	500	-	-	-	-	-	-	-	1500	-	-	-	<500	-	-	3130	-	
Total Organic Carbon (TOC)	µg/L	500	-	-	-	-	960	1200	820	-	1400	1910	1660	-	3300	<500	-	640	
<b>Dissolved Metals</b>																			
Aluminum	µg/L	0.5	-	5,100 <sup>6</sup>	5,100 <sup>6</sup>	5,100 <sup>6</sup>	-	4.55	4.48	5.65	3.65	3.48	2.99	7.15	3.69	5.46	6.15	2.11	1.95
Antimony	µg/L	0.02	-	2000	2000	-	200	0.021	<0.020	0.025	<0.020	0.023	0.033	0.026	<0.020	0.023	0.022	<0.020	<0.020
Arsenic	µg/L	0.02	50	5	5	5	50	0.25	0.252	0.27	0.206	1.84	1.74	1.82	1.63	0.19	0.11	0.065	0.06
Barium	µg/L	0.02	-	500	500	-	10,000	69.5	70.8	73.7	76.8	64.6	22.7	22.1	53.5	22.4	40.8	43.4	68.6
Beryllium	µg/L	0.01	-	5.3	5.3	-	53	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Bismuth	µg/L	0.005	-	-	-	-	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Boron	µg/L	10	-	5000	5000	1500	50,000	<10	<10	<10	<10	23	23	22	<10	<10	<10	<10	<10
Cadmium	µg/L	0.005	7	0.017	0.017	0.09	0.3-0.6 <sup>9</sup>	0.015	0.015	0.014	0.011	0.04	0.028	0.028	<0.0050	0.027	0.057	0.065	0.175
Calcium	µg/L	50	-	-	-	-	-	44600	41300	42200	42100	49200	28300	27600	49100	52400	70300	66400	74600
Chromium	µg/L	0.1	-	8.9	8.9	1 <sup>10</sup>	10 <sup>10</sup>	0.13	0.14	0.16	0.2	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cobalt	µg/L	0.005	-	-	-	-	9	0.194	0.203	0.114	0.032	0.699	0.343	0.353	0.193	0.148	0.18	0.081	0.034
Copper	µg/L	0.05	15	2-4 <sup>9</sup>	2-4 <sup>9</sup>	2-4 <sup>9</sup>	40-90 <sup>9</sup>	0.693	0.669	1.17	0.5	0.376	0.885	0.23	<0.050	0.611	0.396	0.154	0.386
Iron	µg/L	1	-	300	300	300	-	1.1	2.1	5.1	6.2	62.5	71.6	70.8	258	5.4	10.6	6.7	2.3
Lead	µg/L	0.005	26	2.4-7.0 <sup>9</sup>	2.4-7.0 <sup>9</sup>	2.4-7.0 <sup>9</sup>	50-110 <sup>9</sup>	<0.0050	<0.0050	0.01	0.005	0.035	0.096	0.032	0.009	0.084	0.095	0.097	0.011
Lithium	µg/L	0.5	-	-	-	-	-	0.79	0.81	<0.50	0.7	1.28	2.93	2.91	1.11	4.46	1.21	1.69	1.52
Magnesium	µg/L	50	-	-	-	-	-	3810	3860	3660	3500	5770	3050	3040	5010	5510	7490	6630	6230
Manganese	µg/L	0.05	-	-	-	-	-	38.3	39.6	25.5	9.02	201	102	103	212	16.3	21.7	13.5	1.22
Mercury	µg/L	0.002	-	0.016	0.016	0.026	1	<0.0020	<0.0020	<0.0020	0.0028	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Molybdenum	µg/L	0.05	-	73	73	73	10,000	3.29	3.3	2.06	1.55	4.32	5.19	5.78	2.45	1.81	0.983	0.912	3.29
Nickel	µg/L	0.02	-	80-150 <sup>9</sup>	80-150 <sup>9</sup>	80-150 <sup>9</sup>	650-1500 <sup>9</sup>	3.53	3.98	2.19	0.456	2.04	1.07	0.849	0.18	0.494	0.487	0.215	1.24
Phosphorus	µg/L	2	-	-	-	4 <sup>8</sup>	-	4.2	4.1	<2.0	4.3	4.6	9.4	7.5	10.1	5.5	<2.0	4.9	5.6
Potassium	µg/L	50	-	-	-	-	-	1740	1790	1480	1390	2720	2690	2640	2400	2240	1710	1650	1870
Selenium	µg/L	0.04	15	1	1	1	10	0.741	0.741	0.773	0.755	<0.040	0.089	0.088	<0.040	1.62	1.77	1.49	2.49
Silicon	µg/L	50	-	-	-	-	-	3080	2950	2790	3270	2730	2570	2500	2900	2680	2260	2620	3220
Silver	µg/L	0.005	-	0.1	0.1	0.25	0.5, 15 <sup>9</sup>	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Sodium	µg/L	50	-	-	-	-	-	1830	1900	2020	2160	3140	55800	55000	1620	36200	3670	2900	1340
Strontium	µg/L	0.05	-	-	-	-	-	173	171	159	165	206	203	206	208	300	274	298	216
Sulphur	µg/L	3000	-	-	-	-	-	3500	<3000	3500	4000	7400	17300	17300	6800	14800	10800	9900	7900
Thallium	µg/L	0.002	-	0.8	0.8	0.8	3	0.002	0.002	0.002	<0.0020	0.005	0.004	0.003	<0.0020	0.003	0.002	<0.0020	0.003
Tin	µg/L	0.2	-	-	-	-	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Titanium	µg/L	0.5	-	100	100	-	1000	<0.50	<0.50	<0.50	<0.50	<0.50	0.65	<0.50	<0.50	0.68	<0.50	<0.50	<0.50
Uranium	µg/L	0.002	-	15	15	15	3000	0.739	0.735	0.762	0.591	1.06	3.91	3.78	0.749	4.15	2.62	1.86	2.84
Vanadium	µg/L	0.2	-	-	-	-	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Zinc	µg/L	0.1	110	10	10	30	75-1650 <sup>9</sup>	1.47	1.44	2.55	1.63	0.73	9.56	0.64	0.89	2.58	3.46	4.04	4.03
Zirconium	µg/L	0.1	-	-	-	-	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.19	<0.10	<0.10	<0.10	<0.10	<0.10

**Notes:**

- <sup>1</sup> Environment Canada (Revised March 2014). Guidance Document on Federal Interim Groundwater Quality Guidelines (FIGQG) for Federal Contaminated Sites, Tier 1 guidelines for fine and coarse grained soil under Commercial/Industrial land use
  - <sup>2</sup> Canadian Council of Ministers of the Environment (CCME) (Updated 2014). Canadian Water Quality Guidelines for the Protection of Aquatic Life (Freshwater)
  - <sup>3</sup> Environment Act. Contaminated Sites Regulation (CSR) (2002). Schedule 3, Generic Numerical Water Standards for Aquatic Life (AW)
  - <sup>4</sup> Maximum increase of 25 mg/L from background levels
  - <sup>5</sup> Standard varies with pH and temperature. Values shown based on field pH range of 6.06 to 8.10 and temperature range of -1 °C to 3.2 °C
  - <sup>6</sup> Guideline varies with pH. Values shown based on field pH range of 6.06 to 8.10
  - <sup>7</sup> Guideline varies with chloride. Values shown based on chloride range of <0.50 mg/L to 3.2 mg/L
  - <sup>8</sup> Guideline applied is for ultra-oligotrophic
  - <sup>9</sup> Guideline varies with hardness. Value shown based on hardness range of 147 mg/L to 2530 mg/L for total metals, and 78.9 mg/L to 212 mg/L for dissolved metals
  - <sup>10</sup> Guideline is for Chromium VI
  - "-" No applicable standard or not analyzed
- Shaded** - Greater than Federal Interim Guideline  
**BOLD** - Greater than CCME AW Guideline  
Underlined - Greater than Yukon CSR Guideline  
**RED** - Greater than current Site Water Licence QZ97-026

Table 5B: Groundwater Analytical Results, Zone 2 (Class C Storage Facility and Overburden Stockpile)

Parameter	Unit	RDL	Water Use Licence QZ97-026 Part E - Effluent Quality Standards	Federal Interim Guideline - Commercial/Industrial <sup>1</sup>		CCME - AW (Freshwater) <sup>2</sup>	Well ID	Statistical Analysis											
				Aquifer & Approx. Sample Depth (mbg)			Overburden						Bedrock						
				Yukon CSR - AW (Freshwater) <sup>3</sup>	MIN		MAX	MEDIAN	MEAN	STDV	90th PERCENTILE	MIN	MAX	MEDIAN	MEAN	STDV	90th PERCENTILE		
<b>Carbon</b>																			
Dissolved Organic Carbon (DOC)	µg/L	500	-	-	-	-	-	1500	3070	2285	2285.00	1110.16	2913	<500	3130	2250	2032.50	1127.81	3043.20
Total Organic Carbon (TOC)	µg/L	500	-	-	-	-	-	640	3400	960	1444.00	1128.93	2600	<500	3300	1285	1494.00	904.14	2600.00
<b>Dissolved Metals</b>																			
Aluminum	µg/L	0.5	-	5, 100 <sup>6</sup>	5, 100 <sup>6</sup>	5, 100 <sup>6</sup>	-	1.95	26.6	4.55	8.15	8.69	17.48	2.11	85.2	4.605	11.51	21.55	16.25
Antimony	µg/L	0.02	-	2000	2000	-	200	<0.02	0.05	0.025	0.03	0.01	0.0476	<0.02	3.46	0.046	0.56	1.05	1.85
Arsenic	µg/L	0.02	50	5	5	5	50	0.06	0.27	0.207	0.20	0.07	0.261	0.062	2.29	1.685	1.16	0.95	2.19
Barium	µg/L	0.02	-	500	500	-	10,000	45.9	76.8	68.6	61.87	13.27	74.94	22.4	146	48.55	59.66	35.44	106.18
Beryllium	µg/L	0.01	-	5.3	5.3	-	53	<0.01	<0.01	-	-	-	-	<0.01	0.022	0.01	0.01	0.00	0.01
Bismuth	µg/L	0.005	-	-	-	-	-	<0.005	<0.005	-	-	-	-	<0.005	<0.005	-	-	-	-
Boron	µg/L	10	-	5000	5000	1500	50,000	<10	<10	-	-	-	-	<10	23	10	11.86	4.72	17.80
Cadmium	µg/L	0.005	7	0.017	0.017	0.09	0.3-0.6 <sup>9</sup>	0.011	0.175	0.022	0.04	0.06	0.0898	<0.005	0.095	0.0215	0.03	0.03	0.08
Calcium	µg/L	50	-	-	-	-	-	42100	74600	44600	48842.86	11676.02	59780	28300	70300	55600	55435.71	10414.61	68380.00
Chromium	µg/L	0.1	-	8.9	8.9	1 <sup>10</sup>	10 <sup>10</sup>	<0.1	0.2	0.1	0.13	0.04	0.176	<0.1	0.23	0.1	0.11	0.03	0.15
Cobalt	µg/L	0.005	-	-	-	-	9	0.032	0.606	0.194	0.27	0.24	0.564	0.027	0.699	0.141	0.19	0.17	0.48
Copper	µg/L	0.05	15	2-4 <sup>9</sup>	2-4 <sup>9</sup>	2-4 <sup>9</sup>	40-90 <sup>9</sup>	0.344	2.02	0.5	0.78	0.62	1.51	<0.05	1.32	0.291	0.38	0.38	1.15
Iron	µg/L	1	-	300	300	300	-	1.1	112	6.2	31.61	41.01	73.24	<1	934	79.55	307.37	376.80	869.00
Lead	µg/L	0.005	26	2.4-7.0 <sup>9</sup>	2.4-7.0 <sup>9</sup>	2.4-7.0 <sup>9</sup>	50-110 <sup>9</sup>	<0.005	0.058	0.01	0.02	0.02	0.0562	<0.005	0.259	0.044	0.06	0.07	0.10
Lithium	µg/L	0.5	-	-	-	-	-	<0.5	1.93	0.87	1.08	0.51	1.684	1	6.75	2.43	3.47	2.45	6.64
Magnesium	µg/L	50	-	-	-	-	-	3500	6230	4850	4627.14	1007.60	5636	2920	16400	6785	9046.43	5586.45	16200.00
Manganese	µg/L	0.05	-	-	-	-	-	1.22	161	38.3	68.15	64.92	145.4	0.728	212	66.45	66.32	67.91	178.76
Mercury	µg/L	0.002	-	0.016	0.016	0.026	1	<0.002	0.0028	0.002	0.0021	0.0003	0.00232	<0.002	0.0054	0.002	0.002	0.001	0.002
Molybdenum	µg/L	0.05	-	73	73	73	10,000	1.55	10.4	3.29	5.28	3.56	9.494	0.912	5.19	3.25	3.01	1.42	5.04
Nickel	µg/L	0.02	-	80-150 <sup>9</sup>	80-150 <sup>9</sup>	80-150 <sup>9</sup>	650-1500 <sup>9</sup>	0.456	3.53	2.1	1.90	0.95	2.726	0.18	2.04	0.4735	0.60	0.49	1.65
Phosphorus	µg/L	2	-	-	-	4 <sup>8</sup>	-	<2	10.5	4.3	5.31	2.81	8.52	<2	10.1	5.2	5.96	2.52	9.24
Potassium	µg/L	50	-	-	-	-	-	1320	1870	1480	1530.00	200.50	1792	1650	3150	2685	2495.00	454.75	2876.00
Selenium	µg/L	0.04	15	1	1	1	10	0.189	2.49	0.741	0.78	0.80	1.4598	<0.04	2.11	0.1725	0.76	0.84	1.73
Silicon	µg/L	50	-	-	-	-	-	2510	3270	2950	2947.14	268.00	3240	2260	4910	2935	3332.86	869.38	4550.00
Silver	µg/L	0.005	-	0.1	0.1	0.25	0.5, 15 <sup>9</sup>	<0.005	<0.005	-	-	-	-	<0.005	0.005	0.005	0.01	0.00	0.01
Sodium	µg/L	50	-	-	-	-	-	1340	16100	2160	4041.43	5331.56	8006	1020	55800	2730	8617.14	16316.73	24922.40
Strontium	µg/L	0.05	-	-	-	-	-	139	216	163	165.71	25.09	190.2	176	300	243.5	241.00	38.52	288.40
Sulphur	µg/L	3000	-	-	-	-	-	3500	12500	4000	5728.57	3363.88	9740	6800	17300	8150	9371.43	3110.39	13200.00
Thallium	µg/L	0.002	-	0.8	0.8	0.8	3	<0.002	0.008	0.002	0.004	0.002	0.0068	<0.002	0.007	0.002	0.003	0.002	0.006
Tin	µg/L	0.2	-	-	-	-	-	<0.2	<0.2	-	-	-	-	<0.2	0.2	0.2	0.20	0.00	0.20
Titanium	µg/L	0.5	-	100	100	-	1000	<0.5	1.16	0.5	0.60	0.25	0.806	<0.5	3.57	0.5	0.76	0.81	0.76
Uranium	µg/L	0.002	-	15	15	15	3000	0.591	2.84	0.783	1.06	0.79	1.6664	0.749	4.15	1.955	2.19	1.04	3.55
Vanadium	µg/L	0.2	-	-	-	-	-	<0.2	<0.2	-	-	-	-	<0.2	0.2	0.2	0.20	0.00	0.20
Zinc	µg/L	0.1	110	10	10	30	75-1650 <sup>9</sup>	0.9	10.6	1.63	3.25	3.40	6.658	0.39	9.56	1.635	2.64	2.80	7.22
Zirconium	µg/L	0.1	-	-	-	-	-	<0.1	<0.1	-	-	-	-	<0.1	1.01	0.1	0.28	0.32	0.74

**Notes:**

- <sup>1</sup> Environment Canada (Revised March 2014). Guidance Document on Federal Interim Groundwater Quality Guidelines (FIGQG) for Federal Contaminated Sites, Tier 1 guidelines for fine and coarse grained soil under Commercial/Industrial land use
  - <sup>2</sup> Canadian Council of Ministers of the Environment (CCME) (Updated 2014). Canadian Water Quality Guidelines for the Protection of Aquatic Life (Freshwater)
  - <sup>3</sup> Environment Act. Contaminated Sites Regulation (CSR) (2002). Schedule 3, Generic Numerical Water Standards for Aquatic Life (AW)
  - <sup>4</sup> Maximum increase of 25 mg/L from background levels
  - <sup>5</sup> Standard varies with pH and temperature. Values shown based on field pH range of 6.06 to 8.10 and temperature range of -1 °C to 3.2 °C
  - <sup>6</sup> Guideline varies with pH. Values shown based on field pH range of 6.06 to 8.10
  - <sup>7</sup> Guideline varies with chloride. Values shown based on chloride range of <0.50 mg/L to 3.2 mg/L
  - <sup>8</sup> Guideline applied is for ultra-oligotrophic
  - <sup>9</sup> Guideline varies with hardness. Value shown based on hardness range of 147 mg/L to 2530 mg/L for total metals, and 78.9 mg/L to 212 mg/L for dissolved metals
  - <sup>10</sup> Guideline is for Chromium VI
  - \* - No applicable standard or not analyzed
- Shaded - Greater than Federal Interim Guideline  
**BOLD** - Greater than CCME AW Guideline  
Underlined - Greater than Yukon CSR Guideline  
**RED** - Greater than current Site Water Licence QZ97-026

Table 5B: Groundwater Analytical Results, Zone 2 (Class C Storage Facility and Overburden Stockpile)

Parameter	Unit	RDL	Water Use Licence QZ97-026 Part E - Effluent Quality Standards	Federal Interim Guideline - Commercial/Industrial <sup>1</sup>		CCME - AW (Freshwater) <sup>2</sup>	Well ID	BH95G-30	BH95G-31				MW15-03S			MW15-03D				
				Aquifer & Approx. Sample Depth (mbg)	Bedrock 17.7		Bedrock 8.5				Overburden 5.6			Bedrock 13.05						
				Yukon CSR - AW (Freshwater) <sup>3</sup>	BH95G-30		BH95G-31	BH95G-31	BH95G-31	BH95G-31	MW15-03S	MW15-03S	MW15-03S	MW15-03D	MW15-03D	DUP02	MW15-03D	DUP01		
					6-Sep-2015		1995	22-Sep-2015	5-Nov-2015	4-Sep-2015	2-Nov-2015	13-Mar-2016	4-Sep-2015	2-Nov-2015		13-Mar-2016				
<b>Total Metals</b>																				
Aluminum	µg/L	0.5	-	5, 100 <sup>6</sup>	5, 100 <sup>6</sup>	5, 100 <sup>6</sup>	-	984	-	62000	1890	3150	4130	42400	34.9	13.8	14.1	28.5	28.5	
Antimony	µg/L	0.02	-	2000	2000	-	200	0.081	-	0.668	0.063	0.156	0.174	0.752	3.25	1.81	1.9	0.265	0.267	
Arsenic	µg/L	0.02	50	5	5	5	50	0.647	-	126	6.27	4.25	6.16	55.3	1.95	2.44	2.23	1.81	1.83	
Barium	µg/L	0.02	-	500	500	-	10,000	91.1	-	2250	275	90.2	106	597	46.5	49.4	49.6	47.9	49	
Beryllium	µg/L	0.01	-	5.3	5.3	-	53	0.093	-	1.78	0.136	0.186	0.234	1.68	<0.010	<0.010	<0.010	0.011	<0.010	
Bismuth	µg/L	0.005	-	-	-	-	-	0.034	-	2.89	0.27	0.074	0.103	0.936	<0.0050	<0.0050	<0.0050	<0.020	<0.020	
Boron	µg/L	10	-	5000	5000	1500	50,000	<50	-	<50	<10	<50	<50	<50	<10	<10	<10	<50	<50	
Cadmium	µg/L	0.005	7	0.017	0.017	0.09	0.5-0.6 <sup>9</sup>	0.23	-	6.44	0.699	0.145	0.275	2.5	0.012	<0.0050	<0.0050	0.009	0.006	
Calcium	µg/L	50	-	-	-	-	-	64300	-	103000	54800	50700	49700	91200	54200	53600	56400	54400	54300	
Chromium	µg/L	0.1	-	8.9	8.9	1 <sup>10</sup>	10 <sup>10</sup>	1.43	-	197	4.54	14.3	28.1	254	0.15	<0.10	0.12	1.56	<0.50	
Cobalt	µg/L	0.005	-	-	-	-	9	1.71	-	244	16.4	3.94	5.88	65.5	0.292	0.18	0.193	0.165	0.145	
Copper	µg/L	0.05	15	3.2-4.0 <sup>9</sup>	3.2-4.0 <sup>9</sup>	3.2-4.0 <sup>9</sup>	60-90 <sup>9</sup>	7.83	-	1420	104	19.2	33.5	353	0.497	0.143	0.162	0.7	1.12	
Iron	µg/L	1	-	300	300	300	-	1320	-	228000	13800	10400	12400	134000	433	856	846	1140	1040	
Lead	µg/L	0.005	26	5.2-7.0 <sup>9</sup>	5.2-7.0 <sup>9</sup>	5.2-7.0 <sup>9</sup>	60-160 <sup>9</sup>	3.93	-	561	80.9	6.47	11.8	125	0.121	0.054	0.053	0.229	0.303	
Lithium	µg/L	0.5	-	-	-	-	-	2.3	-	45.3	1.91	4.64	5.69	42.6	6.23	5.81	6.39	5.91	6.42	
Magnesium	µg/L	50	-	-	-	-	-	8660	-	42600	3740	6140	8470	36500	14600	15800	16200	15400	15400	
Manganese	µg/L	0.05	-	-	-	-	-	56.4	-	3250	327	281	309	2270	69.7	80.9	81.5	67.8	67.7	
Mercury	µg/L	0.002	-	0.016	0.016	0.026	1	<0.0020	-	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	
Molybdenum	µg/L	0.05	-	73	73	73	10,000	2.16	-	5.69	1.29	11.5	7.23	21	4.39	3.21	3.33	4.12	3.84	
Nickel	µg/L	0.02	-	128-150 <sup>9</sup>	128-150 <sup>9</sup>	128-150 <sup>9</sup>	1100-1500 <sup>9</sup>	3.13	-	469	24.6	21.4	19.1	184	0.974	0.546	0.673	0.53	0.45	
Phosphorus	µg/L	2	-	-	-	4 <sup>8</sup>	-	137	-	3880	247	231	418	4080	9.3	7.9	10	16	11	
Potassium	µg/L	50	-	-	-	-	-	2490	-	17300	3220	2280	2850	9160	2680	2710	2710	2440	2530	
Selenium	µg/L	0.04	15	1	1	1	10	1.8	-	4.34	1.42	0.366	0.199	0.697	0.217	<0.040	<0.040	<0.040	<0.040	
Silicon	µg/L	50	-	-	-	-	-	5860	-	72500	6090	8820	8900	58400	4040	4910	4910	4510	4750	
Silver	µg/L	0.005	-	0.1	0.1	0.25	15 <sup>9</sup>	0.306	-	12.9	0.703	0.176	0.345	23.5	0.009	<0.0050	<0.0050	0.038	0.031	
Sodium	µg/L	50	-	-	-	-	-	1700	-	1560	922	14300	1960	3420	2660	2450	2420	2430	2420	
Strontium	µg/L	0.05	-	-	-	-	-	287	-	427	192	144	140	311	239	263	257	235	254	
Sulphur	µg/L	3000	-	-	-	-	-	<15,000	-	<15,000	6800	<15,000	<15,000	<15,000	10200	8300	8700	<15,000	<15,000	
Thallium	µg/L	0.002	-	0.8	0.8	0.8	3	0.011	-	0.877	0.037	0.071	0.09	0.584	0.003	<0.0020	<0.0020	0.008	0.006	
Tin	µg/L	0.2	-	-	-	-	-	0.31	-	4.71	0.34	0.35	0.45	2.65	<0.20	<0.20	<0.20	<0.20	<0.20	
Titanium	µg/L	0.5	-	100	100	-	1000	37.7	-	3040	142	114	171	1580	1.91	<0.50	0.99	<5.0	<5.0	
Uranium	µg/L	0.002	-	15	15	15	3000	2.95	-	6.02	1.44	1.07	1.32	5.57	1.84	2.7	2.71	1.93	1.87	
Vanadium	µg/L	0.2	-	-	-	-	-	2.51	-	382	19.6	8.65	13	152	<0.20	<0.20	<0.20	<0.50	<0.50	
Zinc	µg/L	0.1	110	10	10	30	900-2400 <sup>9</sup>	29.7	-	936	51.4	31.2	43.9	464	2.21	0.6	0.59	1.3	3.1	
Zirconium	µg/L	0.1	-	-	-	-	-	1.21	-	29.4	0.86	0.96	0.75	9.01	0.53	0.62	0.6	0.94	0.89	
Laboratory Work Order Number								B579341		B584163	B5A0147	B577997	B598984	B621096	B577997	B598984	B598984	B621096	B621096	

**Notes:**

- <sup>1</sup> Environment Canada (Revised March 2014). Guidance Document on Federal Interim Groundwater Quality Guidelines (FIGQG) for Federal Contaminated Sites, Tier 1 guidelines for fine and coarse grained soil under Commercial/Industrial land use
- <sup>2</sup> Canadian Council of Ministers of the Environment (CCME) (Updated 2014). Canadian Water Quality Guidelines for the Protection of Aquatic Life (Freshwater)
- <sup>3</sup> Environment Act. Contaminated Sites Regulation (CSR) (2002). Schedule 3, Generic Numerical Water Standards for Aquatic Life (AW)
- <sup>4</sup> Maximum increase of 25 mg/L from background levels
- <sup>5</sup> Standard varies with pH and temperature. Values shown based on field pH range of 6.06 to 8.10 and temperature range of -1 °C to 3.2 °C
- <sup>6</sup> Guideline varies with pH. Values shown based on field pH range of 6.06 to 8.10
- <sup>7</sup> Guideline varies with chloride. Values shown based on chloride range of <0.50 mg/L to 3.2 mg/L
- <sup>8</sup> Guideline applied is for ultra-oligotrophic
- <sup>9</sup> Guideline varies with hardness. Value shown based on hardness range of 147 mg/L to 2530 mg/L for total metals, and 78.9 mg/L to 212 mg/L for dissolved metals
- <sup>10</sup> Guideline is for Chromium VI
- \*- No applicable standard or not analyzed
- Shaded - Greater than Federal Interim Guideline
- BOLD** - Greater than CCME AW Guideline
- Underlined - Greater than Yukon CSR Guideline
- RED** - Greater than current Site Water Licence QZ97-026

Table 5B: Groundwater Analytical Results, Zone 2 (Class C Storage Facility and Overburden Stockpile)

Parameter	Unit	RDL	Water Use Licence QZ97-026 Part E - Effluent Quality Standards	Federal Interim Guideline - Commercial/Industrial <sup>1</sup>		CCME - AW (Freshwater) <sup>2</sup>	Well ID Aquifer & Approx. Sample Depth (mbg) Yukon CSR - AW (Freshwater) <sup>3</sup>	MW15-04S				MW15-04D				MW15-05D			MW15-06
				Fine	Coarse			Overburden 12.65				Bedrock 30				Bedrock 26.1			Overburden 7.95
								MW15-04S	DUP03	MW15-04S	MW15-04S	MW15-04D	MW15-04D	DUP01	MW15-04D	MW15-05D	MW15-05D	MW15-05D	MW15-06
				4-Sep-2015	31-Oct-2015			13-Mar-2016	4-Sep-2015	31-Oct-2015	13-Mar-2016	7-Sep-2015	2-Nov-2015	13-Mar-2016	7-Sep-2015				
<b>Total Metals</b>																			
Aluminum	µg/L	0.5	-	5, 100 <sup>6</sup>	5, 100 <sup>6</sup>	5, 100 <sup>6</sup>	-	38000	32900	68500	43500	54000	86500	65500	938	31300	1630	3270	835
Antimony	µg/L	0.02	-	2000	2000	-	200	0.26	0.266	0.323	0.31	<0.205	0.285	0.277	<0.050	0.082	<0.050	0.054	<0.050
Arsenic	µg/L	0.02	50	5	5	5	50	40.2	39.4	55.7	31.5	120	184	207	5.89	7.49	1.01	1.43	0.546
Barium	µg/L	0.02	-	500	500	-	10,000	674	569	1790	800	5280	4520	3840	87.7	231	79.3	112	86.8
Beryllium	µg/L	0.01	-	5.3	5.3	-	53	1.09	1.01	2.48	1.73	1.41	4.18	2.88	0.094	7.96	0.502	0.858	0.034
Bismuth	µg/L	0.005	-	-	-	-	-	1.11	0.944	2.07	1.1	0.79	1.31	1.17	0.03	1.92	0.154	0.213	0.021
Boron	µg/L	10	-	5000	5000	1500	50,000	<250	<50	<50	<50	<250	<50	<50	<50	<50	<50	<50	<50
Cadmium	µg/L	0.005	7	0.017	0.017	0.09	0.5-0.6 <sup>9</sup>	1.62	1.42	3.97	1.94	3.46	10	6.36	0.074	0.532	0.151	0.594	0.292
Calcium	µg/L	50	-	-	-	-	-	78300	75700	248000	75600	198000	910000	512000	50100	109000	82600	75600	68000
Chromium	µg/L	0.1	-	8.9	8.9	1 <sup>10</sup>	10 <sup>10</sup>	105	91.8	215	128	313	978	698	4.49	9.76	0.95	2.59	2.29
Cobalt	µg/L	0.005	-	-	-	-	9	54.7	47.4	120	60.3	295	356	327	3.16	8.76	0.962	3.35	1.02
Copper	µg/L	0.05	15	3.2-4.0 <sup>9</sup>	3.2-4.0 <sup>9</sup>	3.2-4.0 <sup>9</sup>	60-90 <sup>9</sup>	182	153	502	343	419	944	736	6.02	56.4	8.1	13.9	6.29
Iron	µg/L	1	-	300	300	300	-	81800	68700	130000	94900	190000	264000	194000	2790	16500	1540	3550	1630
Lead	µg/L	0.005	26	5.2-7.0 <sup>9</sup>	5.2-7.0 <sup>9</sup>	5.2-7.0 <sup>9</sup>	60-160 <sup>9</sup>	86.7	79.7	230	92.3	93.8	338	195	2.02	98.6	17.7	42.8	2.22
Lithium	µg/L	0.5	-	-	-	-	-	25.9	25	49.4	30	41	93.8	60.1	1.43	16.7	2.38	3.13	2.38
Magnesium	µg/L	50	-	-	-	-	-	28600	23300	44800	28900	36800	61200	44400	5240	16200	9900	8140	6480
Manganese	µg/L	0.05	-	-	-	-	-	2010	1750	4820	2160	3730	10800	6530	245	427	69.4	264	21.4
Mercury	µg/L	0.002	-	0.016	0.016	0.026	1	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Molybdenum	µg/L	0.05	-	73	73	73	10,000	5.24	5.75	6.73	3.97	5.91	34.3	27.7	2.42	1.46	0.997	0.32	3.14
Nickel	µg/L	0.02	-	128-150 <sup>9</sup>	128-150 <sup>9</sup>	128-150 <sup>9</sup>	1100-1500 <sup>9</sup>	121	106	238	134	573	794	695	6.09	13.4	1.89	3.22	4.3
Phosphorus	µg/L	2	-	-	-	4 <sup>8</sup>	-	1750	1580	8770	2000	3390	27800	19000	93	288	55	100	47
Potassium	µg/L	50	-	-	-	-	-	11600	10300	19100	10500	11200	22100	14700	2410	10500	6830	2420	2100
Selenium	µg/L	0.04	15	1	1	1	10	0.7	0.849	1	0.972	5.86	2.78	4.16	0.117	2.94	2.19	1.41	2.14
Silicon	µg/L	50	-	-	-	-	-	42100	39900	74900	59300	49200	92300	72200	4060	69500	5060	7120	4390
Silver	µg/L	0.005	-	0.1	0.1	0.25	15 <sup>9</sup>	6.64	4.76	17.4	6.43	6.8	12.9	17.5	0.161	0.552	0.123	0.796	0.032
Sodium	µg/L	50	-	-	-	-	-	2000	1970	2450	2730	2800	8800	7760	1620	39500	5020	3110	1260
Strontium	µg/L	0.05	-	-	-	-	-	354	340	1100	336	932	3720	2120	205	690	320	319	217
Sulphur	µg/L	3000	-	-	-	-	-	<75,000	<15,000	<15,000	<15,000	<75,000	19000	<15,000	<15,000	<15,000	<15,000	<15,000	<15,000
Thallium	µg/L	0.002	-	0.8	0.8	0.8	3	0.834	0.716	1.34	0.73	0.976	1.61	1.11	0.018	0.523	0.1	0.045	0.02
Tin	µg/L	0.2	-	-	-	-	-	1.6	1.43	1.8	1.76	1.5	3.11	3.23	0.21	0.81	0.22	<0.20	<0.20
Titanium	µg/L	0.5	-	100	100	-	1000	1470	1300	2160	1180	323	1030	574	19.4	28.7	13.8	<5.0	44
Uranium	µg/L	0.002	-	15	15	15	3000	3.29	3.02	8.25	4.18	9.46	20.5	17.4	1.09	16.5	3.9	3.44	2.84
Vanadium	µg/L	0.2	-	-	-	-	-	121	107	180	147	78	150	108	1.43	18	1.01	3.29	3.41
Zinc	µg/L	0.1	110	10	10	30	900-2400 <sup>9</sup>	320	256	704	414	514	1140	849	8.4	116	17.8	46.4	18.5
Zirconium	µg/L	0.1	-	-	-	-	-	8.41	10.4	14.3	4.11	16.4	6.68	11.4	1.14	0.29	0.4	0.18	0.15
Laboratory Work Order Number								B577997	B577997	B598984	B621096	B577997	B598984	B598984	B621096	B579341	B598984	B621096	B579341

Notes:

- <sup>1</sup> Environment Canada (Revised March 2014). Guidance Document on Federal Interim Groundwater Quality Guidelines (FIGQG) for Federal Contaminated Sites, Tier 1 guidelines for fine and coarse grained soil under Commercial/Industrial land use
  - <sup>2</sup> Canadian Council of Ministers of the Environment (CCME) (Updated 2014). Canadian Water Quality Guidelines for the Protection of Aquatic Life (Freshwater)
  - <sup>3</sup> Environment Act. Contaminated Sites Regulation (CSR) (2002). Schedule 3, Generic Numerical Water Standards for Aquatic Life (AW)
  - <sup>4</sup> Maximum increase of 25 mg/L from background levels
  - <sup>5</sup> Standard varies with pH and temperature. Values shown based on field pH range of 6.06 to 8.10 and temperature range of -1 °C to 3.2 °C
  - <sup>6</sup> Guideline varies with pH. Values shown based on field pH range of 6.06 to 8.10
  - <sup>7</sup> Guideline varies with chloride. Values shown based on chloride range of <0.50 mg/L to 3.2 mg/L
  - <sup>8</sup> Guideline applied is for ultra-oligotrophic
  - <sup>9</sup> Guideline varies with hardness. Value shown based on hardness range of 147 mg/L to 2530 mg/L for total metals, and 78.9 mg/L to 212 mg/L for dissolved metals
  - <sup>10</sup> Guideline is for Chromium VI
  - \*- No applicable standard or not analyzed
- Shaded - Greater than Federal Interim Guideline  
 BOLD - Greater than CCME AW Guideline  
 Underlined - Greater than Yukon CSR Guideline  
 RED - Greater than current Site Water Licence QZ97-026



Table 5B: Groundwater Analytical Results, Zone 2 (Class C Storage Facility and Overburden Stockpile)

Parameter	Unit	RDL	Water Use Licence QZ97-026	Federal Interim Guideline - Commercial/Industrial <sup>1</sup>		CCME - AW (Freshwater) <sup>2</sup>	Well ID	Statistical Analysis											
				Part E - Effluent Quality Standards	Fine			Coarse	Aquifer & Approx. Sample Depth (mbg)	Overburden					Bedrock				
										Yukon CSR - AW (Freshwater) <sup>3</sup>	MIN	MAX	MEDIAN	MEAN	STDV	90th PERCENTILE	MIN	MAX	MEDIAN
<b>Total Metals</b>																			
Aluminum	µg/L	0.5	-	5, 100 <sup>6</sup>	5, 100 <sup>6</sup>	5, 100 <sup>6</sup>	-	835	68500	38000	28645.00	26173.09	53500	13.8	86500	1307	17330.84	29135.89	58800.00
Antimony	µg/L	0.02	-	2000	2000	-	200	<0.05	0.752	0.26	0.29	0.23	0.4946	<0.05	3.25	0.235	0.65	0.98	1.86
Arsenic	µg/L	0.02	50	5	5	5	50	0.546	55.7	31.5	27.67	24.04	55.46	0.647	184	2.335	33.07	61.38	123.60
Barium	µg/L	0.02	-	500	500	-	10,000	86.8	1790	597	592.00	609.43	1196	46.5	5280	89.4	940.61	1779.38	3612.00
Beryllium	µg/L	0.01	-	5.3	5.3	-	53	0.034	2.48	1.09	1.06	0.94	2.03	<0.01	7.96	0.115	1.22	2.26	3.32
Bismuth	µg/L	0.005	-	-	-	-	-	0.021	2.07	0.936	0.77	0.76	1.494	<0.005	2.89	0.094	0.55	0.89	1.75
Boron	µg/L	10	-	5000	5000	1500	50,000	<50	250	50	78.57	75.59	130	<10	250	50	52.86	59.67	98.00
Cadmium	µg/L	0.005	7	0.017	0.017	0.09	0.5-0.6 <sup>9</sup>	0.145	3.97	1.62	1.53	1.42	3.088	<0.005	10	0.1905	1.59	3.03	5.25
Calcium	µg/L	50	-	-	-	-	-	49700	248000	75600	94500.00	69306.71	153920	50100	910000	60350	137164.29	225913.95	180368.00
Chromium	µg/L	0.1	-	8.9	8.9	1 <sup>10</sup>	10 <sup>10</sup>	2.29	254	105	106.67	99.58	230.6	<0.1	978	2.075	108.16	267.42	280.04
Cobalt	µg/L	0.005	-	-	-	-	9	1.02	120	54.7	44.48	43.82	87.3	0.145	356	2.435	66.45	127.66	274.60
Copper	µg/L	0.05	15	3.2-4.0 <sup>9</sup>	3.2-4.0 <sup>9</sup>	3.2-4.0 <sup>9</sup>	60-90 <sup>9</sup>	6.29	502	182	205.57	197.11	412.6	0.143	1420	7.965	212.99	435.21	734.00
Iron	µg/L	1	-	300	300	300	-	1630	134000	81800	66447.14	57606.81	131600	433	264000	2165	51843.93	96333.60	212800.00
Lead	µg/L	0.005	26	5.2-7.0 <sup>9</sup>	5.2-7.0 <sup>9</sup>	5.2-7.0 <sup>9</sup>	60-160 <sup>9</sup>	2.22	230	86.7	79.21	82.49	167	0.053	561	10.815	88.54	163.25	269.60
Lithium	µg/L	0.5	-	-	-	-	-	2.38	49.4	25.9	22.94	19.15	45.32	1.43	93.8	6.07	17.05	26.25	45.31
Magnesium	µg/L	50	-	-	-	-	-	6140	44800	28600	22841.43	15767.98	39820	3740	61200	15400	19277.14	16301.57	41488.00
Manganese	µg/L	0.05	-	-	-	-	-	21.4	4820	2010	1695.91	1689.82	3290	56.4	10800	163.25	1395.46	2965.28	3554.00
Mercury	µg/L	0.002	-	0.016	0.016	0.026	1	<0.002	<0.002	-	-	-	-	<0.002	<0.002	-	-	-	-
Molybdenum	µg/L	0.05	-	73	73	73	10,000	3.14	21	6.73	8.40	6.19	15.3	0.32	34.3	3.27	5.25	8.53	11.54
Nickel	µg/L	0.02	-	128-150 <sup>9</sup>	128-150 <sup>9</sup>	128-150 <sup>9</sup>	1100-1500 <sup>9</sup>	4.3	238	121	103.11	90.84	205.6	0.45	794	3.175	135.11	266.61	531.40
Phosphorus	µg/L	2	-	-	-	4 <sup>8</sup>	-	47	8770	1750	2470.86	3112.24	5956	7.9	27800	96.5	2574.59	7373.41	5125.60
Potassium	µg/L	50	-	-	-	-	-	2000	19100	9160	8212.86	6307.26	14600	2100	22100	2695	5938.57	6402.67	16220.00
Selenium	µg/L	0.04	15	1	1	1	10	0.199	2.14	0.7	0.87	0.63	1.456	<0.04	5.86	1.415	1.66	1.82	3.78
Silicon	µg/L	50	-	-	-	-	-	4390	74900	42100	36687.14	29052.02	65540	4040	92300	5460	23915.00	31974.87	71300.00
Silver	µg/L	0.005	-	0.1	0.1	0.25	15 <sup>9</sup>	0.032	23.5	6.43	7.79	9.27	19.84	<0.005	12.9	0.2335	2.52	4.74	12.90
Sodium	µg/L	50	-	-	-	-	-	1260	14300	2450	4017.14	4584.56	7772	922	39500	2440	5529.43	9968.61	8388.80
Strontium	µg/L	0.05	-	-	-	-	-	140	1100	311	371.71	332.96	652.4	192	3720	275	595.71	922.98	835.20
Sulphur	µg/L	3000	-	-	-	-	-	<15000	75000	15000	23571.43	22677.87	39000	6800	75000	15000	17714.29	16842.52	31000.00
Thallium	µg/L	0.002	-	0.8	0.8	0.8	3	0.02	1.34	0.584	0.52	0.49	1.0364	<0.002	1.61	0.0275	0.30	0.51	1.01
Tin	µg/L	0.2	-	-	-	-	-	<0.2	2.65	1.6	1.26	0.93	2.14	<0.2	4.71	0.215	0.89	1.37	2.72
Titanium	µg/L	0.5	-	100	100	-	1000	44	2160	1180	959.86	847.56	1812	<0.5	3040	16.6	332.36	826.64	1499.20
Uranium	µg/L	0.002	-	15	15	15	3000	1.07	8.25	3.29	3.79	2.51	6.642	1.09	20.5	2.83	5.45	5.99	13.68
Vanadium	µg/L	0.2	-	-	-	-	-	3.41	180	121	89.29	77.67	163.2	<0.2	382	1.97	46.96	105.38	157.92
Zinc	µg/L	0.1	110	10	10	30	900-2400 <sup>9</sup>	18.5	704	320	285.09	264.27	560	0.59	1140	23.75	204.82	379.48	785.60
Zirconium	µg/L	0.1	-	-	-	-	-	0.15	14.3	4.11	5.38	5.35	11.126	0.18	29.4	0.875	4.30	8.44	14.29
<b>Laboratory Work Order Number</b>																			

**Notes:**

<sup>1</sup> Environment Canada (Revised March 2014). Guidance Document on Federal Interim Groundwater Quality Guidelines (FIGQG) for Federal Contaminated Sites, Tier 1 guidelines for fine and coarse grained soil under Commercial/Industrial land use

<sup>2</sup> Canadian Council of Ministers of the Environment (CCME) (Updated 2014). Canadian Water Quality Guidelines for the Protection of Aquatic Life (Freshwater)

<sup>3</sup> Environment Act. Contaminated Sites Regulation (CSR) (2002). Schedule 3, Generic Numerical Water Standards for Aquatic Life (AW)

<sup>4</sup> Maximum increase of 25 mg/L from background levels

<sup>5</sup> Standard varies with pH and temperature. Values shown based on field pH range of 6.06 to 8.10 and temperature range of -1 °C to 3.2 °C

<sup>6</sup> Guideline varies with pH. Values shown based on field pH range of 6.06 to 8.10

<sup>7</sup> Guideline varies with chloride. Values shown based on chloride range of <0.50 mg/L to 3.2 mg/L

<sup>8</sup> Guideline applied is for ultra-oligotrophic

<sup>9</sup> Guideline varies with hardness. Value shown based on hardness range of 147 mg/L to 2530 mg/L for total metals, and 78.9 mg/L to 212 mg/L for dissolved metals

<sup>10</sup> Guideline is for Chromium VI

-\*- No applicable standard or not analyzed

**Shaded** - Greater than Federal Interim Guideline

**BOLD** - Greater than CCME AW Guideline

**Underlined** - Greater than Yukon CSR Guideline

**RED** - Greater than current Site Water Licence QZ97-026

Table 5C: Groundwater Analytical Results, Zone 3(Class B Storage Facility)

Parameter	Unit	RDL	Water Use Licence QZ97-026	Federal Interim Guideline - Commercial/Industrial <sup>1</sup>		CCME - AW (Freshwater) <sup>2</sup>	Well ID	BH95G-32				BH95G-33D			
				Aquifer & Approx. Sample Depth (mbg)	Bedrock 13.7				Bedrock 10.6						
					Yukon CSR - AW (Freshwater) <sup>3</sup>		BH95-32	BH95G-32	BH95G-32	BH95G-32	BH95G-33D	BH95G-33D	BNH95G-33D	BH95G-33D	
							13-May-2015	22-Sep-2015	5-Nov-2015	15-Mar-2016	13-May-2015	22-Sep-2015	3-Nov-2015	15-Mar-2016	
<b>Field</b>															
Field pH	pH Units		6.5-9	6.5-9	6.5-9	6.5-9	-	6.9	7.77	7.67	6.59	7.39	7.8	7.53	7.41
Field Electric Conductivity	µS/cm		-	-	-	-	-	411.1	430.4	373	417	454.2	486.8	452.6	462
Field Temperature	°C		-	-	-	-	-	1.2	-0.9	0.3	0.56	2.1	-0.2	-2.4	1.37
Field Dissolved Oxygen	mg/L		-	-	-	-	-	0	1.17	1.5	3.2	3.56	7.21	6.19	6.2
Field Redox	mV		-	-	-	-	-	-	-	-	25	-	-	-	17
<b>Physical Parameters</b>															
pH	pH Units		6.5-9	6.5-9	6.5-9	6.5-9	-	8.02	8.12	8.12	7.28	8.07	8.16	8.17	8.02
Acidity (pH 4.5)	µg/L	500	-	-	-	-	-	<500	<500	<500	<500	<500	<500	<500	<500
Acidity (pH 8.3)	µg/L	500	-	-	-	-	-	<500	<500	3180	1930	<500	<500	<500	<500
Electrical Conductivity (EC)	µS/cm	1	-	-	-	-	-	376	375	409	402	408	441	460	447
Total Dissolved Solids (TDS)	µg/L	1000	-	-	-	-	-	232000	246000	244000	274000	280000	286000	326000	300000
Total Suspended Solids (TSS)	µg/L	1000	15,000	-	-	See note <sup>4</sup>	-	-	3050000	301000	574000	-	900000	1290000	954000
Hardness as CaCO <sub>3</sub>	mg/L	0.5	-	-	-	-	-	528	433	215	265	430	308	335	275
Dissolved Hardness	mg/L	0.5	-	-	-	-	-	201	196	202	189	230	257	255	235
Alkalinity (total as CaCO <sub>3</sub> )	µg/L	500	-	-	-	-	-	158000	159000	179000	589000	152000	165000	173000	176000
Alkalinity (pp as CaCO <sub>3</sub> )	µg/L	500	-	-	-	-	-	<500	<500	<500	<500	<500	<500	<500	<500
Bicarbonate	µg/L	500	-	-	-	-	-	193000	193000	219000	718000	186000	201000	211000	215000
Carbonate	µg/L	500	-	-	-	-	-	<500	<500	<500	<500	<500	<500	<500	<500
Hydroxide	µg/L	500	-	-	-	-	-	<500	<500	<500	<500	<500	<500	<500	<500
Chloride	mg/L	0.5	-	120	120	120	-	<0.50	0.55	0.75	<0.50	<0.50	0.83	0.78	<0.50
Fluoride	µg/L	10	-	120	120	120	3000	40	41	39	32	61	53	55	45
Sulphate	mg/L	0.5	-	100	100	-	1000	35.7	33.3	34.4	34.3	62.3	64.7	68.6	62.3
Orthophosphate (as P)	µg/L	1	-	-	-	-	-	<1.0	5.6	2.6	19	<1.0	3.8	2.4	11
Turbidity	NTU	0.1	-	-	-	-	-	2570	1950	251	-	2140	561	598	-
Anions Total	meq/L		-	-	-	-	-	3.9	-	4.3	-	4.4	-	4.9	-
Cations Total	meq/L		-	-	-	-	-	4.2	-	4.2	-	4.7	-	5.2	-
Ionic Balance	N/A	0.01	-	-	-	-	-	1.1	1.1	0.97	0.31	1.1	1.1	1	0.98
<b>Nutrients</b>															
Ammonia	µg/L	5	2500	749-231,000 <sup>5</sup>	749-231,000 <sup>5</sup>	749-231,000 <sup>5</sup>	1310-18,500 <sup>6</sup>	290	140	29	58	120	32	19	44
Total Kjeldahl Nitrogen (TKN)	µg/L	20	-	-	-	-	-	830	146	76	109	530	80	89	75
Nitrate (as NO <sub>3</sub> -N)	µg/L	2	-	13,000	13,000	13,000	400,000	52.4	44.3	51.2	51.5	177	191	213	205
Nitrite (as NO <sub>2</sub> -N)	µg/L	2	-	60	60	60	200 <sup>7</sup>	<2.0	<2.0	2.1	5.8	<2.0	<2.0	2.2	3.1
Nitrate and Nitrite (as N)	µg/L	2	-	-	-	-	400,000	52.4	44.3	53.3	57.3	177	191	216	209
Nitrogen (Total)	µg/L	20	-	-	-	-	-	880	191	129	166	710	271	304	284
Phosphorus, total	µg/L	2	-	-	-	-	-	4340	2130	454	860	<2.0	832	151	2670

**Notes:**

- <sup>1</sup> Environment Canada (Revised March 2014). Guidance Document on Federal Interim Groundwater Quality Guidelines (FIGQG) for Federal Contaminated Sites, Tier 1 guidelines for fine and coarse grained soil under Commercial/Industrial land use
  - <sup>2</sup> Canadian Council of Ministers of the Environment (CCME) (Updated 2014). Canadian Water Quality Guidelines for the Protection of Aquatic Life (Freshwater)
  - <sup>3</sup> Environment Act. Contaminated Sites Regulation (CSR) (2002). Schedule 3, Generic Numerical Water Standards for Aquatic Life (AW)
  - <sup>4</sup> Maximum increase of 25 mg/L from background levels
  - <sup>5</sup> Standard varies with pH and temperature. Values shown based on field pH range of 6.59 to 8.50 and temperature range of -2.4 °C to 2.4 °C
  - <sup>6</sup> Guideline varies with pH. Values shown based on field pH range of 6.59 to 8.50
  - <sup>7</sup> Guideline varies with chloride. Values shown based on chloride range of <0.50 mg/L to 1.4 mg/L
  - <sup>8</sup> Guideline applied is for ultra-oligotrophic
  - <sup>9</sup> Guideline varies with hardness. Value shown based on hardness range of 215 mg/L to 1010 mg/L for total metals, and 181 mg/L to 296 mg/L for dissolved metals
  - <sup>10</sup> Guideline is for Chromium VI
- " No applicable standard or not analyzed  
 Shaded - Greater than Federal Interim Guideline  
 BOLD - Greater than CCME AW Guideline  
 Underlined - Greater than Yukon CSR Guideline  
 RED - Greater than current Site Water Licence QZ97-026

Table 5C: Groundwater Analytical Results, Zone 3(Class B Storage Facility)

Parameter	Unit	RDL	Water Use Licence QZ97-026 Part E - Effluent Quality Standards	Federal Interim Guideline - Commercial/Industrial <sup>1</sup>		CCME - AW (Freshwater) <sup>2</sup>	Well ID	MW15-01				MW15-02	Statistical Analysis					
				Aquifer & Approx. Sample Depth (mbg)	Bedrock 14.4				Bedrock 27.35	Bedrock								
					Yukon CSR - AW (Freshwater) <sup>3</sup>		MW15-01	DUP02		MW15-01	MW15-01	MW15-02	MIN	MAX	MEDIAN	MEAN	STDV	90th PERCENTILE
							1-Sep-2015	1-Sep-2015	1-Nov-2015	15-Mar-2016	1-Sep-2015							
<b>Field</b>																		
Field pH	pH Units		6.5-9	6.5-9	6.5-9	6.5-9	-	7.62	-	8.5	7.56	7.37	6.59	8.5	7.545	7.509	0.470	7.797
Field Electric Conductivity	µS/cm		-	-	-	-	-	353.7	-	394	572	483.2	353.7	572	441.5	440.833	59	486
Field Temperature	°C		-	-	-	-	-	-1.9	-	-0.1	0.3	-0.7	-2.4	2.1	0.1	-0.031	1.312	1.353
Field Dissolved Oxygen	mg/L		-	-	-	-	-	11.39	-	2.7	7.2	5.77	0	11.39	4.665	4.674	3.237	7.209
Field Redox	mV		-	-	-	-	-	-	-	-	11	-	11	25	17	17.667	7.024	23.400
<b>Physical Parameters</b>																		
pH	pH Units		6.5-9	6.5-9	6.5-9	6.5-9	-	8.16	8.00	8.19	8.07	7.94	7.28	8.19	8.07	8.025	0.236	8.168
Acidity (pH 4.5)	µg/L	500	-	-	-	-	-	<500	<500	<500	<500	<500	<500	<500	-	-	-	-
Acidity (pH 8.3)	µg/L	500	-	-	-	-	-	<500	<500	3190	<500	<500	<500	3190	500	1066.67	1071	3055
Electrical Conductivity (EC)	µS/cm	1	-	-	-	-	-	432	428	459	551	323	323	551	428	423.92	54	460
Total Dissolved Solids (TDS)	µg/L	1000	-	-	-	-	-	286000	274000	344000	370000	206000	206000	370000	280000	282153.85	45669	340400
Total Suspended Solids (TSS)	µg/L	1000	15,000	-	-	See note <sup>4</sup>	-	<1000	1000	1910000	179000	410000	<1000	3050000	574000	870000.00	928931	1910000
Hardness as CaCO <sub>3</sub>	mg/L	0.5	-	-	-	-	-	233	233	1010	1010	232	215	1010	308	370.77	214	509
Dissolved Hardness	mg/L	0.5	-	-	-	-	-	239	243	251	296	181	181	296	235	228.85	33	257
Alkalinity (total as CaCO <sub>3</sub> )	µg/L	500	-	-	-	-	-	179000	174000	147000	156000	130000	130000	589000	165000	195153.85	119198	179000
Alkalinity (pp as CaCO <sub>3</sub> )	µg/L	500	-	-	-	-	-	<500	<500	<500	<500	<500	<500	<500	-	500.00	-	-
Bicarbonate	µg/L	500	-	-	-	-	-	218000	213000	179000	191000	159000	159000	718000	201000	238153.85	145229	218800
Carbonate	µg/L	500	-	-	-	-	-	<500	<500	<500	<500	<500	<500	<500	-	500.00	-	-
Hydroxide	µg/L	500	-	-	-	-	-	<500	<500	<500	<500	<500	<500	<500	-	500.00	-	-
Chloride	mg/L	0.5	-	120	120	120	-	0.8	0.8	1.4	<0.50	0.68	<0.5	1.4	0.68	0.70	0.251	0.824
Fluoride	µg/L	10	-	120	120	120	-	94	93	86	94	89	32	94	55	63.23	24.270	93.800
Sulphate	mg/L	0.5	-	100	100	100	-	1000	52.1	50.6	94.3	138	37.4	33.3	138	52.1	59.08	29.772
Orthophosphate (as P)	µg/L	1	-	-	-	-	-	<1.0	<1.0	1.1	8.3	7.2	<1	19	2.6	5.00	5.333	10.460
Turbidity	NTU	0.1	-	-	-	-	-	0.27	0.24	4000	-	291	0.24	4000	579.5	1236.15	1355	2713
Anions Total	meq/L		-	-	-	-	-	4.7	4.6	5	-	3.4	-	-	-	-	-	-
Cations Total	meq/L		-	-	-	-	-	4.9	5	5.1	-	3.7	-	-	-	-	-	-
Ionic Balance	N/A	0.01	-	-	-	-	-	1	1.1	1	1	1.1	-	-	-	-	-	-
<b>Nutrients</b>																		
Ammonia	µg/L	5	2500	749-231,000 <sup>5</sup>	749-231,000 <sup>5</sup>	749-231,000 <sup>5</sup>	1310-18,500 <sup>6</sup>	7.3	<5	86	44	19	<5	290	44	68.72	78.535	136.000
Total Kjeldahl Nitrogen (TKN)	µg/L	20	-	-	-	-	-	78	113	103	83	173	75	830	103	191.15	227.300	458.600
Nitrate (as NO <sub>3</sub> -N)	µg/L	2	-	13,000	13,000	13,000	400,000	189	191	392	231	399	44.3	399	191	183.65	117.323	359.800
Nitrite (as NO <sub>2</sub> -N)	µg/L	2	-	60	60	60	200 <sup>7</sup>	<2.0	<2.0	<2.0	<2.0	<2.0	<2	5.8	2	2.40	1.065	2.920
Nitrate and Nitrite (as N)	µg/L	2	-	-	-	-	400,000	189	191	392	231	399	44.3	399	191	184.79	116.719	359.800
Nitrogen (Total)	µg/L	20	-	-	-	-	-	268	305	495	313	572	129	880	304	376.00	224.134	682.400
Phosphorus, total	µg/L	2	-	-	-	-	-	2.9	3.2	7340	219	612	<2	7340	612	1508.93	2176.789	4006.000

**Notes:**  
<sup>1</sup> Environment Canada (Revised March 2014). Guidance Document on Federal Interim Groundwater Quality Guidelines (FIGQG) for Federal Contaminated Sites, Tier 1 guidelines for fine and coarse grained soil under Commercial/Industrial land use  
<sup>2</sup> Canadian Council of Ministers of the Environment (CCME) (Updated 2014). Canadian Water Quality Guidelines for the Protection of Aquatic Life (Freshwater)  
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<sup>4</sup> Maximum increase of 25 mg/L from background levels  
<sup>5</sup> Standard varies with pH and temperature. Values shown based on field pH range of 6.59 to 8.50 and temperature range of -2.4 °C to 2.4 °C  
<sup>6</sup> Guideline varies with pH. Values shown based on field pH range of 6.59 to 8.50  
<sup>7</sup> Guideline varies with chloride. Values shown based on chloride range of <0.50 mg/L to 1.4 mg/L  
<sup>8</sup> Guideline applied is for ultra-oligotrophic  
<sup>9</sup> Guideline varies with hardness. Value shown based on hardness range of 215 mg/L to 1010 mg/L for total metals, and 181 mg/L to 296 mg/L for dissolved metals  
<sup>10</sup> Guideline is for Chromium VI  
 -\* No applicable standard or not analyzed  
 Shaded - Greater than Federal Interim Guideline  
 BOLD - Greater than CCME AW Guideline  
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Table 5C: Groundwater Analytical Results, Zone 3(Class B Storage Facility)

Parameter	Unit	RDL	Water Use Licence QZ97-026	Federal Interim Guideline - Commercial/Industrial <sup>1</sup>		CCME - AW (Freshwater) <sup>2</sup>	Well ID	BH95G-32				BH95G-33D			
				Aquifer & Approx. Sample Depth (mbg)	Bedrock 13.7				Bedrock 10.6						
					Yukon CSR - AW (Freshwater) <sup>3</sup>		BH95-32	BH95G-32	BH95G-32	BH95G-32	BH95G-33D	BH95G-33D	BNH95G-33D	BH95G-33D	
							13-May-2015	22-Sep-2015	5-Nov-2015	15-Mar-2016	13-May-2015	22-Sep-2015	3-Nov-2015	15-Mar-2016	
<b>Carbon</b>															
Dissolved Organic Carbon (DOC)	µg/L	500	-	-	-	-	-	-	-	-	1900	-	-	-	3080
Total Organic Carbon (TOC)	µg/L	500	-	-	-	-	-	1630	930	<500	-	1530	1400	1080	-
<b>Dissolved Metals</b>															
Aluminum	µg/L	0.5	-	100 <sup>6</sup>	100 <sup>6</sup>	100 <sup>6</sup>	-	2.02	2.69	14.2	4.36	1.26	1.2	1.99	5.06
Antimony	µg/L	0.02	-	2000	2000	-	200	0.227	0.118	0.033	0.045	<0.020	0.035	<0.020	0.025
Arsenic	µg/L	0.02	50	5	5	5	50	0.353	0.376	0.256	0.228	0.215	0.213	0.144	0.138
Barium	µg/L	0.02	-	500	500	-	10,000	168	171	176	186	82.4	86.4	98.2	92.3
Beryllium	µg/L	0.01	-	5.3	5.3	-	53	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Bismuth	µg/L	0.005	-	-	-	-	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Boron	µg/L	10	-	5000	5000	1500	50,000	<10	<10	<10	<10	<10	<10	<10	<10
Cadmium	µg/L	0.005	7	0.017	0.017	0.09	0.6 <sup>9</sup>	0.13	0.118	0.051	0.061	<0.0050	0.01	0.006	0.01
Calcium	µg/L	50	-	-	-	-	-	73400	71400	74300	68700	77500	87100	87200	79800
Chromium	µg/L	0.1	-	8.9	8.9	1 <sup>10</sup>	10 <sup>10</sup>	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.18
Cobalt	µg/L	0.005	-	-	-	-	9	0.438	0.469	0.279	0.221	0.0149	0.026	0.015	0.015
Copper	µg/L	0.05	15	4 <sup>9</sup>	4 <sup>9</sup>	4 <sup>9</sup>	80-90 <sup>9</sup>	0.111	0.147	0.305	0.593	0.132	0.2	0.36	0.226
Iron	µg/L	1	-	300	300	300	-	38.2	91.9	129	103	1.3	<1.0	4.2	1.4
Lead	µg/L	0.005	26	7.0 <sup>9</sup>	7.0 <sup>9</sup>	7.0 <sup>9</sup>	60-110 <sup>9</sup>	0.141	0.121	0.052	0.137	0.0062	<0.0050	0.011	0.016
Lithium	µg/L	0.5	-	-	-	-	-	1.61	1.1	1.19	1.59	1.26	1.08	1.11	1.33
Magnesium	µg/L	50	-	-	-	-	-	4240	4340	3930	4100	8820	9490	9170	8690
Manganese	µg/L	0.05	-	-	-	-	-	58.5	71.2	72.9	65.5	1.31	7.18	4.83	6.7
Mercury	µg/L	0.002	-	0.016	0.016	0.026	1	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Molybdenum	µg/L	0.05	-	73	73	73	10,000	0.714	0.736	-	0.762	1.24	1.18	1.2	1.26
Nickel	µg/L	0.02	-	150 <sup>9</sup>	150 <sup>9</sup>	150 <sup>9</sup>	1500 <sup>9</sup>	1.48	1.68	1.1	0.95	0.781	1.2	1.08	0.906
Phosphorus	µg/L	2	-	-	-	4 <sup>8</sup>	-	<2.0	2.2	<2.0	3	<2.0	4.4	4.5	2.3
Potassium	µg/L	50	-	-	-	-	-	4530	4560	4310	4330	1010	987	1050	1020
Selenium	µg/L	0.04	15	1	1	1	10	0.326	0.551	0.561	0.615	3.83	6.27	6.14	4.07
Silicon	µg/L	50	-	-	-	-	-	2540	2400	2090	2490	3030	3530	3520	3160
Silver	µg/L	0.005	-	0.1	0.1	0.25	15 <sup>9</sup>	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Sodium	µg/L	50	-	-	-	-	-	687	724	664	693	759	802	812	769
Strontium	µg/L	0.05	-	-	-	-	-	281	275	266	288	237	238	260	243
Sulphur	µg/L	3000	-	-	-	-	-	11800	11800	10700	10800	20400	21700	23000	22000
Thallium	µg/L	0.002	-	0.8	0.8	0.8	3	0.0235	0.009	0.006	0.005	<0.0020	0.002	<0.0020	<0.0020
Tin	µg/L	0.2	-	-	-	-	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.43
Titanium	µg/L	0.5	-	100	100	-	1000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Uranium	µg/L	0.002	-	15	15	15	3000	1.3	1.17	1.23	1.08	4.85	4.42	4.75	4.28
Vanadium	µg/L	0.2	-	-	-	-	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Zinc	µg/L	0.1	110	10	10	30	900-16500 <sup>9</sup>	0.57	1.42	2.18	3.33	0.4	1.17	1.82	1.23
Zirconium	µg/L	0.1	-	-	-	-	-	<0.10	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10

**Notes:**

- <sup>1</sup> Environment Canada (Revised March 2014). Guidance Document on Federal Interim Groundwater Quality Guidelines (FIGQG) for Federal Contaminated Sites, Tier 1 guidelines for fine and coarse grained soil under Commercial/Industrial land use
- <sup>2</sup> Canadian Council of Ministers of the Environment (CCME) (Updated 2014). Canadian Water Quality Guidelines for the Protection of Aquatic Life (Freshwater)
- <sup>3</sup> Environment Act. Contaminated Sites Regulation (CSR) (2002). Schedule 3, Generic Numerical Water Standards for Aquatic Life (AW)
- <sup>4</sup> Maximum increase of 25 mg/L from background levels
- <sup>5</sup> Standard varies with pH and temperature. Values shown based on field pH range of 6.59 to 8.50 and temperature range of -2.4 °C to 2.4 °C
- <sup>6</sup> Guideline varies with pH. Values shown based on field pH range of 6.59 to 8.50
- <sup>7</sup> Guideline varies with chloride. Values shown based on chloride range of <0.50 mg/L to 1.4 mg/L
- <sup>8</sup> Guideline applied is for ultra-oligotrophic
- <sup>9</sup> Guideline varies with hardness. Value shown based on hardness range of 215 mg/L to 1010 mg/L for total metals, and 181 mg/L to 296 mg/L for dissolved metals
- <sup>10</sup> Guideline is for Chromium VI
- \*- No applicable standard or not analyzed
- Shaded - Greater than Federal Interim Guideline
- BOLD - Greater than CCME AW Guideline
- Underlined - Greater than Yukon CSR Guideline
- RED - Greater than current Site Water Licence QZ97-026

Table 5C: Groundwater Analytical Results, Zone 3(Class B Storage Facility)

Parameter	Unit	RDL	Water Use Licence QZ97-026	Federal Interim Guideline - Commercial/Industrial <sup>1</sup>		CCME - AW (Freshwater) <sup>2</sup>	Well ID	MW15-01				MW15-02	Statistical Analysis					
				Aquifer & Approx. Sample Depth (mbg)	Bedrock 14.4				Bedrock 27.35	Bedrock								
					Yukon CSR - AW (Freshwater) <sup>3</sup>		MW15-01	DUP02	MW15-01	MW15-01	MW15-02	MIN	MAX	MEDIAN	MEAN	STDV	90th PERCENTILE	
Part E - Effluent Quality Standards	Fine	Coarse	1-Sep-2015	1-Sep-2015	1-Nov-2015	15-Mar-2016	1-Sep-2015											
<b>Carbon</b>																		
Dissolved Organic Carbon (DOC)	µg/L	500	-	-	-	-	-	-	-	-	1450	-	1450	3080	1900	2143.33	841.804	2844.000
Total Organic Carbon (TOC)	µg/L	500	-	-	-	-	-	540	<500	2300	-	1500	<500	2300	1240	1191.00	590.281	1697.000
<b>Dissolved Metals</b>																		
Aluminum	µg/L	0.5	-	100 <sup>6</sup>	100 <sup>6</sup>	100 <sup>6</sup>	-	6.36	3.08	9.21	2.93	5.99	1.2	14.2	3.08	4.64	3.693	8.640
Antimony	µg/L	0.02	-	2000	2000	-	200	<0.020	0.032	0.048	0.029	0.03	<0.02	0.227	0.032	0.05	0.058	0.104
Arsenic	µg/L	0.02	50	5	5	5	50	0.88	0.877	0.126	0.098	0.114	0.098	0.88	0.215	0.31	0.267	0.777
Barium	µg/L	0.02	-	500	500	-	10,000	96.6	97.9	22.4	38.8	15.9	15.9	186	96.6	102.45	57.859	175.000
Beryllium	µg/L	0.01	-	5.3	5.3	-	53	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<0.01	-	-	-	-
Bismuth	µg/L	0.005	-	-	-	-	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.005	<0.005	-	-	-	-
Boron	µg/L	10	-	5000	5000	1500	50,000	<10	<10	<10	<10	<10	<10	<10	-	-	-	-
Cadmium	µg/L	0.005	7	0.017	0.017	0.09	0.6 <sup>9</sup>	<0.0050	<0.0050	0.02	0.017	0.007	<0.005	0.13	0.01	0.034	0.044	0.107
Calcium	µg/L	50	-	-	-	-	-	77500	79000	85700	101000	61700	61700	101000	77500	78792.3	9928.5	87180.0
Chromium	µg/L	0.1	-	8.9	8.9	1 <sup>10</sup>	10 <sup>10</sup>	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	0.18	0.1	0.106	0.022	0.100
Cobalt	µg/L	0.005	-	-	-	-	9	0.04	0.038	0.076	0.069	0.04	0.0149	0.469	0.04	0.134	0.164	0.406
Copper	µg/L	0.05	15	4 <sup>9</sup>	4 <sup>9</sup>	4 <sup>9</sup>	80-90 <sup>9</sup>	0.072	0.062	0.49	0.417	0.613	0.062	0.613	0.226	0.287	0.193	0.572
Iron	µg/L	1	-	300	300	300	-	12.2	7.4	7.6	108	2.2	<1	129	7.6	39.031	49.416	107.000
Lead	µg/L	0.005	26	7.0 <sup>9</sup>	7.0 <sup>9</sup>	7.0 <sup>9</sup>	60-110 <sup>9</sup>	0.025	<0.0050	0.014	0.015	<0.0050	<0.005	0.141	0.015	0.043	0.053	0.134
Lithium	µg/L	0.5	-	-	-	-	-	1.75	1.75	1.13	2.29	1.14	1.08	2.29	1.26	1.410	0.365	1.750
Magnesium	µg/L	50	-	-	-	-	-	10900	11100	9010	10600	6490	3930	11100	8820	7760.000	2759.484	10840.000
Manganese	µg/L	0.05	-	-	-	-	-	1.9	1.83	5.41	11.2	2.85	1.31	72.9	6.7	23.947	30.184	70.060
Mercury	µg/L	0.002	-	0.016	0.016	0.026	1	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.002	<0.002	-	-	-	-
Molybdenum	µg/L	0.05	-	73	73	73	10,000	0.83	0.888	0.912	0.605	0.951	0.605	1.26	0.9	0.940	0.228	1.236
Nickel	µg/L	0.02	-	150 <sup>9</sup>	150 <sup>9</sup>	150 <sup>9</sup>	1500 <sup>9</sup>	0.167	0.154	0.512	0.414	0.346	0.154	1.68	0.906	0.828	0.487	1.424
Phosphorus	µg/L	2	-	-	-	4 <sup>8</sup>	-	4.6	2.9	2.8	5.5	4.2	<2	5.5	2.9	3.262	1.216	4.580
Potassium	µg/L	50	-	-	-	-	-	2430	2410	633	841	519	519	4560	1050	2202.308	1653.656	4490.000
Selenium	µg/L	0.04	15	1	1	1	10	1.5	1.61	0.579	0.788	0.371	0.326	6.27	0.788	2.093	2.205	5.726
Silicon	µg/L	50	-	-	-	-	-	2480	2530	1990	2370	1960	1960	3530	2490	2622.308	530.175	3448.000
Silver	µg/L	0.005	-	0.1	0.1	0.25	15 <sup>9</sup>	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.005	<0.005	-	-	-	-
Sodium	µg/L	50	-	-	-	-	-	715	740	1320	1470	843	664	1470	759	846.000	250.956	1224.600
Strontium	µg/L	0.05	-	-	-	-	-	297	297	217	303	157	157	303	266	258.385	40.619	297.000
Sulphur	µg/L	3000	-	-	-	-	-	18800	17600	31500	48300	13800	10700	48300	18800	20169.231	10408.601	29800.000
Thallium	µg/L	0.002	-	0.8	0.8	0.8	3	<0.0020	<0.0020	0.002	<0.0020	0.002	<0.002	0.0235	0.002	0.005	0.006	0.008
Tin	µg/L	0.2	-	-	-	-	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.2	0.43	0.2	0.218	0.064	0.200
Titanium	µg/L	0.5	-	100	100	-	1000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.5	<0.5	-	-	-	-
Uranium	µg/L	0.002	-	15	15	15	3000	3.02	2.99	3.77	3.7	1.76	1.08	4.85	3.02	2.948	1.466	4.684
Vanadium	µg/L	0.2	-	-	-	-	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.2	<0.2	-	-	-	-
Zinc	µg/L	0.1	110	10	10	30	900-16500 <sup>9</sup>	0.31	0.25	2.26	5.03	0.71	0.25	5.03	1.23	1.591	1.376	3.116
Zirconium	µg/L	0.1	-	-	-	-	-	<0.10	<0.10	0.14	<0.10	<0.10	<0.1	0.14	0.1	0.103	0.011	0.100

**Notes:**  
<sup>1</sup> Environment Canada (Revised March 2014). Guidance Document on Federal Interim Groundwater Quality Guidelines (FIGQG) for Federal Contaminated Sites, Tier 1 guidelines for fine and coarse grained soil under Commercial/Industrial land use  
<sup>2</sup> Canadian Council of Ministers of the Environment (CCME) (Updated 2014). Canadian Water Quality Guidelines for the Protection of Aquatic Life (Freshwater)  
<sup>3</sup> Environment Act. Contaminated Sites Regulation (CSR) (2002). Schedule 3, Generic Numerical Water Standards for Aquatic Life (AW)  
<sup>4</sup> Maximum increase of 25 mg/L from background levels  
<sup>5</sup> Standard varies with pH and temperature. Values shown based on field pH range of 6.59 to 8.50 and temperature range of -2.4 °C to 2.4 °C  
<sup>6</sup> Guideline varies with pH. Values shown based on field pH range of 6.59 to 8.50  
<sup>7</sup> Guideline varies with chloride. Values shown based on chloride range of <0.50 mg/L to 1.4 mg/L  
<sup>8</sup> Guideline applied is for ultra-oligotrophic  
<sup>9</sup> Guideline varies with hardness. Value shown based on hardness range of 215 mg/L to 1010 mg/L for total metals, and 181 mg/L to 296 mg/L for dissolved metals  
<sup>10</sup> Guideline is for Chromium VI  
 "-" No applicable standard or not analyzed  
 Shaded - Greater than Federal Interim Guideline  
 BOLD - Greater than CCME AW Guideline  
 Underlined - Greater than Yukon CSR Guideline  
 RED - Greater than current Site Water Licence QZ97-026

Table 5C: Groundwater Analytical Results, Zone 3(Class B Storage Facility)

Parameter	Unit	RDL	Water Use Licence QZ97-026	Federal Interim Guideline - Commercial/Industrial <sup>1</sup>		CCME - AW (Freshwater) <sup>2</sup>	Well ID	BH95G-32				BH95G-33D			
				Aquifer & Approx. Sample Depth (mbg)	Bedrock 13.7				Bedrock 10.6						
					Yukon CSR - AW (Freshwater) <sup>3</sup>		BH95-32	BH95G-32	BH95G-32	BH95G-32	BH95G-33D	BH95G-33D	BNH95G-33D	BH95G-33D	
							13-May-2015	22-Sep-2015	5-Nov-2015	15-Mar-2016	13-May-2015	22-Sep-2015	3-Nov-2015	15-Mar-2016	
<b>Total Metals</b>															
Aluminum	µg/L	0.5	-	100 <sup>6</sup>	100 <sup>6</sup>	100 <sup>6</sup>	-	86000	53300	3140	15500	43800	13600	15000	9440
Antimony	µg/L	0.02	-	2000	2000	-	200	1.24	1.03	0.101	0.562	0.513	0.289	0.284	0.215
Arsenic	µg/L	0.02	50	5	5	5	50	48.9	30.1	5.01	13.3	149	32.8	31.6	25.7
Barium	µg/L	0.02	-	500	500	-	10,000	3620	2270	423	869	839	322	372	256
Beryllium	µg/L	0.01	-	5.3	5.3	-	53	4.34	3.06	0.434	1.08	2.18	0.887	0.927	0.467
Bismuth	µg/L	0.005	-	-	-	-	-	3.02	1.7	0.219	0.666	1.05	0.306	0.322	0.17
Boron	µg/L	10	-	5000	5000	1500	50,000	<50	<50	<10	<50	<50	<50	<50	<50
Cadmium	µg/L	0.005	7	0.017	0.017	0.09	0.6 <sup>9</sup>	10.9	5.25	0.798	1.66	0.724	0.263	0.38	0.208
Calcium	µg/L	50	-	-	-	-	-	130000	117000	76800	86700	119000	96400	103000	88200
Chromium	µg/L	0.1	-	8.9	8.9	1 <sup>10</sup>	10 <sup>10</sup>	219	169	9.2	43.4	62.9	16.3	24.2	15.8
Cobalt	µg/L	0.005	-	-	-	-	9	111	71.8	6.83	20.6	79.4	28.5	39.6	28
Copper	µg/L	0.05	15	4 <sup>9</sup>	4 <sup>9</sup>	4 <sup>9</sup>	90 <sup>9</sup>	308	194	17.9	75.9	185	61.2	114	66.5
Iron	µg/L	1	-	300	300	300	-	203000	122000	8930	40500	150000	42600	50500	30400
Lead	µg/L	0.005	26	7.0 <sup>9</sup>	7.0 <sup>9</sup>	7.0 <sup>9</sup>	110-160 <sup>9</sup>	297	178	25.8	77.6	68.3	19.4	21.3	14.8
Lithium	µg/L	0.5	-	-	-	-	-	41.6	25.9	2.45	8.9	26.4	9.43	13.9	7.55
Magnesium	µg/L	50	-	-	-	-	-	49500	33900	5570	11700	32400	16400	19000	13400
Manganese	µg/L	0.05	-	-	-	-	-	8690	3600	436	1100	6570	2680	3090	1550
Mercury	µg/L	0.002	-	0.016	0.016	0.026	1	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0026
Molybdenum	µg/L	0.05	-	73	73	73	10,000	9.39	4.15	0.578	1.46	14	4.2	2.41	2.95
Nickel	µg/L	0.02	-	150 <sup>9</sup>	150 <sup>9</sup>	150 <sup>9</sup>	1500 <sup>9</sup>	183	114	9.83	31.1	296	105	165	89.9
Phosphorus	µg/L	2	-	-	-	4 <sup>8</sup>	-	3790	2220	357	781	3350	778	862	1970
Potassium	µg/L	50	-	-	-	-	-	21500	15700	5510	7440	5790	2670	3490	2110
Selenium	µg/L	0.04	15	1	1	1	10	20.2	10.8	0.752	2.98	10.3	6.95	5.69	3.91
Silicon	µg/L	50	-	-	-	-	-	99900	67500	7820	24500	62400	21700	28800	15400
Silver	µg/L	0.005	-	0.1	0.1	0.25	15 <sup>9</sup>	5.32	0.874	0.101	0.445	1.8	0.677	0.434	0.376
Sodium	µg/L	50	-	-	-	-	-	2130	1890	752	1190	1590	1290	1140	960
Strontium	µg/L	0.05	-	-	-	-	-	544	511	307	367	396	316	317	278
Sulphur	µg/L	3000	-	-	-	-	-	<15,000	<15,000	11500	<15,000	19000	22000	25000	21000
Thallium	µg/L	0.002	-	0.8	0.8	0.8	3	1.36	0.671	0.074	0.173	0.389	0.134	0.158	0.104
Tin	µg/L	0.2	-	-	-	-	-	4.71	2.01	<0.20	0.78	2.71	0.91	0.8	0.55
Titanium	µg/L	0.5	-	100	100	-	1000	10400	5900	281	1790	504	185	297	228
Uranium	µg/L	0.002	-	15	15	15	3000	11.5	7.33	1.91	3.44	16.1	8.32	8.8	6.2
Vanadium	µg/L	0.2	-	-	-	-	-	608	402	29	110	148	45.8	53.1	36.5
Zinc	µg/L	0.1	110	10	10	30	1650-2400 <sup>9</sup>	904	530	49.1	175	578	153	251	137
Zirconium	µg/L	0.1	-	-	-	-	-	20.7	8.87	0.88	4.76	18.7	5.67	6.01	5.74
Laboratory Work Order Number								B540423	B584163	B5A0147	B621096	B540423	B584163	B599724	B621096

**Notes:**

- <sup>1</sup> Environment Canada (Revised March 2014). Guidance Document on Federal Interim Groundwater Quality Guidelines (FIGQG) for Federal Contaminated Sites, Tier 1 guidelines for fine and coarse grained soil under Commercial/Industrial land use
- <sup>2</sup> Canadian Council of Ministers of the Environment (CCME) (Updated 2014). Canadian Water Quality Guidelines for the Protection of Aquatic Life (Freshwater)
- <sup>3</sup> Environment Act. Contaminated Sites Regulation (CSR) (2002). Schedule 3, Generic Numerical Water Standards for Aquatic Life (AW)
- <sup>4</sup> Maximum increase of 25 mg/L from background levels
- <sup>5</sup> Standard varies with pH and temperature. Values shown based on field pH range of 6.59 to 8.50 and temperature range of -2.4 °C to 2.4 °C
- <sup>6</sup> Guideline varies with pH. Values shown based on field pH range of 6.59 to 8.50
- <sup>7</sup> Guideline varies with chloride. Values shown based on chloride range of <0.50 mg/L to 1.4 mg/L
- <sup>8</sup> Guideline applied is for ultra-oligotrophic
- <sup>9</sup> Guideline varies with hardness. Value shown based on hardness range of 215 mg/L to 1010 mg/L for total metals, and 181 mg/L to 296 mg/L for dissolved metals
- <sup>10</sup> Guideline is for Chromium VI
- "-" No applicable standard or not analyzed
- Shaded - Greater than Federal Interim Guideline
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- RED - Greater than current Site Water Licence QZ97-026

Table 5C: Groundwater Analytical Results, Zone 3(Class B Storage Facility)

Parameter	Unit	RDL	Water Use Licence QZ97-026	Federal Interim Guideline - Commercial/Industrial <sup>1</sup>		CCME - AW (Freshwater) <sup>2</sup>	Well ID	MW15-01				MW15-02	Statistical Analysis					
				Aquifer & Approx. Sample Depth (mbg)	Bedrock 14.4				Bedrock 27.35	Bedrock								
					Yukon CSR - AW (Freshwater) <sup>3</sup>		MW15-01	DUP02		MW15-01	MW15-01	MW15-02	MIN	MAX	MEDIAN	MEAN	STDV	90th PERCENTILE
							1-Sep-2015	1-Sep-2015	1-Nov-2015	15-Mar-2016	1-Sep-2015							
<b>Total Metals</b>																		
Aluminum	µg/L	0.5	-	100 <sup>6</sup>	100 <sup>6</sup>	100 <sup>6</sup>	-	15.3	18	83600	2270	6570	15.3	86000	13600	25557.946	30889.696	77540.000
Antimony	µg/L	0.02	-	2000	2000	-	200	0.023	<0.020	0.448	0.28	0.276	0.02	1.24	0.284	0.406	0.366	0.936
Arsenic	µg/L	0.02	50	5	5	5	50	1.05	0.961	23.9	3.63	3.71	0.961	149	23.9	28.435	39.289	45.680
Barium	µg/L	0.02	-	500	500	-	10,000	98	99	599	106	99.1	98	3620	372	767.085	1038.939	1989.800
Beryllium	µg/L	0.01	-	5.3	5.3	-	53	<0.010	<0.010	1.55	0.14	0.177	0.01	4.34	0.887	1.174	1.314	2.884
Bismuth	µg/L	0.005	-	-	-	-	-	<0.0050	<0.0050	0.683	0.051	0.071	0.005	3.02	0.306	0.636	0.868	1.570
Boron	µg/L	10	-	5000	5000	1500	50,000	<10	<10	<50	<50	<50	<10	<50	-	-	-	-
Cadmium	µg/L	0.005	7	0.017	0.017	0.09	0.6 <sup>9</sup>	<0.0050	<0.0050	3.14	0.265	0.355	0.005	10.9	0.38	1.843	3.115	4.828
Calcium	µg/L	50	-	-	-	-	-	74900	74600	305000	108000	76500	74600	305000	96400	112008	60874	127800
Chromium	µg/L	0.1	-	8.9	8.9	1 <sup>10</sup>	10 <sup>10</sup>	<0.10	<0.10	119	9.9	10.4	<0.1	219	16.3	53.792	70.886	159.000
Cobalt	µg/L	0.005	-	-	-	-	9	0.054	0.071	76	4.54	5.38	0.054	111	28	36.290	36.652	78.720
Copper	µg/L	0.05	15	4 <sup>9</sup>	4 <sup>9</sup>	4 <sup>9</sup>	90 <sup>9</sup>	0.119	0.152	263	17.5	25.6	0.119	308	66.5	102.221	103.385	249.200
Iron	µg/L	1	-	300	300	300	-	38.1	44	200000	13000	17200	38.1	203000	40500	67554.777	74576.351	190000.000
Lead	µg/L	0.005	26	7.0 <sup>9</sup>	7.0 <sup>9</sup>	7.0 <sup>9</sup>	110-160 <sup>9</sup>	0.012	0.016	42.4	6.21	6.2	0.012	297	21.3	58.234	86.643	157.920
Lithium	µg/L	0.5	-	-	-	-	-	1.87	1.86	44.9	3.66	4.51	1.86	44.9	8.9	14.841	15.045	38.560
Magnesium	µg/L	50	-	-	-	-	-	11200	11300	60700	12800	9880	5570	60700	13400	22134.615	16971.775	46380.000
Manganese	µg/L	0.05	-	-	-	-	-	2.38	2.46	3860	161	310	2.38	8690	1550	2465.526	2710.644	6028.000
Mercury	µg/L	0.002	-	0.016	0.016	0.026	1	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.002	0.0026	0.002	0.002	0.000	0.002
Molybdenum	µg/L	0.05	-	73	73	73	10,000	0.86	0.85	4.35	2.45	3.23	0.578	14	2.95	3.914	3.805	8.382
Nickel	µg/L	0.02	-	150 <sup>9</sup>	150 <sup>9</sup>	150 <sup>9</sup>	1500 <sup>9</sup>	0.208	0.225	122	12.2	12.4	0.208	296	89.9	87.759	89.705	179.400
Phosphorus	µg/L	2	-	-	-	4 <sup>8</sup>	-	4.3	4.7	7060	234	614	4.3	7060	781	1694.231	2029.811	3702.000
Potassium	µg/L	50	-	-	-	-	-	2490	2560	5650	1440	1710	1440	21500	3490	6004.615	6004.807	14048.000
Selenium	µg/L	0.04	15	1	1	1	10	1.73	1.44	3.14	1.39	1.08	0.752	20.2	3.14	5.412	5.578	10.700
Silicon	µg/L	50	-	-	-	-	-	2120	2060	89600	5590	10800	2060	99900	21700	33706.923	34209.723	85180.000
Silver	µg/L	0.005	-	0.1	0.1	0.25	15 <sup>9</sup>	<0.0050	<0.0050	42.8	1.14	4.13	<0.005	42.8	0.677	4.470	11.632	5.082
Sodium	µg/L	50	-	-	-	-	-	760	802	3030	1730	1050	752	3030	1190	1408.769	658.338	2082.000
Strontium	µg/L	0.05	-	-	-	-	-	283	286	1090	336	215	215	1090	317	403.538	225.939	537.400
Sulphur	µg/L	3000	-	-	-	-	-	18400	16400	38000	54000	15000	11500	54000	18400	21946.154	11724.377	35400.000
Thallium	µg/L	0.002	-	0.8	0.8	0.8	3	<0.0020	<0.0020	0.328	0.037	0.072	<0.002	1.36	0.134	0.270	0.377	0.615
Tin	µg/L	0.2	-	-	-	-	-	<0.20	<0.20	1.57	0.28	0.75	<0.2	4.71	0.78	1.205	1.300	2.570
Titanium	µg/L	0.5	-	100	100	-	1000	<0.50	<0.50	4240	139	386	<0.5	10400	297	1873.154	3151.907	5568.000
Uranium	µg/L	0.002	-	15	15	15	3000	3.03	3.02	17.9	4.85	2.38	1.91	17.9	6.2	7.291	5.185	15.180
Vanadium	µg/L	0.2	-	-	-	-	-	<0.20	<0.20	463	13	27.6	<0.2	608	45.8	148.954	203.967	450.800
Zinc	µg/L	0.1	110	10	10	30	1650-2400 <sup>9</sup>	0.36	0.38	719	83.5	75.2	0.36	904	153	281.195	298.898	690.800
Zirconium	µg/L	0.1	-	-	-	-	-	0.1	0.12	14.7	5.46	3.28	<0.1	20.7	5.67	7.307	6.734	17.900
Laboratory Work Order Number								B577451	B577451	B598984	B621096	B577451						

**Notes:**  
<sup>1</sup> Environment Canada (Revised March 2014). Guidance Document on Federal Interim Groundwater Quality Guidelines (FIGQG) for Federal Contaminated Sites, Tier 1 guidelines for fine and coarse grained soil under Commercial/Industrial land use  
<sup>2</sup> Canadian Council of Ministers of the Environment (CCME) (Updated 2014). Canadian Water Quality Guidelines for the Protection of Aquatic Life (Freshwater)  
<sup>3</sup> Environment Act. Contaminated Sites Regulation (CSR) (2002). Schedule 3, Generic Numerical Water Standards for Aquatic Life (AW)  
<sup>4</sup> Maximum increase of 25 mg/L from background levels  
<sup>5</sup> Standard varies with pH and temperature. Values shown based on field pH range of 6.59 to 8.50 and temperature range of -2.4 °C to 2.4 °C  
<sup>6</sup> Guideline varies with pH. Values shown based on field pH range of 6.59 to 8.50  
<sup>7</sup> Guideline varies with chloride. Values shown based on chloride range of <0.50 mg/L to 1.4 mg/L  
<sup>8</sup> Guideline applied is for ultra-oligotrophic  
<sup>9</sup> Guideline varies with hardness. Value shown based on hardness range of 215 mg/L to 1010 mg/L for total metals, and 181 mg/L to 296 mg/L for dissolved metals  
<sup>10</sup> Guideline is for Chromium VI  
 "-" No applicable standard or not analyzed  
 Shaded - Greater than Federal Interim Guideline  
 BOLD - Greater than CCME AW Guideline  
 Underlined - Greater than Yukon CSR Guideline  
 RED - Greater than current Site Water Licence QZ97-026

Table 5D: Groundwater Analytical Results, Zone 4a (Open Pit - West)

Parameter	Unit	RDL	Water Use Licence QZ97-026	Federal Interim Guideline - Commercial/Industrial <sup>1</sup>		CCME - AW (Freshwater) <sup>2</sup>	Well ID	ART - 3 (1)			ART - 3 (3)			ART - 4	BH95-129			BH95-146	
				Aquifer & Approx. Sample Depth (mbg)	Bedrock			Bedrock			Bedrock	Bedrock 157.25			Bedrock 136.4				
					Yukon CSR - AW (Freshwater) <sup>3</sup>		ART - 3 (1)	ART - 3 (1)	DUP04	ART - 3 (3)	ART - 3 (3)	ART - 3 (3)	ART - 4	-	BH95-129	BH95-129	BH95-146	BH95G-146	
							11-Aug-2015	23-Sep-2015		12-May-2015	11-Aug-2015	21-Sep-2015	12-May-2015	17-Aug-2015	4-Nov-2015	17-Mar-2016	11-May-2015	10-Aug-2015	
<b>Field</b>																			
Field pH	pH Units		6.5-9	6.5-9	6.5-9	6.5-9	-	7.26	7.83	-	8.38	7.31	6.58	8.6	7.54	7.77	6.82	6.67	7.63
Field Electric Conductivity	µS/cm		-	-	-	-	-	419	427.6	-	400.7	418.9	4439.2	289.4	262.4	366	372	740.6	774.9
Field Temperature	°C		-	-	-	-	-	0.5	0.4	-	4.1	0.7	0.1	2.2	1.2	-2.4	0.95	2.9	3.3
Field Dissolved Oxygen	mg/L		-	-	-	-	-	1.8	9.99	-	-	2.29	0.68	1.62	2.23	2.84	4.1	2.53	2.16
<b>Physical Parameters</b>								0	0	0	0	0	0	0	0	0	0	0	0
pH	pH Units		6.5-9	6.5-9	6.5-9	6.5-9	-	7.9	7.44	7.96	8.03	7.42	7.91	8.28	-	8.17	7.96	8.12	7.92
Acidity (pH 4.5)	µg/L	500	-	-	-	-	-	<500	<500	<500	<500	<500	<500	<500	-	<500	<500	<500	<500
Acidity (pH 8.3)	µg/L	500	-	-	-	-	-	2040	4180	2760	1310	2040	1950	<500	-	<500	<500	<500	<500
Electrical Conductivity (EC)	µS/cm	1	-	-	-	-	-	389.00	387	389	392	392	378	415	-	383	363	767	771
Total Dissolved Solids (TDS)	µg/L	1000	-	-	-	-	-	258000.00	268000	262000	254000	262000	256000	258000	-	230000	222000	604000	612000
Total Suspended Solids (TSS)	µg/L	1000	15,000	-	-	See note <sup>4</sup>	-	5700	9300	5500	-	10100	4600	-	-	20100	6200	-	31500
Hardness as CaCO <sub>3</sub>	mg/L	0.5	-	-	-	-	-	185	199	196	199	196	188	218	-	234	182	399	437
Dissolved Hardness	mg/L	0.5	-	-	-	-	-	191	191	198	186	199	184	209	-	211	187	415	413
Alkalinity (total as CaCO <sub>3</sub> )	µg/L	500	-	-	-	-	-	106000	103000	107000	104000	105000	98400	166000	-	160000	150000	130000	133000
Alkalinity (pp as CaCO <sub>3</sub> )	µg/L	500	-	-	-	-	-	<500	<500	<500	<500	<500	<500	<500	-	<500	<500	<500	<500
Bicarbonate	µg/L	500	-	-	-	-	-	130000	126000	130000	128000	128000	120000	203000	-	195000	183000	159000	163000
Carbonate	µg/L	500	-	-	-	-	-	<500	<500	<500	<500	<500	<500	<500	-	<500	<500	<500	<500
Hydroxide	µg/L	500	-	-	-	-	-	<500	<500	<500	<500	<500	<500	<500	-	<500	<500	<500	<500
Chloride	mg/L	0.5	-	120	120	120	-	<0.50	<0.50	0.65	<0.50	<0.50	0.72	<0.50	-	2.5	<0.50	<0.50	<0.50
Fluoride	µg/L	10	-	120	120	120	3000	170	150	170	180	160	160	240	-	220	220	310	300
Sulphate	mg/L	0.5	-	100	100	-	1000	87.7	100	86.8	90.3	88.5	88	50.6	-	37.2	42.2	273	255
Orthophosphate (as P)	µg/L	1	-	-	-	-	-	1.7	1.3	5	<1.0	1.2	1.9	1	-	2.2	3.7	<1.0	1.8
Turbidity	NTU	0.1	-	-	-	-	-	15	36.9	29.6	52.3	46.4	17.1	126	-	12.3	-	15.7	44.1
Anions Total	meq/L		-	-	-	-	-	-	-	-	4	-	-	4.4	-	4	-	8.3	-
Cations Total	meq/L		-	-	-	-	-	-	-	-	4.1	-	-	4.5	-	4.4	-	8.5	-
Ionic Balance	N/A	0.01	-	-	-	-	-	1.1	1	1.1	1	1.1	1.1	1	-	1.1	1	1	1.1

**Notes:**

- <sup>1</sup> Environment Canada (Revised March 2014). Guidance Document on Federal Interim Groundwater Quality Guidelines (FIGQG) for Federal Contaminated Sites, Tier 1 guidelines for fine and coarse grained soil under Commercial/Industrial land use
  - <sup>2</sup> Canadian Council of Ministers of the Environment (CCME) (Updated 2014). Canadian Water Quality Guidelines for the Protection of Aquatic Life (Freshwater)
  - <sup>3</sup> Environment Act, Contaminated Sites Regulation (CSR) (2002). Schedule 3, Generic Numerical Water Standards for Aquatic Life (AW)
  - <sup>4</sup> Maximum increase of 25 mg/L from background levels
  - <sup>5</sup> Standard varies with pH and temperature. Values shown based on field pH hrange of 5.98 to 8.60 and temperature range of -2.4 °C to 4.3 °C
  - <sup>6</sup> Guideline varies with pH. Values shown based on field pH range of 5.98 to 8.60
  - <sup>7</sup> Guideline varies with chloride. Values shown based on chloride range of <0.50 mg/L to 2.5 mg/L
  - <sup>8</sup> Guideline applied is for ultra-oligotrophic
  - <sup>9</sup> Guideline varies with hardness. Value shown based on hardness range of 125 mg/L to 773 mg/L for total metals, and 112 mg/L to 683 mg/L for
  - <sup>10</sup> Guideline is for Chromium VI
- "-" No applicable standard or not analyzed  
 Shaded - Greater than Federal Interim Guideline  
 BOLD - Greater than CCME AW Guideline  
 Underlined - Greater than Yukon CSR Guideline  
 RED - Greater than current Site Water Licence QZ97-026

Table 5D: Groundwater Analytical Results, Zone 4a (Open Pit - West)

Parameter	Unit	RDL	Water Use Licence QZ97-026	Federal Interim Guideline - Commercial/Industrial <sup>1</sup>		CCME - AW (Freshwater) <sup>2</sup>	Well ID	BH95G-21				BH95G-22				BH95G-23		WW15-01		WW15-02		
							Aquifer & Approx. Sample Depth (mbg)	Bedrock 7.6				Bedrock 4.3				Overburden 11.3		Overburden 13.5		Bedrock 29		
							Yukon CSR - AW (Freshwater) <sup>3</sup>	BH95-21	BH95-21	DUP 01	BH95G-21	BH95G-21	BH95-22	BHG5G-22	BH95G-22	BH95G-22	BH95G-23	BH95G-23	WW15-01	WW15-01	WW15-02	WW15-02
								1995	12-May-2015	6-Aug-2015	30-Oct-2015	12-May-2015	7-Aug-2015	1-Nov-2015	14-Mar-2016	1995	9-Aug-2015	4-Aug-2015	5-Oct-2015	21-Sep-2015	11-Oct-2015	
<b>Field</b>																						
Field pH	pH Units		6.5-9	6.5-9	6.5-9	6.5-9	-	-	7.3	-	7.43	7.42	7.53	5.98	7.5	7.12	-	7.02	-	-	7.59	-
Field Electric Conductivity	µS/cm		-	-	-	-	-	-	413.7	-	380.1	406	395	358.6	317	365	-	301.7	-	-	562.1	-
Field Temperature	°C		-	-	-	-	-	-	0.7	-	4.3	-0.8	3.3	3.4	1.8	1.17	-	0.5	-	-	-0.5	-
Field Dissolved Oxygen	mg/L		-	-	-	-	-	-	1.73	-	0	0.9	7	7.7	7.7	11	-	1.14	-	-	0.85	-
<b>Physical Parameters</b>																						
pH	pH Units		6.5-9	6.5-9	6.5-9	6.5-9	-	-	8.22	8.21	8.02	8.22	8.22	7.8	8.23	7.87	-	7.33	6.94	7.11	8.22	8.1
Acidity (pH 4.5)	µg/L	500	-	-	-	-	-	-	<500	<500	<500	<500	<500	<500	<500	<500	-	<500	<500	<500	<500	<500
Acidity (pH 8.3)	µg/L	500	-	-	-	-	-	-	<500	<500	<500	3760	<500	960	8000	1010	-	5150	17600	-	<500	3380
Electrical Conductivity (EC)	µS/cm	1	-	-	-	-	-	-	402	397	403	403	391	328	332	354	-	267	267	317	442	407
Total Dissolved Solids (TDS)	µg/L	1000	-	-	-	-	-	-	284000	250000	240000	284000	252000	222000	256000	216000	-	180000	248000	232000	282000	274000
Total Suspended Solids (TSS)	µg/L	1000	15,000	-	-	See note <sup>4</sup>	-	-	-	-	2830000	6540000	-	2060000	970000	1030000	-	7320000	52900	2700	53300	1100
Hardness as CaCO <sub>3</sub>	mg/L	0.5	-	-	-	-	-	-	238	248	344	573	310	229	289	183	111	306	125	130	255	214
Dissolved Hardness	mg/L	0.5	-	-	-	-	-	-	193	221	215	204	219	198	159	177	-	126	112	132	232	218
Alkalinity (total as CaCO <sub>3</sub> )	µg/L	500	-	-	-	-	-	-	165000	163000	167000	165000	152000	127000	129000	141000	-	53900	32000	44700	174000	160000
Alkalinity (pp as CaCO <sub>3</sub> )	µg/L	500	-	-	-	-	-	-	<500	<500	<500	<500	<500	<500	<500	<500	-	<500	<500	<500	<500	<500
Bicarbonate	µg/L	500	-	-	-	-	-	-	201000	199000	204000	202000	186000	155000	158000	172000	-	65700	39000	54500	212000	195000
Carbonate	µg/L	500	-	-	-	-	-	-	<500	<500	<500	<500	<500	<500	<500	<500	-	<500	<500	<500	<500	<500
Hydroxide	µg/L	500	-	-	-	-	-	-	<500	<500	<500	<500	<500	<500	<500	<500	-	<500	<500	<500	<500	<500
Chloride	mg/L	0.5	-	120	120	120	-	-	<0.50	0.51	<0.50	0.99	<0.50	<0.50	1.2	<0.50	-	<0.50	<0.50	1.4	0.71	0.75
Fluoride	µg/L	10	-	120	120	120	-	-	100	100	91	83	70	52	48	47	-	60	81	66	120	86
Sulphate	mg/L	0.5	-	100	100	-	-	-	46.5	45.9	46	47.1	52.8	40.8	41.9	45.1	-	72.8	98	102	59.4	51.8
Orthophosphate (as P)	µg/L	1	-	-	-	-	-	-	<1.0	<1.0	<1.0	2.1	<1.0	<1.0	3.5	17	-	1.6	-	1.6	2.1	<1.0
Turbidity	NTU	0.1	-	-	-	-	-	-	640	728	2120	3570	2850	989	1630	-	-	2960	79.6	4	26.9	3.22
Anions Total	meq/L		-	-	-	-	-	-	4.3	4.2	4.3	4.3	4.2	3.4	3.5	-	-	2.6	2.7	-	-	4.3
Cations Total	meq/L		-	-	-	-	-	-	4.5	4.4	4.2	4.5	4.1	3.3	3.6	-	-	3	2.9	-	-	4.5
Ionic Balance	N/A	0.01	-	-	-	-	-	-	1.1	1	0.97	1	0.98	0.96	1	0.95	-	1.1	1.1	1	1	1

**Notes:**

- <sup>1</sup> Environment Canada (Revised March 2014). Guidance Document on Federal Interim Groundwater Quality Guidelines (FIGQG) for Federal Contaminated Sites, Tier 1 guidelines for fine and coarse grained soil under Commercial/Industrial land use
  - <sup>2</sup> Canadian Council of Ministers of the Environment (CCME) (Updated 2014). Canadian Water Quality Guidelines for the Protection of Aquatic Life (Freshwater)
  - <sup>3</sup> Environment Act. Contaminated Sites Regulation (CSR) (2002). Schedule 3, Generic Numerical Water Standards for Aquatic Life (AW)
  - <sup>4</sup> Maximum increase of 25 mg/L from background levels
  - <sup>5</sup> Standard varies with pH and temperature. Values shown based on field pH range of 5.98 to 8.60 and temperature range of -2.4 °C to 4.3 °C
  - <sup>6</sup> Guideline varies with pH. Values shown based on field pH range of 5.98 to 8.60
  - <sup>7</sup> Guideline varies with chloride. Values shown based on chloride range of <0.50 mg/L to 2.5 mg/L
  - <sup>8</sup> Guideline applied is for ultra-oligotrophic
  - <sup>9</sup> Guideline varies with hardness. Value shown based on hardness range of 125 mg/L to 773 mg/L for total metals, and 112 mg/L to 683 mg/L for Chromium VI
  - <sup>10</sup> Guideline is for Chromium VI
- " No applicable standard or not analyzed  
 Shaded - Greater than Federal Interim Guideline  
 BOLD - Greater than CCME AW Guideline  
 Underlined - Greater than Yukon CSR Guideline  
 RED - Greater than current Site Water Licence QZ97-026



Table 5D: Groundwater Analytical Results, Zone 4a (Open Pit - West)

Parameter	Unit	RDL	Water Use Licence QZ97-026	Federal Interim Guideline - Commercial/Industrial <sup>1</sup>		CCME - AW (Freshwater) <sup>2</sup>	Well ID		Statistical Analysis																			
							Aquifer & Approx. Sample Depth (mbg)	Yukon CSR - AW (Freshwater) <sup>3</sup>	Overburden					Shallow Bedrock (<50 m depth)					Deep Bedrock (>50 depth)									
							Part E - Effluent Quality Standards	Fine	Coarse	MIN	MAX	MEDIAN	MEAN	STDV	90th PERCENTILE	MIN	MAX	MEDIAN	MEAN	STDV	90th PERCENTILE	MIN	MAX	MEDIAN	MEAN	STDV	90th PERCENTILE	
<b>Field</b>																												
Field pH	pH Units		<b>6.5-9</b>	6.5-9	6.5-9	<b>6.5-9</b>	-	-	7.02	7.02	7.02	7.02	-	7.02	<b>5.98</b>	7.59	7.425	7.234	0.528	7.548	6.58	8.6	7.54	7.490	0.654	8.38		
Field Electric Conductivity	µS/cm			-	-	-	-	302	302	302	302	-	302	317	562	388	400	72	458	262	4439	419	810	1215	775			
Field Temperature	°C			-	-	-	-	0.5	0.5	0.5	0.5	-	0.5	-0.8	4.3	1.485	1.671	1.874	3.67	-2.4	4.1	0.95	1.268	1.796	3.3			
Field Dissolved Oxygen	mg/L			-	-	-	-	1.14	1.14	1.14	1.14	-	1.14	0	11	4.365	4.610	4.193	8.69	0.68	9.99	2.26	3.024	2.600	4.689			
<b>Physical Parameters</b>																												
pH	pH Units		<b>6.5-9</b>	6.5-9	6.5-9	<b>6.5-9</b>	-	6.94	7.33	7.11	7.13	0.20	7.29	7.80	8.23	8.22	8.11	0.16	8.22	7.42	8.28	7.96	7.92	0.27	8.17			
Acidity (pH 4.5)	µg/L	500		-	-	-	-	<500	<500	-	-	-	-	<500	<500	-	-	-	-	<500	<500	-	-	-	-			
Acidity (pH 8.3)	µg/L	500		-	-	-	-	5150	17600	11375	11375.000	8803.479	16355	<500	8000	730	1961	2456	4184	<500	4180	1310	1525.455	1207.670	2760			
Electrical Conductivity (EC)	µS/cm	1		-	-	-	-	267	317	267	283.667	28.868	307	328	442	399.5	385.900	36	410.5	363	771	389	456.909	154.794	767			
Total Dissolved Solids (TDS)	µg/L	1000		-	-	-	-	180000	248000	232000	220000.000	35552.778	244800	216000	284000	254000	256000.000	25016	284000	222000	612000	258000	316909.091	144599.761	604000			
Total Suspended Solids (TSS)	µg/L	1000	<b>15,000</b>	-	-	<b>See note 4</b>	-	2700	<b>7320000</b>	<b>52900</b>	<b>2458533.333</b>	4210228.453	<b>5866580</b>	1100	<b>6540000</b>	<b>1030000</b>	<b>1926342.857</b>	2274979	<b>4314000</b>	4600	<b>31500</b>	7750	<b>11625.000</b>	9456.479	<b>23520</b>			
Hardness as CaCO <sub>3</sub>	mg/L	0.5		-	-	-	-	111	306	128	168.000	92.351	253	183	573	251.5	288.300	111	366.9	182	437	199	239.364	89.963	399			
Dissolved Hardness	mg/L	0.5		-	-	-	-	112	132	126	123.333	10.263	131	159	232	204	201.091	23	221	184	415	198	234.909	88.983	413			
Alkalinity (total as CaCO <sub>3</sub> )	µg/L	500		-	-	-	-	32000	53900	44700	43533.333	10996.515	52060	127000	174000	161500	154300.000	16513	167700	98400	166000	107000	123854.545	25145.829	160000			
Alkalinity (pp as CaCO <sub>3</sub> )	µg/L	500		-	-	-	-	<500	<500	-	-	-	-	<500	<500	-	-	-	-	<500	<500	-	-	-	-			
Bicarbonate	µg/L	500		-	-	-	-	39000	65700	54500	53066.667	13407.585	63460	155000	212000	197000	188400.000	20039.960	204800	120000	203000	130000	151363.636	30653.785	195000			
Carbonate	µg/L	500		-	-	-	-	<500	<500	-	-	-	-	<500	<500	-	-	-	-	<500	<500	-	-	-	-			
Hydroxide	µg/L	500		-	-	-	-	<500	<500	-	-	-	-	<500	<500	-	-	-	-	<500	<500	-	-	-	-			
Chloride	mg/L	0.5		120	120	120	-	<0.5	1.4	0.5	0.800	0.520	1.2	<0.5	1.2	0.5	0.7	0.2	1.01	<0.5	2.5	0.5	0.715	0.597	0.72			
Fluoride	µg/L	10		120	120	120	-	60	81	66	69.000	10.817	78	47	120	84.5	79.700	24.860	102	150	310	180	207.273	56.408	300			
Sulphate	mg/L	0.5		100	100	-	-	72.8	102	98.0	90.933	15.831	101.2	40.8	59.4	46.25	47.730	5.534	53.46	37.2	273	88	109.027	79.673	255			
Orthophosphate (as P)	µg/L	1		-	-	-	-	1.6	1.6	1.6	1.600	0.000	1.6	<1	17	1	3.1	3.1	5	<1	5	1.7	1.982	1.273	3.7			
Turbidity	NTU	0.1		-	-	-	-	4	2960	80	1014.533	1685.248	2384	3.22	3570	989	1395.236	1245.843	2994	12.3	126	33.25	39.540	33.711	59.67			
Anions Total	meq/L			-	-	-	-	2.6	2.7	2.7	2.650	0.071	2.7	3.4	4.3	4.25	4.063	0.381	4.3	4	8.3	4.2	5.175	2.092	7.13			
Cations Total	meq/L			-	-	-	-	2.9	3	3.0	2.950	0.071	3.0	3.3	4.5	4.3	4.138	0.457	4.5	4.1	8.5	4.45	5.375	2.090	7.3			
Ionic Balance	N/A	0.01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			

Notes:

<sup>1</sup> Environment Canada (Revised March 2014). Guidance Document on Federal Interim Groundwater Quality Guidelines (FIGQG) for Federal Contaminated Sites, Tier 1 guidelines for fine and coarse grained soil under Commercial/Industrial land use  
<sup>2</sup> Canadian Council of Ministers of the Environment (CCME) (Updated 2014). Canadian Water Quality Guidelines for the Protection of Aquatic Life (Freshwater)  
<sup>3</sup> Environment Act, Contaminated Sites Regulation (CSR) (2002). Schedule 3, Generic Numerical Water Standards for Aquatic Life (AW)  
<sup>4</sup> Maximum increase of 25 mg/L from background levels  
<sup>5</sup> Standard varies with pH and temperature. Values shown based on field pH range of 5.98 to 8.60 and temperature range of -2.4 °C to 4.3 °C  
<sup>6</sup> Guideline varies with pH. Values shown based on field pH range of 5.98 to 8.60  
<sup>7</sup> Guideline varies with chloride. Values shown based on chloride range of <0.50 mg/L to 2.5 mg/L  
<sup>8</sup> Guideline applied is for ultra-oligotrophic  
<sup>9</sup> Guideline varies with hardness. Value shown based on hardness range of 125 mg/L to 773 mg/L for total metals, and 112 mg/L to 683 mg/L for  
<sup>10</sup> Guideline is for Chromium VI  
 "-" No applicable standard or not analyzed  
**Shaded** - Greater than Federal Interim Guideline  
**BOLD** - Greater than CCME AW Guideline  
Underlined - Greater than Yukon CSR Guideline  
**RED** - Greater than current Site Water Licence QZ97-026









Table 5D: Groundwater Analytical Results, Zone 4a (Open Pit - West)

Parameter	Unit	RDL	Water Use Licence QZ97-026	Federal Interim Guideline - Commercial/Industrial <sup>1</sup>		CCME - AW (Freshwater) <sup>2</sup>	Well ID	ART - 3 (1)			ART - 3 (3)			ART - 4	BH95-129			BH95-146	
				Aquifer & Approx. Sample Depth (mbg)	Bedrock			Bedrock			Bedrock	Bedrock 157.25			Bedrock 136.4				
					Yukon CSR - AW (Freshwater) <sup>3</sup>		ART - 3 (1)	ART - 3 (1)	DUP04	ART - 3 (3)	ART - 3 (3)	ART - 3 (3)	ART - 4	-	BH95-129	BH95-129	BH95-146	BH95G-146	
							11-Aug-2015	23-Sep-2015		12-May-2015	11-Aug-2015	21-Sep-2015	12-May-2015	17-Aug-2015	4-Nov-2015	17-Mar-2016	11-May-2015	10-Aug-2015	
<b>Total Metals</b>								0	0	0	0	0	0	0	0	0	0	0	
Aluminum	µg/L	0.5		5,100 <sup>6</sup>	5,100 <sup>6</sup>	5,100 <sup>6</sup>	-	5.99	5.71	8.07	5.17	8.31	6.38	275	-	258	18.6	540	95.8
Antimony	µg/L	0.02		2000	2000	-	200	33.1	43.6	33.1	42.5	33.1	40.3	17.5	-	0.622	0.404	1.21	5.69
Arsenic	µg/L	0.02	50	5	5	5	50	135	172	147	168	148	163	83.1	-	10	7.36	10.8	25
Barium	µg/L	0.02		500	500	-	10,000	18.9	18.3	18.3	15.8	19.6	17.9	43.2	-	81.9	46.3	30.6	18
Beryllium	µg/L	0.01		5.3	5.3	-	53	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.066	-	<0.010	<0.010	0.032	0.014
Bismuth	µg/L	0.005		-	-	-	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.058	-	0.041	0.028	0.056	<0.0050
Boron	µg/L	10		5000	5000	1500	50,000	<10	<10	<10	<10	<10	<10	<50	-	<50	<50	<10	<10
Cadmium	µg/L	0.005	7	0.017	0.017	0.09	0.5-0.6 <sup>9</sup>	0.335	0.482	0.337	0.298	0.953	0.335	0.0929	-	0.129	0.245	0.359	0.0837
Calcium	µg/L	50		-	-	-	-	60500	65100	63100	66100	63500	61600	61600	-	68400	56400	121000	131000
Chromium	µg/L	0.1		8.9	8.9	1 <sup>10</sup>	10 <sup>10</sup>	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	512	-	1.03	<0.50	2.06	0.36
Cobalt	µg/L	0.005		-	-	-	9	1.51	1.74	1.66	1.31	1.86	1.46	37	-	0.442	0.173	0.465	0.112
Copper	µg/L	0.05	15	2.9-4.0 <sup>9</sup>	2.9-4.0 <sup>9</sup>	2.9-4.0 <sup>9</sup>	60-90 <sup>9</sup>	0.538	0.155	0.721	<0.050	0.263	0.2	849	-	11	1.49	7.03	1.18
Iron	µg/L	1		300	300	300	-	5380	7050	5750	5590	6570	6040	135000	-	1440	661	2230	1980
Lead	µg/L	0.005	26	4.2-7.0 <sup>9</sup>	4.2-7.0 <sup>9</sup>	4.2-7.0 <sup>9</sup>	60-160 <sup>9</sup>	0.746	0.788	0.769	1.12	2.34	0.861	20	-	5.51	6.6	14.3	6.2
Lithium	µg/L	0.5		-	-	-	-	4.7	5.04	5.09	4.43	4.84	4.44	10.4	-	12	7.09	20.9	22
Magnesium	µg/L	50		-	-	-	-	8290	8830	9250	8240	9010	8290	15500	-	15400	9950	23400	26400
Manganese	µg/L	0.05		-	-	-	-	432	526	486	435	543	463	279	-	137	107	37.1	46.8
Mercury	µg/L	0.002		0.016	0.016	0.026	1	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	-	<0.0020	<0.0020	0.0031	<0.0020
Molybdenum	µg/L	0.05		73	73	73	10,000	0.682	0.662	0.676	0.724	0.571	0.749	253	-	1.42	1.08	0.373	0.322
Nickel	µg/L	0.02		113-150 <sup>9</sup>	113-150 <sup>9</sup>	113-150 <sup>9</sup>	1100-1500 <sup>9</sup>	2.25	2.6	2.52	1.92	2.71	2.15	350	-	1.43	0.41	4.71	0.438
Phosphorus	µg/L	2		-	-	4 <sup>8</sup>	-	<2.0	<2.0	5.7	5.7	3.2	4.1	95	-	49	<10	19.2	5.5
Potassium	µg/L	50		-	-	-	-	1860	2060	2070	1910	2040	1950	2370	-	2680	2080	2930	2920
Selenium	µg/L	0.04	15	1	1	1	10	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.047	-	<0.040	<0.040	0.075	<0.040
Silicon	µg/L	50		-	-	-	-	5470	6220	5550	5290	6110	5400	20700	-	7890	4800	16300	15900
Silver	µg/L	0.005		0.1	0.1	0.25	15 <sup>9</sup>	0.005	<0.0050	0.005	0.0159	<0.0050	0.007	0.654	-	0.075	0.02	0.0439	0.0087
Sodium	µg/L	50		-	-	-	-	1750	1340	1920	866	976	998	2130	-	3430	1450	3450	4110
Strontium	µg/L	0.05		-	-	-	-	214	222	228	208	216	212	274	-	226	177	410	448
Sulphur	µg/L	3000		-	-	-	-	30200	34700	32600	28500	34700	30300	43000	-	15000	<15,000	88500	104000
Thallium	µg/L	0.002		0.8	0.8	0.8	3	0.444	0.267	0.447	0.247	0.517	0.311	0.0587	-	0.009	0.003	0.0362	0.0254
Tin	µg/L	0.2		-	-	-	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	42	-	1.52	<0.20	2.34	<0.20
Titanium	µg/L	0.5		100	100	-	1000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	72.7	-	12.1	<5.0	40.8	5.95
Uranium	µg/L	0.002		15	15	15	3000	5.38	5.52	5.35	6.14	5.94	4.5	205	-	12.6	9.94	1.96	2.4
Vanadium	µg/L	0.2		-	-	-	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	13	-	<0.50	<0.50	0.99	<0.20
Zinc	µg/L	0.1	110	10	10	30	900-2400 <sup>9</sup>	1730	2300	1860	1420	2390	1810	85.2	-	32.1	27.1	49.1	70.2
Zirconium	µg/L	0.1		-	-	-	-	0.25	0.15	0.3	0.33	0.18	0.2	26.1	-	0.43	0.55	8.35	0.16
Laboratory Work Order Number								B584163	B569978	B584163	B540423	B569978	B584163	B540423		B599724	B621096	B540423	B569978

**Notes:**  
<sup>1</sup> Environment Canada (Revised March 2014). Guidance Document on Federal Interim Groundwater Quality Guidelines (FIGQG) for Federal Contaminated Sites, Tier 1 guidelines for fine and coarse grained soil under Commercial/Industrial land use  
<sup>2</sup> Canadian Council of Ministers of the Environment (CCME) (Updated 2014). Canadian Water Quality Guidelines for the Protection of Aquatic Life (Freshwater)  
<sup>3</sup> Environment Act. Contaminated Sites Regulation (CSR) (2002). Schedule 3, Generic Numerical Water Standards for Aquatic Life (AW)  
<sup>4</sup> Maximum increase of 25 mg/L from background levels  
<sup>5</sup> Standard varies with pH and temperature. Values shown based on field pH range of 5.98 to 8.60 and temperature range of -2.4 °C to 4.3 °C  
<sup>6</sup> Guideline varies with pH. Values shown based on field pH range of 5.98 to 8.60  
<sup>7</sup> Guideline varies with chloride. Values shown based on chloride range of <0.50 mg/L to 2.5 mg/L  
<sup>8</sup> Guideline applied is for ultra-oligotrophic  
<sup>9</sup> Guideline varies with hardness. Value shown based on hardness range of 125 mg/L to 773 mg/L for total metals, and 112 mg/L to 683 mg/L for dissolved metals  
<sup>10</sup> Guideline is for Chromium VI  
 - - No applicable standard or not analyzed  
 Shaded - Greater than Federal Interim Guideline  
 BOLD - Greater than CCME AW Guideline  
 Underlined - Greater than Yukon CSR Guideline  
 RED - Greater than current Site Water Licence QZ97-026







Table 5E: Groundwater Analytical Results, Zone 4b (Open Pit - A Open Pit - West East)

Parameter	Unit	RDL	Water Use Licence QZ97-026	Federal Interim Guideline - Commercial/Industrial <sup>1</sup>		CCME - AW (Freshwater) <sup>2</sup>	Well ID	BH95G-25S				BH95G-25D		BH95G-29		BH95-131				MW15-11S		
				Aquifer & Approx. Sample Depth (mbg)	Overburden 10				Bedrock 19.3		Overburden 17.1		Bedrock 125.75				Overburden 5.6					
				Yukon CSR - AW (Freshwater) <sup>3</sup>	BH95G-24		BH95-25	BH95G-25S	BH95G-25S	BH95G-25D	BH95G-25D	BH95G-29	BH95G-29	BH95G-131	BH95-131	BH95-131	DUP02	MW15-11S	MW15-11S			
Part E - Effluent Quality Standards	Fine	Coarse	9-Aug-2015	10-May-2015	6-Aug-2015	1-Nov-2015	6-Aug-2015	1-Nov-2015	1995	9-Aug-2015	19-Aug-2015	31-Oct-2015	14-Mar-2016	7-Nov-2015	19-Mar-2016							
<b>Field</b>																						
Field pH	pH Units		6.5-9	6.5-9	6.5-9	6.5-9	-	7.24	7.50	7.13	7.19	7.22	7.13	-	7.56	7.05	7.09	7.26	-	7.67	7.79	
Field Electric Conductivity	µS/cm		-	-	-	-	-	779.9	926	931	937	985	984	-	446.2	109.8	1163	1166	-	621	732	
Field Temperature	°C		-	-	-	-	-	0.6	1	3.3	1.2	2.5	1.1	-	-0.1	1.8	-0.8	2.06	-	4.3	0.59	
Field Dissolved Oxygen	mg/L		-	-	-	-	-	0.82	11.3	0	1.8	0	0.9	-	0.81	0.67	5.8	4.5	-	1.2	3.2	
Field Redox	mV		-	-	-	-	-	-	-	-	-	-	-	-	-	-	66	-	-	-	448	
<b>Physical Parameters</b>																						
pH	pH Units		6.5-9	6.5-9	6.5-9	6.5-9	-	7.81	8.11	7.88	8.15	7.66	8.16	7.8	8.03	7.77	8.07	8.04	8.03	7.98	8.03	
Acidity (pH 4.5)	µg/L	500	-	-	-	-	-	<500	<500	<500	<500	<500	<500	-	<500	<500	<500	<500	<500	<500	<500	
Acidity (pH 8.3)	µg/L	500	-	-	-	-	-	4680	1330	4290	18,500	9700	14,600	-	<500	16700	18000	5360	4550	1010	890	
Electrical Conductivity (EC)	µS/cm	1	-	-	-	-	-	768	908	961	962	1020	1050	516	435	1160	1120	1100	1110	680	701	
Total Dissolved Solids (TDS)	µg/L	1000	-	-	-	-	-	502,000	656,000	668,000	688,000	734,000	772,000	224,000	258,000	824,000	832,000	728,000	790,000	462,000	434,000	
Total Suspended Solids (TSS)	µg/L	1000	15,000	-	-	See note <sup>4</sup>	-	983,000	-	3,320,000	539,000	1,560,000	459,000	-	9,360,000	161,000	154,000	36,300	36,000	88,000	464,000	
Hardness as CaCO <sub>3</sub>	mg/L	0.5	-	-	-	-	-	484	610	639	565	616	677	-	775	693	773	654	643	218	364	
Dissolved Hardness	mg/L	0.5	-	-	-	-	-	387	522	517	558	556	593	204	217	683	653	627	644	226	368	
Alkalinity (total as CaCO <sub>3</sub> )	µg/L	500	-	-	-	-	-	293,000	302,000	332,000	329,000	349,000	350,000	168,000	181,000	430,000	355,000	431,000	441,000	188,000	268,000	
Alkalinity (pp as CaCO <sub>3</sub> )	µg/L	500	-	-	-	-	-	<500	<500	<500	<500	<500	<500	-	<500	<500	<500	<500	<500	<500	<500	
Bicarbonate	µg/L	500	-	-	-	-	-	358,000	368,000	405,000	401,000	425,000	427,000	-	221,000	524,000	433,000	525,000	538,000	230,000	327,000	
Carbonate	µg/L	500	-	-	-	-	-	<500	<500	<500	<500	<500	<500	-	<500	<500	<500	<500	<500	<500	<500	
Hydroxide	µg/L	500	-	-	-	-	-	<500	<500	<500	<500	<500	<500	-	<500	<500	<500	<500	<500	<500	<500	
Chloride	mg/L	0.5	-	120	120	120	-	0.63	0.51	0.63	1.2	1.0	1.2	-	0.88	1	0.69	0.76	0.87	24	0.93	
Fluoride	µg/L	10	-	120	120	120	3000	67	120	120	110	98	83	-	110	95	85	75	75	190	160	
Sulphate	mg/L	0.5	-	100	100	-	1000	135	197	203	189	220	222	38.1	44	231	235	215	217	128	138	
Orthophosphate (as P)	µg/L	1	-	-	-	-	-	1.0	1.2	1.7	1.1	1.5	1.4	-	60	2.1	2.1	7	3.4	1.5	4.8	
Turbidity	NTU	0.1	-	-	-	-	-	198	587	665	193	476	201	-	2240	135	148	-	-	42.4	-	
Anions Total	meq/L		-	-	-	-	-	8.7	10	11	11	12	12	-	4.6	-	12	-	-	7.1	-	
Cations Total	meq/L		-	-	-	-	-	8.0	11	11	12	11	12	-	4.5	-	13	-	-	6.8	-	
Ionic Balance	N/A	0.01	-	-	-	-	-	0.92	1.1	1.0	1.1	0.98	1.0	-	0.99	1	1.1	0.98	0.98	0.96	0.97	

**Notes:**

- <sup>1</sup> Environment Canada (Revised March 2014). Guidance Document on Federal Interim Groundwater Quality Guidelines (FIGQG) for Federal Contaminated Sites, Tier 1 guidelines for fine and coarse grained soil under Commercial/Industrial land use
  - <sup>2</sup> Canadian Council of Ministers of the Environment (CCME) (Updated 2014). Canadian Water Quality Guidelines for the Protection of Aquatic Life (Freshwater)
  - <sup>3</sup> Environment Act. Contaminated Sites Regulation (CSR) (2002). Schedule 3, Generic Numerical Water Standards for Aquatic Life (AW)
  - <sup>4</sup> Maximum increase of 25 mg/L from background levels
  - <sup>5</sup> Standard varies with pH and temperature. Values shown based on field pH range of 7.13 to 7.79 and temperature range of -0.1 °C to 4.3 °C
  - <sup>6</sup> Guideline varies with pH. Values shown based on field pH range of 7.13 to 7.79
  - <sup>7</sup> Guideline varies with chloride. Values shown based on chloride range of 0.51 mg/L to 24 mg/L
  - <sup>8</sup> Guideline applied is for ultra-oligotrophic
  - <sup>9</sup> Guideline varies with hardness. Value shown based on hardness range of 218 mg/L to 775 mg/L for total metals, and 217 mg/L to 593 mg/L for dissolved metals
  - <sup>10</sup> Guideline is for Chromium VI
  - \* - No applicable standard or not analyzed
- Shaded - Greater than Federal Interim Guideline  
 BOLD - Greater than CCME AW Guideline  
 Underlined - Greater than Yukon CSR Guideline  
 RED - Greater than current Site Water Licence QZ97-026

Table 5E: Groundwater Analytical Results, Zone 4b (Open Pit - A Open Pit - West East)

Parameter	Unit	RDL	Water Use Licence QZ97-026	Federal Interim Guideline - Commercial/Industrial <sup>1</sup>		CCME - AW (Freshwater) <sup>2</sup>	Well ID	Statistical Analysis																		
				Part E - Effluent Quality Standards	Fine			Coarse	Aquifer & Approx. Sample Depth (m)g)	Overburden					Shallow Bedrock (<50 m depth)					Deep Bedrock (>50 depth)						
										Yukon CSR - AW (Freshwater) <sup>3</sup>	MIN	MAX	MEDIAN	MEAN	STDV	90th PERCENTILE	MIN	MAX	MEDIAN	MEAN	STDV	90th PERCENTILE	MIN	MAX	MEDIAN	MEAN
<b>Field</b>																										
Field pH	pH Units		6.5-9	6.5-9	6.5-9	6.5-9	-	7.13	7.79	7.53	7.473	0.263	7.73	7.13	7.24	7.22	7.197	0.059	7.236	7.05	7.26	7.09	7.133	0.112	7.226	
Field Electric Conductivity	µS/cm			-	-	-	-	446.2	937	829	765.533	203.233	934	779.9	985	984	916.300	118.127	984.8	109.8	1166	1163	812.933	608.933	1165.4	
Field Temperature	°C			-	-	-	-	-0.1	4.3	1.1	1.715	1.705	3.8	0.6	2.5	1.1	1.400	0.985	2.22	-0.8	2.06	1.8	1.020	1.582	2.008	
Field Dissolved Oxygen	mg/L			-	-	-	-	0	11.3	1.5	3.052	4.181	7.25	0	0.9	0.82	0.573	0.498	0.884	0.67	5.8	4.5	3.657	2.667	5.54	
Field Redox	mV			-	-	-	-	448	448	448	448.000	-	448	0	0	-	-	-	-	66	66	66	66.000	-	66	
<b>Physical Parameters</b>																										
pH	pH Units		6.5-9	6.5-9	6.5-9	6.5-9	-	7.80	8.15	8.03	8.00	0.12	8.13	7.66	8.16	7.81	7.88	0.26	8.09	7.77	8.07	8.04	7.98	0.14	8.06	
Acidity (pH 4.5)	µg/L	500		-	-	-	-	<500	<500	-	-	-	-	<500	<500	-	-	-	-	<500	<500	-	-	-	-	
Acidity (pH 8.3)	µg/L	500		-	-	-	-	<500	18500	1170	4420	7032	11395	4680	14600	9700	9660	4960	13620	4550	18000	11030	11153	7184	17610	
Electrical Conductivity (EC)	µS/cm	1		-	-	-	-	435	962	701	738	214	961	768	1050	1020	946	155	1044	1100	1160	1115	1123	26	1148	
Total Dissolved Solids (TDS)	µg/L	1000		-	-	-	-	224000	688000	462000	484286	194386	676000	502000	772000	734000	669333	146155	764400	728000	832000	807000	793500	47311	829600	
Total Suspended Solids (TSS)	µg/L	1000	15,000	-	-	See note <sup>4</sup>	-	88000	9360000	539000	2754200	3912080	6944000	459000	1560000	983000	1000667	550713	1444600	36000	161000	95150	96825	70120	158900	
Hardness as CaCO <sub>3</sub>	mg/L	0.5		-	-	-	-	218	775	588	529	202	707	484	677	616	592	99	665	643	773	674	691	59	749	
Dissolved Hardness	mg/L	0.5		-	-	-	-	204	558	368	373	159	536	387	593	556	512	110	586	627	683	649	652	23	674	
Alkalinity (total as CaCO <sub>3</sub> )	µg/L	500		-	-	-	-	168000	332000	268000	252571	72198	330200	293000	350000	349000	330667	32624	349800	355000	441000	430500	414250	39811	438000	
Alkalinity (pp as CaCO <sub>3</sub> )	µg/L	500		-	-	-	-	<500	<500	-	-	-	-	<500	<500	-	-	-	-	<500	<500	-	-	-	-	
Bicarbonate	µg/L	500		-	-	-	-	221000	405000	347500	325333.333	82303.503	403000	358000	427000	425000	403333.333	39272.552	426600	433000	538000	524500	505000.000	48421.758	534100	
Carbonate	µg/L	500		-	-	-	-	<500	<500	-	-	-	-	<500	<500	-	-	-	-	<500	<500	-	-	-	-	
Hydroxide	µg/L	500		-	-	-	-	<500	<500	-	-	-	-	<500	<500	-	-	-	-	<500	<500	-	-	-	-	
Chloride	mg/L	0.5		120	120	120	-	0.51	24	0.91	4.692	9.462	12.6	0.63	1.2	1	0.943	0.289	1.16	0.69	1	0.815	0.830	0.135	0.961	
Fluoride	µg/L	10		120	120	120	3000	110	190	120	135	33	175	67	98	83	83	16	95	75	95	80	83	10	92	
Sulphate	mg/L	0.5		100	100	-	1000	38	203	138	134	70	199	135	222	220	192	50	222	215	235	224	225	10	234	
Orthophosphate (as P)	µg/L	1		-	-	-	-	1.1	60	1.6	11.717	23.695	32.4	<1	1.5	1.4	1.300	0.265	1.48	2.1	7	2.75	3.650	2.316	5.92	
Turbidity	NTU	0.1		-	-	-	-	42.4	2240	587	745.480	875.320	1610	198	476	201	291.667	159.644	421	135	148	141.5	141.500	9.192	146.7	
Anions Total	meq/L			-	-	-	-	4.6	11	10	8.740	2.812	11	8.7	12	12	10.900	1.905	12	12	12	12	12.000	-	12	
Cations Total	meq/L			-	-	-	-	4.5	12	11	9.060	3.243	11.6	8	12	11	10.333	2.082	11.8	13	13	13	13.000	-	13	
Ionic Balance	N/A	0.01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

**Notes:**

- <sup>1</sup> Environment Canada (Revised March 2014). Guidance Document on Federal Interim Groundwater Quality Guidelines (FIGQG) for Federal Contaminated Sites, Tier 1 guidelines for fine and coarse grained soil under Commercial/Industrial land use
  - <sup>2</sup> Canadian Council of Ministers of the Environment (CCME) (Updated 2014). Canadian Water Quality Guidelines for the Protection of Aquatic Life (Freshwater)
  - <sup>3</sup> Environment Act. Contaminated Sites Regulation (CSR) (2002). Schedule 3, Generic Numerical Water Standards for Aquatic Life (AW)
  - <sup>4</sup> Maximum increase of 25 mg/L from background levels
  - <sup>5</sup> Standard varies with pH and temperature. Values shown based on field pH range of 7.13 to 7.79 and temperature range of -0.1 °C to 4.3 °C
  - <sup>6</sup> Guideline varies with pH. Values shown based on field pH range of 7.13 to 7.79
  - <sup>7</sup> Guideline varies with chloride. Values shown based on chloride range of 0.51 mg/L to 24 mg/L
  - <sup>8</sup> Guideline applied is for ultra-oligotrophic
  - <sup>9</sup> Guideline varies with hardness. Value shown based on hardness range of 218 mg/L to 775 mg/L for total metals, and 217 mg/L to 593 mg/L for dissolved metals
  - <sup>10</sup> Guideline is for Chromium VI
  - \*- No applicable standard or not analyzed
- Shaded - Greater than Federal Interim Guideline  
 BOLD - Greater than CCME AW Guideline  
 Underlined - Greater than Yukon CSR Guideline  
 RED - Greater than current Site Water Licence QZ97-026











Table 6: Quality Assurance / Quality Control

Parameter	Unit	RDL	DUPLICATES						DUPLICATES					
			MW15-03D	DUP01	RPD (%)	BH95-131	DUP02	RPD (%)	BH95-21	DUP 01	RPD (%)	MW15-01	DUP02	RPD (%)
			13-Mar-2016			14-Mar-2016			12-May-2015			1-Sep-2015		
<b>Physical Parameters</b>														
pH	pH Units	N/A	8.02	8.19	2.1	8.04	8.03	0.1	8.22	8.21	0.1	8.16	8.00	2.0
Acidity (pH 4.5)	µg/L	500	<500	<500	-	<500	<500	-	<500	<500	-	<500	<500	-
Acidity (pH 8.3)	µg/L	500	<500	<500	-	5360	4550	16.3	<500	<500	-	<500	<500	-
Electrical Conductivity (EC)	µS/cm	1	394	391	0.8	1100	1110	0.9	402	397	1.3	432	428	0.9
Total Dissolved Solids (TDS)	µg/L	1000	230,000	246,000	6.7	728,000	790,000	8.2	284,000	250,000	12.7	286,000	274,000	4.3
Total Suspended Solids (TSS)	µg/L	1000	61,700	15,200	<b>121</b>	36,300	36,000	0.8			-	<1000	1000	-
Hardness as CaCO <sub>3</sub>	mg/L	0.5	199	199	0.0	654	643	1.7	238	248	4.1	233	233	0.0
Dissolved Hardness	mg/L	0.5	201	198	1.5	627	644	2.7	221	215	2.8	239	243	1.7
Alkalinity (total as CaCO <sub>3</sub> )	µg/L	500	194,000	195,000	0.5	431,000	441,000	2.3	165,000	163,000	1.2	179,000	174,000	2.8
Alkalinity (pp as CaCO <sub>3</sub> )	µg/L	500	<500	<500	-	<500	<500	-	<500	<500	-	<500	<500	-
Bicarbonate	µg/L	500	237,000	238,000	0.4	525,000	538,000	2.4	201,000	199,000	1.0	218,000	213,000	2.3
Carbonate	µg/L	500	<500	<500	-	<500	<500	-	<500	<500	-	<500	<500	-
Hydroxide	µg/L	500	<500	<500	-	<500	<500	-	<500	<500	-	<500	<500	-
Chloride	mg/L	0.5	<0.50	0.58	-	0.76	0.87	13.5	<0.50	0.51	-	0.8	0.8	-
Fluoride	µg/L	10	150	150	0.0	75	75	0.0	100	100	0.0	94	93	1.1
Sulphate	mg/L	0.5	21.3	21.3	0.0	215	217	0.9	46.5	45.9	1.3	52.1	50.6	2.9
Orthophosphate (as P)	µg/L	1	4.9	4.2	-	7.0	3.4	<b>69.2</b>	<1.0	<1.0	-	<1.0	<1.0	-
Turbidity	NTU	0.1							640	728	12.9	0.27	0.24	-
Anions Total	meq/L	N/A							4.3	4.2	2.4	4.7	4.6	2.2
Cations Total	meq/L	N/A							4.5	4.4	2.2	4.9	5.0	2.0
Ionic Balance	N/A	0.01	0.98	0.96	2.1	0.98	0.98	0.0	1.1	1.0	9.5	1.0	1.1	9.5
<b>Nutrients</b>														
Ammonia	µg/L	5	88	110	22.2	46	59	24.8	19	42	-	7.3	<5	-
Total Kjeldahl Nitrogen (TKN)	µg/L	20	150	138	8.3	99	97	2.0	33	350	-	78	113	<b>36.6</b>
Nitrate (as NO <sub>3</sub> -N)	µg/L	2	<2.0	<2.0	-	<2.0	<2.0	-	4.8	5.2	-	189	191	1.1
Nitrite (as NO <sub>2</sub> -N)	µg/L	2	<2.0	<2.0	-	<2.0	<2.0	-	<2.0	<2.0	-	<2.0	<2.0	-
Nitrate and Nitrite (as N)	µg/L	2	<2.0	<2.0	-	<2.0	<2.0	-	4.8	10	-	189	191	1.1
Nitrogen (Total)	µg/L	20	150	138	8.3	99	97	2.0	38	350	-	268	305	12.9
Phosphorus	µg/L	2	12.3	16.4	28.6	29.9	32.3	7.7	914	732	22.1	2.9	3.2	-
<b>Carbon</b>														
Dissolved Organic Carbon (DOC)	µg/L	500	1960	2540	-	2120	2440	-			-			-
Total Organic Carbon (TOC)	µg/L	500							770	1070	-	540	<500	-

**Notes:**  
 RDL - Reportable detection limit  
 RPD - Relative percent difference calculated as  $(\text{abs}(C1-C2)/\text{average}(C1+C2)) \times 100$   
 N/A - Not applicable  
 "-" Indicates RPD not calculated. RPD cannot be calculated if one or more of the analytical results are less than detection limits or within 5 times the detection limits.  
**BOLD** - RPD value greater than 30%

Table 6: Quality Assurance / Quality Control

Parameter	Unit	RDL	DUPLICATES						DUPLICATES					
			MW15-03D	DUP01	RPD (%)	BH95-131	DUP02	RPD (%)	BH95-21	DUP 01	RPD (%)	MW15-01	DUP02	RPD (%)
			13-Mar-2016			14-Mar-2016			12-May-2015			1-Sep-2015		
<b>Dissolved Metals</b>														
Aluminum	µg/L	0.5	2.76	2.50	9.9	3.52	1.61	-	23.6	2.02	-	6.36	3.08	<b>69.5</b>
Antimony	µg/L	0.02	0.228	0.221	3.1	0.635	0.605	4.8	0.088	0.113	-	<0.020	0.032	-
Arsenic	µg/L	0.02	1.82	1.83	0.5	7.10	6.61	7.1	1.55	1.53	1.3	0.880	0.877	0.3
Barium	µg/L	0.02	47.1	48.0	1.9	20.1	20.0	0.5	46.0	42.7	7.4	96.6	97.9	1.3
Beryllium	µg/L	0.01	<0.010	<0.010	-	<0.010	<0.010	-	<0.01	<0.01	-	<0.010	<0.010	-
Bismuth	µg/L	0.005	<0.0050	<0.0050	-	<0.0050	<0.0050	-	<0.0050	<0.0050	-	<0.0050	<0.0050	-
Boron	µg/L	10	<10	<10	-	<10	<10	-	<10	<10	-	<10	<10	-
Cadmium	µg/L	0.005	<0.0050	<0.0050	-	0.039	0.038	2.6	0.0063	<0.0050	-	<0.0050	<0.0050	-
Calcium	µg/L	50	54,800	53,400	2.6	155,000	163,000	5.0	68,500	66,200	3.4	77,500	79,000	1.9
Chromium	µg/L	0.1	<0.10	<0.10	-	0.19	0.19	-	<0.10	<0.10	-	<0.10	<0.10	-
Cobalt	µg/L	0.005	0.090	0.089	1.1	0.069	0.061	12.3	0.0781	0.0674	14.7	0.040	0.038	5.1
Copper	µg/L	0.05	<0.050	0.052	-	0.423	0.200	-	0.15	0.069	-	0.072	0.062	-
Iron	µg/L	1	911	934	2.5	2150	2210	2.8	266	295	10.3	12.2	7.4	<b>49.0</b>
Lead	µg/L	0.005	<0.0050	<0.0050	-	1.9	1.84	3.2	0.0854	0.0144	-	0.025	<0.0050	-
Lithium	µg/L	0.5	6.54	6.1	7.0	16.2	16.4	1.2	6.04	6.01	0.5	1.75	1.75	-
Magnesium	µg/L	50	15,600	15,800	1.3	58,600	57,900	1.2	12,200	12,100	0.8	10,900	11,100	1.8
Manganese	µg/L	0.05	66.2	66.7	0.8	176	171	2.9	58.6	58.2	0.7	1.90	1.83	3.8
Mercury	µg/L	0.002	<0.0020	<0.0020	-	<0.0020	<0.0020	-	<0.0020	<0.0020	-	<0.0020	<0.0020	-
Molybdenum	µg/L	0.05	3.96	3.92	1.0	0.066	0.061	-	0.392	0.353	10.5	0.83	0.888	6.8
Nickel	µg/L	0.02	0.248	0.255	2.8	0.348	0.204	<b>52.2</b>	0.301	0.319	5.8	0.167	0.154	8.1
Phosphorus	µg/L	2	7.6	5.7	-	5.6	10.7	-	4.8	2.3	-	4.6	2.9	-
Potassium	µg/L	50	2640	2700	2.2	4070	3860	5.3	1580	1520	3.9	2430	2410	0.8
Selenium	µg/L	0.04	<0.040	<0.040	-	<0.040	<0.040	-	<0.040	<0.040	-	1.50	1.61	7.1
Silicon	µg/L	50	4910	4830	1.6	13,000	13,200	1.5	3750	3960	5.4	2480	2530	2.0
Silver	µg/L	0.005	<0.0050	<0.0050	-	0.036	0.035	2.8	<0.0050	<0.0050	-	<0.0050	<0.0050	-
Sodium	µg/L	50	2720	2740	0.7	1610	1610	0.0	1260	944	28.7	715	740	3.4
Strontium	µg/L	0.05	269	266	1.1	783	794	1.4	205	204	0.5	297	297	0.0
Sulphur (Elemental)	µg/L	3000	7900	7700	-	74,800	80,300	7.1	15,300	16,300	6.3	18,800	17,600	6.6
Thallium	µg/L	0.002	<0.0020	<0.0020	-	0.003	0.002	-	<0.0020	0.0059	-	<0.0020	<0.0020	-
Tin	µg/L	0.2	<0.20	<0.20	-	<0.20	<0.20	-	<0.20	<0.20	-	<0.20	<0.20	-
Titanium	µg/L	0.5	<0.50	<0.50	-	<0.50	<0.50	-	<0.50	<0.50	-	<0.50	<0.50	-
Uranium	µg/L	0.002	1.84	1.83	0.5	16.0	15.1	5.8	4.54	4.67	2.8	3.02	2.99	1.0
Vanadium	µg/L	0.2	<0.20	<0.20	-	<0.20	<0.20	-	<0.20	<0.20	-	<0.20	<0.20	-
Zinc	µg/L	0.1	0.84	0.57	<b>38.3</b>	8.11	7.03	14.3	19.4	0.43	-	0.31	0.25	-
Zirconium	µg/L	0.1	1.01	0.95	6.1	14.8	15.1	2.0	0.11	<0.10	-	<0.10	<0.10	-

**Notes:**  
 RDL - Reportable detection limit  
 RPD - Relative percent difference calculated as  $(\text{abs}(C1-C2)/\text{average}(C1+C2)) \times 100$   
 N/A - Not applicable  
 "-" Indicates RPD not calculated. RPD cannot be calculated if one or more of the analytical results are less than detection limits or within 5 times the detection limits.  
**BOLD** - RPD value greater than 30%

Table 6: Quality Assurance / Quality Control

Parameter	Unit	RDL	DUPLICATES			DUPLICATES								
			MW15-04S	DUP03	RPD (%)	ART - 3 (1)	DUP04	RPD (%)	MW15-04D	DUP01	RPD (%)	MW15-03D	DUP02	RPD (%)
			4-Sep-2015			23-Sep-2015			31-Oct-2015			2-Nov-2015		
<b>Physical Parameters</b>														
pH	pH Units	N/A	8.12	7.66	5.8	7.44	7.96	6.8	8.23	8.23	0.0	8.29	8.29	0.0
Acidity (pH 4.5)	µg/L	500	<500	<500	-	<500	<500	-	<500	<500	-	<500	<500	-
Acidity (pH 8.3)	µg/L	500	840	2350	<b>94.7</b>	4180	2760	<b>40.9</b>	1830	1270	-	4260	3610	16.5
Electrical Conductivity (EC)	µS/cm	1	239	242	1.2	387	389	0.5	344	354	2.9	395	402	1.8
Total Dissolved Solids (TDS)	µg/L	1000	136,000	152,000	11.1	268,000	262,000	2.3	266,000	264,000	0.8	240,000	260,000	8.0
Total Suspended Solids (TSS)	µg/L	1000	2,590,000	4,350,000	<b>50.7</b>	9300	5500	<b>51.4</b>	5,570,000	5,180,000	7.3	3500	3400	-
Hardness as CaCO <sub>3</sub>	mg/L	0.5	313	285	9.4	199	196	1.5	2530	1460	<b>53.6</b>	199	207	3.9
Dissolved Hardness	mg/L	0.5	127	119	6.5	191	198	3.6	78.9	89	12.0	210	208	1.0
Alkalinity (total as CaCO <sub>3</sub> )	µg/L	500	117,000	114,000	2.6	103,000	107,000	3.8	140,000	139,000	0.7	188,000	187,000	0.5
Alkalinity (pp as CaCO <sub>3</sub> )	µg/L	500	<500	<500	-	<500	<500	-	<500	<500	-	<500	<500	-
Bicarbonate	µg/L	500	142,000	139,000	2.1	126,000	130,000	3.1	171,000	169,000	1.2	229,000	228,000	0.4
Carbonate	µg/L	500	<500	<500	-	<500	<500	-	<500	<500	-	<500	<500	-
Hydroxide	µg/L	500	<500	<500	-	<500	<500	-	<500	<500	-	<500	<500	-
Chloride	mg/L	0.5	0.96	0.82	-	<0.50	0.65	-	2.6	3.2	20.7	1.1	1.6	-
Fluoride	µg/L	10	100	100	0.0	150	170	12.5	240	250	4.1	150	150	0.0
Sulphate	mg/L	0.5	10.1	10.7	5.8	100	86.8	14.1	34.8	36.8	5.6	24	23.9	0.4
Orthophosphate (as P)	µg/L	1	3.4	2.3	-	1.3	5.0	-	2.9	1.8	-	1.8	2.1	-
Turbidity	NTU	0.1	2070	2220	7.0	36.9	29.6	22.0	2890	2710	6.4	3.59	3.18	12.1
Anions Total	meq/L	N/A	2.6	2.5	3.9	-	-	-	3.6	3.6	0.0	4.3	4.3	0.0
Cations Total	meq/L	N/A	2.7	2.5	7.7	-	-	-	4.0	4.2	4.9	4.4	4.4	0.0
Ionic Balance	N/A	0.01	1.0	0.99	1.0	1.0	1.1	9.5	1.1	1.1	0.0	1.0	1.0	0.0
<b>Nutrients</b>														
Ammonia	µg/L	5	88	37	<b>81.6</b>	33	64	<b>63.9</b>	47	65	<b>32.1</b>	160	150	6.5
Total Kjeldahl Nitrogen (TKN)	µg/L	20	209	183	13.3	176	39	-	142	170	17.9	225	202	10.8
Nitrate (as NO <sub>3</sub> -N)	µg/L	2	155	158	1.9	<2.0	2.7	-	3.6	5.0	-	2.7	<2.0	-
Nitrite (as NO <sub>2</sub> -N)	µg/L	2	<2.0	5.4	-	7.3	<2.0	-	2.2	<2.0	-	<2.0	<2.0	-
Nitrate and Nitrite (as N)	µg/L	2	155	163	5.0	8.9	2.7	-	5.8	5.0	-	2.7	<2.0	-
Nitrogen (Total)	µg/L	20	364	346	5.1	185	41	-	148	175	16.7	228	202	12.1
Phosphorus	µg/L	2	2310	1580	<b>37.5</b>	23.5	28	17.5	27,800	19,000	<b>37.6</b>	9.2	10	-
<b>Carbon</b>														
Dissolved Organic Carbon (DOC)	µg/L	500	-	-	-	-	-	-	-	-	-	-	-	-
Total Organic Carbon (TOC)	µg/L	500	960	1200	-	580	890	-	1910	1660	-	1170	910	-

**Notes:**  
 RDL - Reportable detection limit  
 RPD - Relative percent difference calculated as  $(\text{abs}(C1-C2)/\text{average}(C1+C2)) \times 100$   
 N/A - Not applicable  
 "-" Indicates RPD not calculated. RPD cannot be calculated if one or more of the analytical results are less than detection limits or within 5 times the detection limits.  
**BOLD** - RPD value greater than 30%



Table 6: Quality Assurance / Quality Control

Parameter	Unit	RDL	DUPLICATES			DUPLICATES								
			MW15-04S	DUP03	RPD (%)	ART - 3 (1)	DUP04	RPD (%)	MW15-04D	DUP01	RPD (%)	MW15-03D	DUP02	RPD (%)
			4-Sep-2015			23-Sep-2015			31-Oct-2015			2-Nov-2015		
<b>Dissolved Metals</b>														
Aluminum	µg/L	0.5	4.55	4.48	1.6	1.86	17.9	-	2.99	7.15	<b>82.1</b>	14.4	7.81	<b>59.3</b>
Antimony	µg/L	0.02	0.021	<0.020	-	39.0	33.2	16.1	0.033	0.026	-	1.93	1.74	10.4
Arsenic	µg/L	0.02	0.25	0.252	0.8	156	132	16.7	1.74	1.82	4.5	2.29	2.27	0.9
Barium	µg/L	0.02	69.5	70.8	1.9	17.6	19.6	10.8	22.7	22.1	2.7	50.1	46.0	8.5
Beryllium	µg/L	0.01	<0.010	<0.010	-	<0.010	<0.010	-	<0.010	<0.010	-	<0.010	<0.010	-
Bismuth	µg/L	0.005	<0.0050	<0.0050	-	0.0184	<0.0050	-	<0.0050	<0.0050	-	<0.0050	<0.0050	-
Boron	µg/L	10	<10	<10	-	<10	<10	-	23	22	4.4	<10	<10	-
Cadmium	µg/L	0.005	0.015	0.015	-	0.424	0.362	15.8	0.028	0.028	0.0	<0.0050	<0.0050	-
Calcium	µg/L	50	44,600	41,300	7.7	63,100	65,100	3.1	28,300	27,600	2.5	57,600	56,500	1.9
Chromium	µg/L	0.1	0.13	0.14	-	<0.10	<0.10	-	<0.10	<0.10	-	<0.10	<0.10	-
Cobalt	µg/L	0.005	0.194	0.203	4.5	1.67	1.65	1.2	0.343	0.353	2.9	0.134	0.128	4.6
Copper	µg/L	0.05	0.693	0.669	3.5	<0.050	0.711	-	0.885	0.230	-	0.091	0.094	-
Iron	µg/L	1	1.1	2.1	-	6680	5570	18.1	71.6	70.8	1.1	806	779	3.4
Lead	µg/L	0.005	<0.0050	<0.0050	-	0.626	0.894	<b>35.3</b>	0.096	0.032	<b>100</b>	0.014	0.047	-
Lithium	µg/L	0.5	0.79	0.81	-	4.76	4.54	4.7	2.93	2.91	0.7	6.70	5.88	13.0
Magnesium	µg/L	50	3810	3860	1.3	8180	8600	5.0	3050	3040	0.3	16,200	16,400	1.2
Manganese	µg/L	0.05	38.3	39.6	3.3	507	459	9.9	102	103	1.0	73.8	73.3	0.7
Mercury	µg/L	0.002	<0.0020	<0.0020	-	<0.0020	<0.0020	-	<0.0020	<0.0020	-	<0.0020	<0.0020	-
Molybdenum	µg/L	0.05	3.29	3.30	0.3	0.647	0.666	2.9	5.19	5.78	10.8	3.72	3.25	13.5
Nickel	µg/L	0.02	3.53	3.98	12.0	2.42	2.44	0.8	1.07	0.849	23.0	0.455	0.476	4.5
Phosphorus	µg/L	2	4.2	4.1	-	<2.0	8.4	-	9.4	7.5	-	4.1	4.4	-
Potassium	µg/L	50	1740	1790	2.8	1760	1940	9.7	2690	2640	1.9	2680	2690	0.4
Selenium	µg/L	0.04	0.741	0.741	0.0	<0.040	<0.040	-	0.089	0.088	-	<0.040	<0.040	-
Silicon	µg/L	50	3080	2950	4.3	5720	5510	3.7	2570	2500	2.8	4130	4020	2.7
Silver	µg/L	0.005	<0.0050	<0.0050	-	<0.0050	0.006	-	<0.0050	<0.0050	-	<0.0050	<0.0050	-
Sodium	µg/L	50	1830	1900	3.8	874	1240	<b>34.6</b>	55,800	55,000	1.4	2710	2700	0.4
Strontium	µg/L	0.05	173	171	1.2	204	205	0.5	203	206	1.5	244	243	0.4
Sulphur (Elemental)	µg/L	3000	3500	<3000	-	29,800	29,900	0.3	17,300	17,300	0.0	8200	8200	-
Thallium	µg/L	0.002	0.002	0.002	-	0.256	0.454	<b>55.8</b>	0.004	0.003	-	<0.0020	<0.0020	-
Tin	µg/L	0.2	<0.20	<0.20	-	<0.20	<0.20	-	<0.20	<0.20	-	<0.20	<0.20	-
Titanium	µg/L	0.5	<0.50	<0.50	-	<0.50	0.75	-	0.65	<0.50	-	0.62	<0.50	-
Uranium	µg/L	0.002	0.739	0.735	0.5	5.23	5.73	9.1	3.91	3.78	3.4	3.02	2.70	11.2
Vanadium	µg/L	0.2	<0.20	<0.20	-	<0.20	<0.20	-	<0.20	<0.20	-	<0.20	<0.20	-
Zinc	µg/L	0.1	1.47	1.44	2.1	2270	1680	29.9	9.56	0.64	<b>175</b>	0.48	0.39	-
Zirconium	µg/L	0.1	<0.10	<0.10	-	0.13	0.30	-	<0.10	0.19	-	0.43	0.42	-

**Notes:**  
 RDL - Reportable detection limit  
 RPD - Relative percent difference calculated as  $(\text{abs}(C1-C2)/\text{average}(C1+C2)) \times 100$   
 N/A - Not applicable  
 "-" Indicates RPD not calculated. RPD cannot be calculated if one or more of the analytical results are less than detection limits or within 5 times the detection limits.  
**BOLD** - RPD value greater than 30%

**Table 7A: Maximum Groundwater Guideline Exceedances, Zone 1 (Tailing Management Facility, Mill Site, Polishing Pond, Water Management Pond) (2015/16)**

Parameter	Unit	RDL	Water Use Licence QZ97-026	Federal Interim Guideline - Commercial/Industrial <sup>1</sup>		CCME - AW (Freshwater) <sup>2</sup>	Well ID	BH95G-2	MW15-07S	MW15-07D	MW15-08S	MW15-08D	MW15-09S	MW15-09D	MW15-10S	MW15-10D	
				Part E - Effluent Quality Standards	Fine		Coarse	Aquifer & Approx. Sample Depth (mbg)	Bedrock 17.5	Overburden 9.55	Bedrock 29.2	Overburden 10.15	Bedrock 32.7	Overburden 14.35	Bedrock 38	Overburden 8.1	Bedrock 28.6
								Yukon CSR - AW (Freshwater) <sup>3</sup>	BH95-2	MW15-07S	MW15-07D	MW15-08S	MW15D-08D	MW15-09S	MW15-09D	MW15-10S	MW15-10D
Field pH	pH Units	0.05	6.5-9	6.5-9	6.5-9	6.5-9	-	-	-	-	-	-	-	5.68	6.17	6.03	
Total Suspended Solids (TSS)	µg/L	1000	15000	-	-	-	-	1230000	6590000	-	-	242000	102000	284000	1200000	428000	
Fluoride	µg/L	10	-	120	120	120	3000	-	300	340	-	610	250	730	190	1300	
Aluminum	µg/L	0.5	-	5, 100 <sup>6</sup>	5, 100 <sup>6</sup>	5, 100 <sup>6</sup>	-	-	-	-	-	-	-	170	8.18	438	
Arsenic	µg/L	0.02	50	5	5	5	50	-	5.07	-	-	-	-	8.48	11.7	-	
Cadmium	µg/L	0.005	7	0.017	0.017	0.09	0.5-0.6 <sup>9</sup>	1.57	-	-	0.059	0.032	0.046	-	0.190	0.172	
Chromium	µg/L	0.1	-	8.9	8.9	1 <sup>10</sup>	10 <sup>10</sup>	-	-	-	-	-	-	3.04	-	5.39	
Iron	µg/L	1	-	300	300	300	-	-	592	498	-	655	1310	12,300	4250	36,600	
Phosphorus	µg/L	2	-	-	-	4 <sup>8</sup>	-	16.4	6.9	5.3	-	5.0	8.7	8.4	16.8	15.1	
Selenium	µg/L	0.04	15	1	1	1	10	6.23	-	-	1.48	-	-	-	1.72	-	
Zinc	µg/L	0.1	110	10	10	30	900-2400 <sup>9</sup>	24.9	-	-	-	-	-	-	-	21.7	

**Notes:**

- Result does not exceed guideline value
- <sup>1</sup> Environment Canada (Revised March 2014). Guidance Document on Federal Interim Groundwater Quality Guidelines (FIGQG) for Federal Contaminated Sites, Tier 1 guidelines for fine and coarse grained soil under Commercial/Industrial land use
- <sup>2</sup> Canadian Council of Ministers of the Environment (CCME) (Updated 2014). Canadian Water Quality Guidelines for the Protection of Aquatic Life (Freshwater)
- <sup>3</sup> Environment Act. Contaminated Sites Regulation (CSR) (2002). Schedule 3, Generic Numerical Water Standards for Aquatic Life (AW)
- <sup>4</sup> Maximum increase of 25 mg/L from background levels
- <sup>5</sup> Standard varies with pH and temperature. Values shown based on field pH range of 5.68 to 7.71 and temperature range of -2.7 °C to 3.3 °C
- <sup>6</sup> Guideline varies with pH. Values shown based on field pH range of 5.68 to 7.71
- <sup>7</sup> Guideline varies with chloride. Values shown based on chloride range of <0.50 mg/L to 3.8 mg/L
- <sup>8</sup> Guideline applied is for ultra-oligotrophic
- <sup>9</sup> Guideline varies with hardness. Value shown based on hardness range of 200 mg/L to 2120 mg/L for total metals, and 136 mg/L to 2180 mg/L for dissolved metals
- <sup>10</sup> Guideline is for Chromium VI
- "-" No applicable standard or not analyzed

Shaded - Greater than Federal Interim Guideline

**BOLD** - Greater than CCME AW Guideline

Underlined - Greater than Yukon CSR Guideline

**RED** - Greater than current Site Water Licence QZ97-026



**Table 7B: Maximum Groundwater Guideline Exceedances, Zone 2 (Class C Storage Facility and Overburden Stockpile) (2015/16)**

Parameter	Unit	RDL	Water Use Licence QZ97-026	Federal Interim Guideline - Commercial/Industrial <sup>1</sup>		CCME - AW (Freshwater) <sup>2</sup>	Well ID	BH95G-30	BH95G-31	MW15-03S	MW15-03D	MW15-04S	MW15-04D	MW15-05D	MW15-06
				Aquifer & Approx. Sample Depth (mbg)	Bedrock 17.7		Bedrock 8.5	Overburden 5.6	Bedrock 13.05	Overburden 12.65	Bedrock 30	Bedrock 26.1	Overburden 7.95		
					Yukon CSR - AW (Freshwater) <sup>3</sup>		BH95G-30	BH95G-31	MW15-03S	MW15-03D	MW15-04S	MW15-04D	MW15-05D	MW15-06	
								2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16
Field pH	pH Units	0.01	6.5-9	6.5-9	6.5-9	6.5-9	-	-	6.06	-	-	-	-	-	-
Total Suspended Solids (TSS)	µg/L	1000	15000	-	-	-	-	970000	5060000	2340000	61700	4350000	5570000	1970000	134000
Fluoride	µg/L	10	-	120	120	120	3000	140	-	-	170	-	250	180	-
Aluminum	µg/L	0.5	-	5, 100 <sup>6</sup>	5, 100 <sup>6</sup>	5, 100 <sup>6</sup>	-	-	-	11.4	-	-	-	-	-
Cadmium	µg/L	0.005	7	0.017	0.017	0.09	0.3-0.6 <sup>9</sup>	0.095	0.023	0.033	-	-	0.040	0.065	0.175
Iron	µg/L	1	-	300	300	300	-	-	-	-	934	-	-	-	-
Phosphorus	µg/L	2	-	-	-	4 <sup>8</sup>	-	8.4	9.0	10.5	7.6	4.3	10.1	5.5	5.6
Selenium	µg/L	0.04	15	1	1	1	10	2.11	1.66	-	-	-	-	1.77	2.49
Zinc	µg/L	0.1	110	10	10	30	75-1650 <sup>9</sup>	-	-	10.6	-	-	-	-	-

**Notes:**

- Result does not exceed guideline value
- <sup>1</sup> Environment Canada (Revised March 2014). Guidance Document on Federal Interim Groundwater Quality Guidelines (FIGQG) for Federal Contaminated Sites, Tier 1 guidelines for fine and coarse grained soil under Commercial/Industrial land use
- <sup>2</sup> Canadian Council of Ministers of the Environment (CCME) (Updated 2014). Canadian Water Quality Guidelines for the Protection of Aquatic Life (Freshwater)
- <sup>3</sup> Environment Act. Contaminated Sites Regulation (CSR) (2002). Schedule 3, Generic Numerical Water Standards for Aquatic Life (AW)
- <sup>4</sup> Maximum increase of 25 mg/L from background levels
- <sup>5</sup> Standard varies with pH and temperature. Values shown based on field pH range of 6.06 to 8.10 and temperature range of -1 °C to 3.2 °C
- <sup>6</sup> Guideline varies with pH. Values shown based on field pH range of 6.06 to 8.10
- <sup>7</sup> Guideline varies with chloride. Values shown based on chloride range of <0.50 mg/L to 3.2 mg/L
- <sup>8</sup> Guideline applied is for ultra-oligotrophic
- <sup>9</sup> Guideline varies with hardness. Value shown based on hardness range of 147 mg/L to 2530 mg/L for total metals, and 78.9 mg/L to 212 mg/L for dissolved metals
- <sup>10</sup> Guideline is for Chromium VI

"-" No applicable standard or not analyzed

Shaded - Greater than Federal Interim Guideline

**BOLD** - Greater than CCME AW Guideline

Underlined - Greater than Yukon CSR Guideline

**RED** - Greater than current Site Water Licence QZ97-026

**Table 7C: Maximum Groundwater Guideline Exceedances, Zone 3 (Class B Storage Facility) (2015/16)**

Parameter	Unit	RDL	Water Use Licence QZ97-026	Federal Interim Guideline - Commercial/Industrial <sup>1</sup>		CCME - AW (Freshwater) <sup>2</sup>	Well ID	BH95G-32	BH95G-33D	MW15-01	MW15-02
				Aquifer & Approx. Sample Depth (mbg)	Bedrock 13.7		Bedrock 10.6	Bedrock 14.4	Bedrock 27.35		
			Part E - Effluent Quality Standards	Fine	Coarse		Yukon CSR - AW (Freshwater) <sup>3</sup>	BH95-32 2015/16	BH95G-33D 2015/16	MW15-01 2015/16	MW15-02 2015/16
Total Suspended Solids (TSS)	µg/L	1000	15000	-	-	-	-	3050000	1290000	1910000	410000
Sulphate	mg/L	0.5	-	100	100	-	<u>1000</u>	-	-	138	-
Cadmium	µg/L	0.005	7	0.017	0.017	<b>0.09</b>	<u>0.6</u> <sup>9</sup>	<b>0.130</b>	-	0.020	-
Phosphorus	µg/L	2	-	-	-	<b>4</b> <sup>8</sup>	-	-	<b>4.5</b>	<b>5.5</b>	<b>4.2</b>
Selenium	µg/L	0.04	15	1	1	<b>1</b>	<u>10</u>	-	<b>6.27</b>	<b>1.61</b>	-

**Notes:**

- Result does not exceed guideline value

<sup>1</sup> Environment Canada (Revised March 2014). Guidance Document on Federal Interim Groundwater Quality Guidelines (FIGQG) for Federal Contaminated Sites, Tier 1 guidelines for fine and coarse grained soil under Commercial/Industrial land use

<sup>2</sup> Canadian Council of Ministers of the Environment (CCME) (Updated 2014). Canadian Water Quality Guidelines for the Protection of Aquatic Life (Freshwater)

<sup>3</sup> Environment Act. Contaminated Sites Regulation (CSR) (2002). Schedule 3, Generic Numerical Water Standards for Aquatic Life (AW)

<sup>4</sup> Maximum increase of 25 mg/L from background levels

<sup>5</sup> Standard varies with pH and temperature. Values shown based on field pH range of 6.59 to 8.50 and temperature range of -2.4 °C to 2.4 °C

<sup>6</sup> Guideline varies with pH. Values shown based on field pH range of 6.59 to 8.50

<sup>7</sup> Guideline varies with chloride. Values shown based on chloride range of <0.50 mg/L to 1.4 mg/L

<sup>8</sup> Guideline applied is for ultra-oligotrophic

<sup>9</sup> Guideline varies with hardness. Value shown based on hardness range of 215 mg/L to 1010 mg/L for total metals, and 181 mg/L to 296 mg/L for dissolved metals

<sup>10</sup> Guideline is for Chromium VI

"-" No applicable standard or not analyzed

Shaded - Greater than Federal Interim Guideline

**BOLD** - Greater than CCME AW Guideline

Underlined - Greater than Yukon CSR Guideline

**RED** - Greater than current Site Water Licence QZ97-026

Table 7D: Maximum Groundwater Guideline Exceedances, Zone 4a (Open Pit - West)

Parameter	Unit	RDL	Water Use Licence QZ97-026	Federal Interim Guideline - Commercial/Industrial <sup>1</sup>		CCME - AW (Freshwater) <sup>2</sup>	Well ID	ART - 3 (1)	ART - 3 (3)	ART - 4	BH95-129	BH95-146	BH95G-21	BH95G-22	BH95G-23	WW15-01	WW15-02
				Aquifer & Approx. Sample Depth (mbg)	Bedrock		Bedrock	Bedrock	Bedrock 157.25	Bedrock 136.4	Bedrock 7.6	Bedrock 4.3	Overburden 11.3	Overburden 13.5	Bedrock 29		
					Yukon CSR - AW (Freshwater) <sup>3</sup>		ART - 3 (1)	ART - 3 (3)	ART - 4	-	BH95-146	BH95-21	BH95-22	BH95G-23	WW15-01	WW15-02	
Field pH	pH Units	0.01	6.5-9	Fine	Coarse	6.5-9	-	-	-	-	-	-	5.98	-	-	-	-
Total Suspended Solids (TSS)	µg/L	1000	15000	-	-	-	-	-	-	20100	31500	6540000	2060000	7320000	52900	53300	-
Fluoride	µg/L	10	-	120	120	120	3000	170	180	240	220	310	-	-	-	-	-
Sulphate	mg/L	0.5	-	100	100	-	1000	-	-	-	-	273	-	-	-	102	-
Ammonia	µg/L	5	2500	502-231,000 <sup>5</sup>	502-231,000 <sup>5</sup>	502-231,000 <sup>5</sup>	1310-18,500 <sup>6</sup>	-	-	900	-	-	-	-	-	-	-
Arsenic	µg/L	0.02	50	5	5	5	50	156	181	11.8	6.78	-	-	-	74.7	53.0	-
Cadmium	µg/L	0.005	7	0.017	0.017	0.09	0.5-0.6 <sup>9</sup>	0.424	0.877	-	0.051	-	-	0.194	1.69	31.6	-
Copper	µg/L	0.05	15	2.6-4.0 <sup>9</sup>	2.6-4.0 <sup>9</sup>	2.6-4.0 <sup>9</sup>	50-90 <sup>9</sup>	-	-	-	-	-	-	6.44	-	-	-
Iron	µg/L	1	-	300	300	300	-	6680	6750	1650	475	1110	592	-	6480	10,400	468
Lead	µg/L	0.005	26	3.7-7.0 <sup>9</sup>	3.7-7.0 <sup>9</sup>	3.7-7.0 <sup>9</sup>	60-160 <sup>9</sup>	-	-	-	-	-	-	-	-	122	-
Phosphorus	µg/L	2	-	-	-	4 <sup>8</sup>	-	8.4	-	-	8.3	-	4.8	5.9	5.2	-	-
Zinc	µg/L	0.1	110	10	10	30	900-2400 <sup>9</sup>	2270	2350	-	-	10.3	19.4	-	2030	5080	-

Notes:

- Result does not exceed guideline value
- <sup>1</sup> Environment Canada (Revised March 2014). Guidance Document on Federal Interim Groundwater Quality Guidelines (FIGQG) for Federal Contaminated Sites, Tier 1 guidelines for fine and coarse grained soil under Commercial/Industrial land use
- <sup>2</sup> Canadian Council of Ministers of the Environment (CCME) (Updated 2014). Canadian Water Quality Guidelines for the Protection of Aquatic Life (Freshwater)
- <sup>3</sup> Environment Act. Contaminated Sites Regulation (CSR) (2002). Schedule 3, Generic Numerical Water Standards for Aquatic Life (AW)
- <sup>4</sup> Maximum increase of 25 mg/L from background levels
- <sup>5</sup> Standard varies with pH and temperature. Values shown based on field pH range of 5.98 to 8.60 and temperature range of -2.4 °C to 4.3 °C
- <sup>6</sup> Guideline varies with pH. Values shown based on field pH range of 5.98 to 8.60
- <sup>7</sup> Guideline varies with chloride. Values shown based on chloride range of <0.50 mg/L to 2.5 mg/L
- <sup>8</sup> Guideline applied is for ultra-oligotrophic
- <sup>9</sup> Guideline varies with hardness. Value shown based on hardness range of 125 mg/L to 773 mg/L for total metals, and 112 mg/L to 683 mg/L for dissolved metals
- <sup>10</sup> Guideline is for Chromium VI
- "-" No applicable standard or not analyzed
- Shaded - Greater than Federal Interim Guideline
- BOLD - Greater than CCME AW Guideline
- Underlined - Greater than Yukon CSR Guideline
- RED - Greater than current Site Water Licence QZ97-026

**Table 7E: Maximum Groundwater Guideline Exceedances, Zone 4b (Open Pit - East)**

Parameter	Unit	RDL	Aquifer & Approx. Sample Depth (mbg)	Federal Interim Guideline - Commercial/Industrial <sup>1</sup>		CCME - AW (Freshwater) <sup>2</sup>	Well ID	BH95G-24	BH95G-25S	BH95G-25D	BH95G-29	BH95-131	MW15-11S
				Aquifer & Approx. Sample Depth (mbg)	Bedrock 7.9		Overburden 10	Bedrock 19.3	Overburden 17.1	Bedrock 125.75	Overburden 5.6		
			Yukon CSR - AW (Freshwater) <sup>3</sup>	Fine	Coarse	Yukon CSR - AW (Freshwater) <sup>3</sup>	BH95G-24	BH95-25	BH95G-25D	BH95G-29	BH95-131	MW15-11S	
						2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	
Total Suspended Solids (TSS)	µg/L	1000	15000	-	-	-	-	983000	3320000	1560000	9360000	161000	464000
Fluoride	µg/L	10	-	120	120	120	3000	-	-	-	-	-	190
Sulphate	mg/L	0.5	-	100	100	-	1000	135	203	222	-	235	138
Arsenic	µg/L	0.02	50	5	5	5	50	10.3	8.24	-	7.82	7.10	-
Cadmium	µg/L	0.005	7	0.017	0.017	0.09	0.6 <sup>9</sup>	3.75	-	-	-	0.039	0.171
Iron	µg/L	1	-	300	300	300	-	571	7620	2210	438	2210	3240
Phosphorus	µg/L	2	-	-	-	4 <sup>8</sup>	-	-	10.5	7.8	302	14.6	16.5
Selenium	µg/L	0.04	15	1	1	1	10	-	-	-	-	-	1.35
Uranium	µg/L	0.002	-	15	15	15	3000	-	-	-	-	20.5	-
Zinc	µg/L	0.1	110	10	10	30	1650-2400 <sup>9</sup>	845	-	12.5	-	-	13.5

**Notes:**

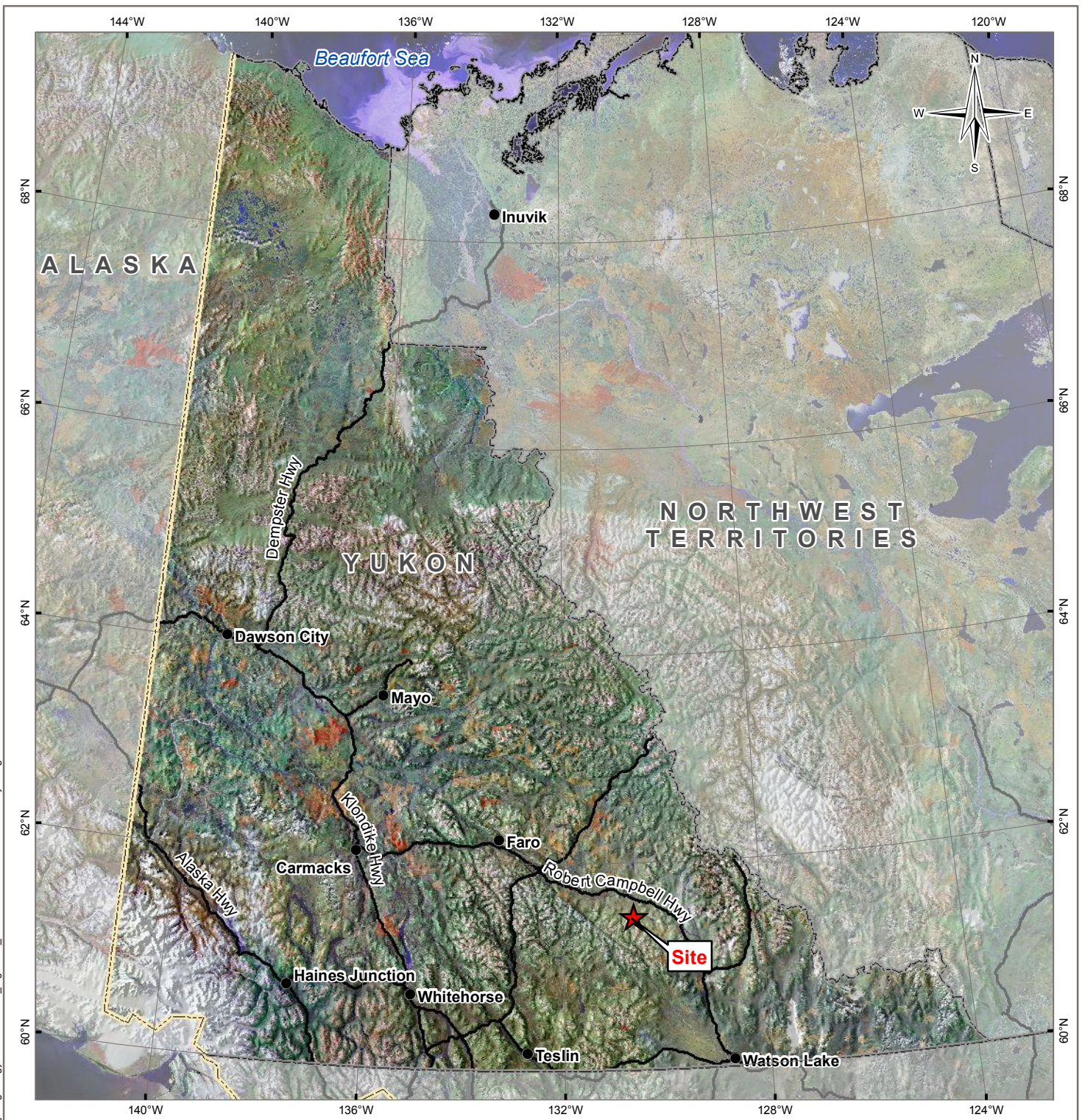
- Result does not exceed guideline value
- <sup>1</sup> Environment Canada (Revised March 2014). Guidance Document on Federal Interim Groundwater Quality Guidelines (FIGQG) for Federal Contaminated Sites, Tier 1 guidelines for fine and coarse grained soil under Commercial/Industrial land use
- <sup>2</sup> Canadian Council of Ministers of the Environment (CCME) (Updated 2014). Canadian Water Quality Guidelines for the Protection of Aquatic Life (Freshwater)
- <sup>3</sup> Environment Act. Contaminated Sites Regulation (CSR) (2002). Schedule 3, Generic Numerical Water Standards for Aquatic Life (AW)
- <sup>4</sup> Maximum increase of 25 mg/L from background levels
- <sup>5</sup> Standard varies with pH and temperature. Values shown based on field pH range of 7.13 to 7.79 and temperature range of -0.1 °C to 4.3 °C
- <sup>6</sup> Guideline varies with pH. Values shown based on field pH range of 7.13 to 7.79
- <sup>7</sup> Guideline varies with chloride. Values shown based on chloride range of 0.51 mg/L to 24 mg/L
- <sup>8</sup> Guideline applied is for ultra-oligotrophic
- <sup>9</sup> Guideline varies with hardness. Value shown based on hardness range of 218 mg/L to 775 mg/L for total metals, and 217 mg/L to 593 mg/L for dissolved metals
- <sup>10</sup> Guideline is for Chromium VI
- "-" No applicable standard or not analyzed
- Shaded - Greater than Federal Interim Guideline
- BOLD** - Greater than CCME AW Guideline
- Underlined - Greater than Yukon CSR Guideline
- RED** - Greater than current Site Water Licence QZ97-026

# FIGURES

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Figure 1	Site Location
Figure 2	Site Plan with Monitoring Well Locations
Figure 3	Surficial Geology
Figure 4	Bedrock Geology
Figure 5	Packer Test Diagnostic Plots
Figure 6	Inferred Hydraulic Conductivities, Recovery and RQD
Figure 7	Groundwater Geochemistry Zones
Figure 8	Piper Plots
Figure 9	Groundwater Contours Overburden Aquifer (September 2015)
Figure 10	Groundwater Contours Bedrock Aquifer (September 2015)
Figure 11	Hydrogeological Cross Section A – A'





Q:\Vancouver\GIS\ENVIRONMENTAL\MIN\MIN03071-01\Maps\BaselineHydrogeology\MIN03071-01\_Figure01\_Site.mxd modified 6/22/2016 by morgah.zondervan

**LEGEND**

- Site Location
- Populated Place
- Major Road
- Provincial / Territorial / State Boundary
- International Border

**NOTES**  
 Base data source:  
 ESRI Data & Maps  
 Geomatics Yukon

**STATUS**  
 ISSUED FOR USE

**BASELINE HYDROGEOLOGY ASSESSMENT, KUDZ ZE KAYAH, YK**

**Site Location**

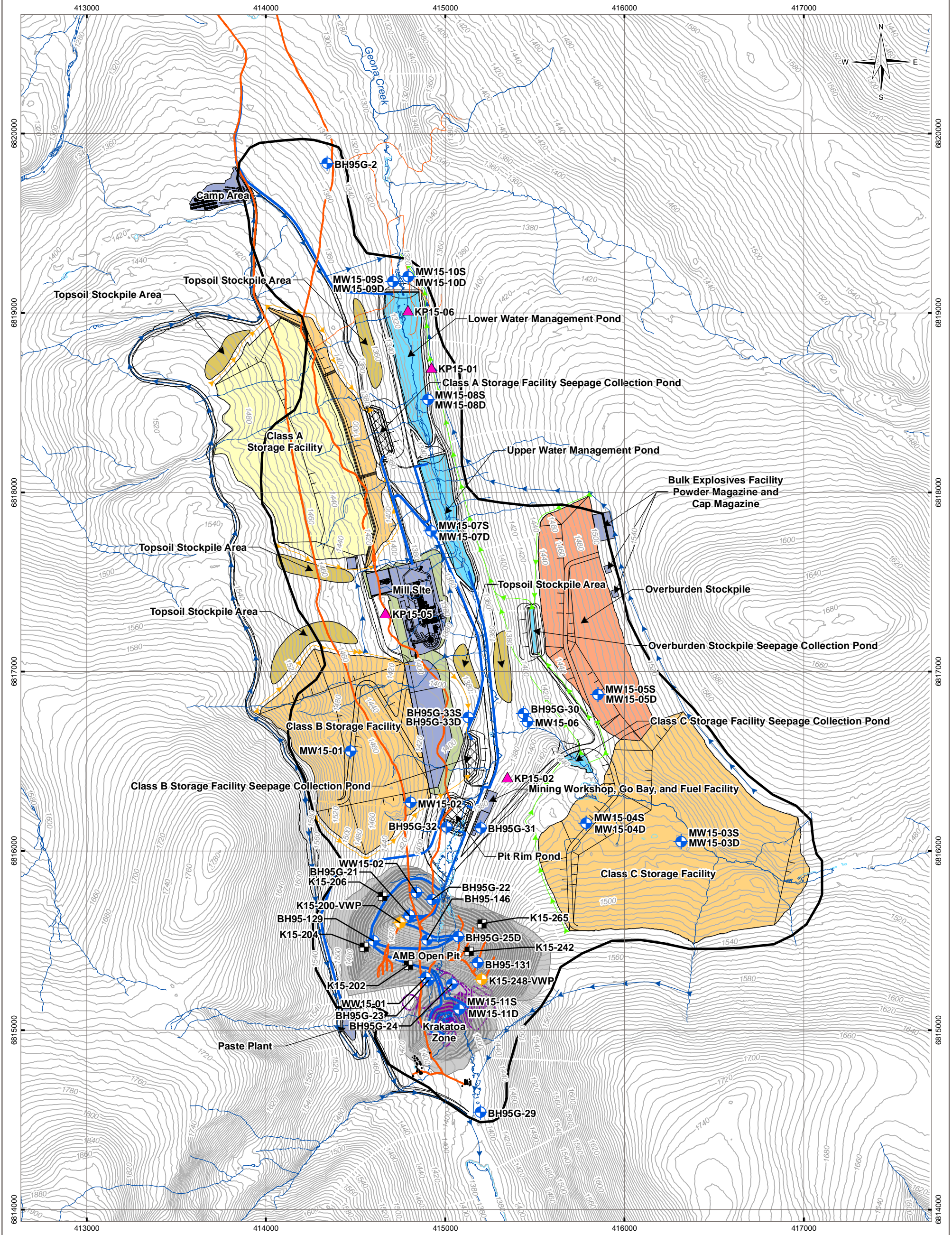
<b>PROJECTION</b> Yukon Albers	<b>DATUM</b> NAD83
Scale: 1:6,000,000 	

**CLIENT**

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<b>PROJECT NO.</b> ENVMIN03071-01	<b>DWN</b> MEZ	<b>CKD</b> SL	<b>APVD</b> SK	<b>REV</b> 0
<b>OFFICE</b> Tl EBA-VANC	<b>DATE</b> June 22, 2016			

**Figure 1**





**LEGEND**

- Monitoring Well
- Vibrating Wire Piezometer
- Drill Hole with Packer Tests
- Ground Temperature Observation Well
- Study Area
- Contour (5 m)
- Existing Road
- Existing Trail
- Existing Building/Structure
- Watercourse/Waterbody
- Wetland Extent
- Proposed Infrastructure
- Proposed Road
- Dewatering Pipeline
- Diversion Ditch (Non Contact)
- Diversion Ditch (Contact Class A & B)
- Diversion Ditch (Contact Class C)
- Water
- Class A Storage Facility
- Class B & C Storage Facilities
- Overburden Stockpile
- Topsoil Stockpile
- Open Pit
- Reclaimed/Progressive Closure
- Seepage Collection Pond
- Other Facilities
- Underground Workings

**NOTES**  
 Base data provided by BMC Minerals (No. 1) Ltd. (Feb 2016)  
 Infrastructure from Knight Piesold (September 20, 2016)

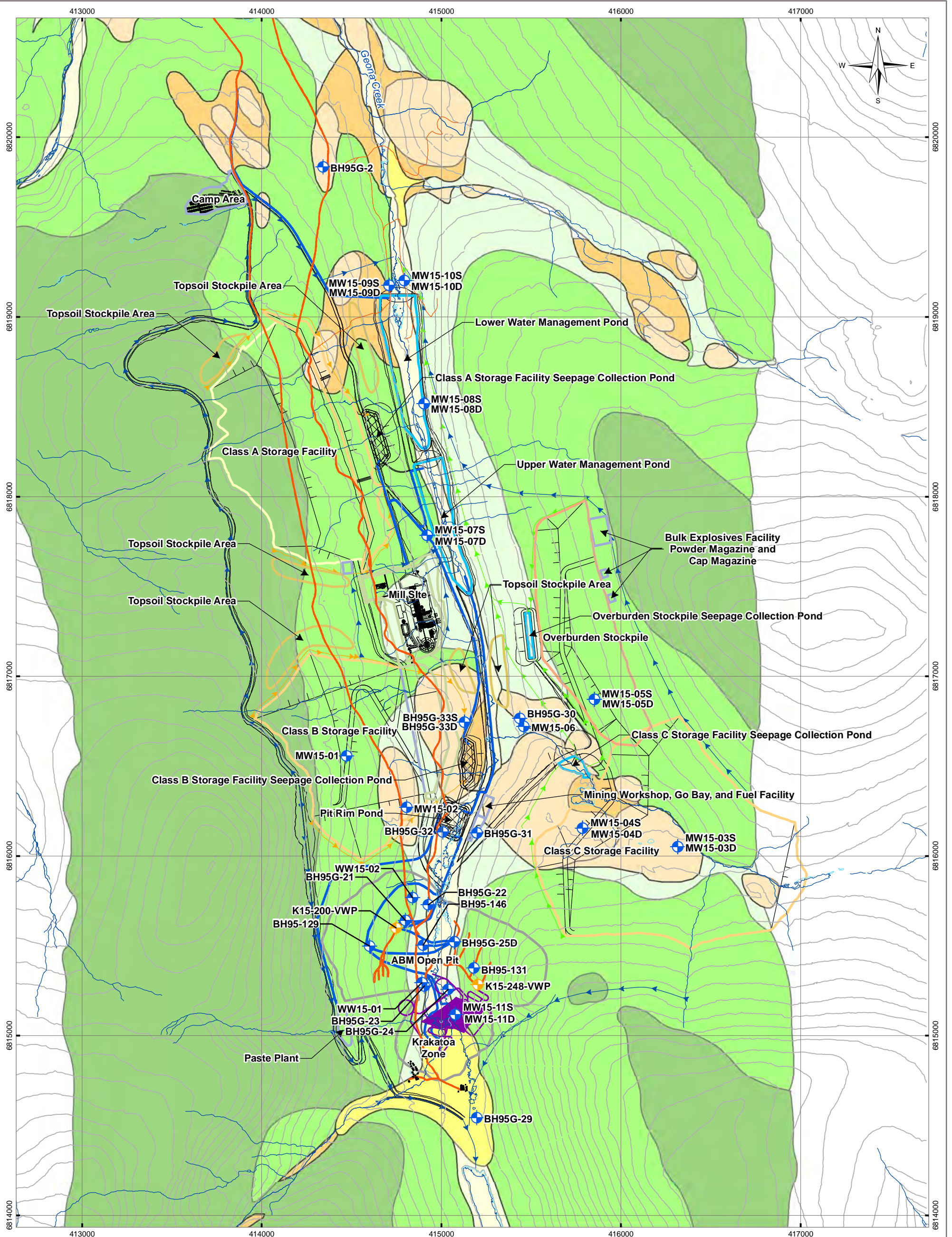
**STATUS**  
 ISSUED FOR USE

**BASELINE HYDROGEOLOGY ASSESSMENT, KUDZE KAYAH, YK**

**Site Plan with Monitoring Well Locations**

<b>PROJECTION</b> UTM Zone 9	<b>DATUM</b> NAD83	<b>CLIENT</b> 
Scale: 1:20,000 400 200 0 400 Metres		
<b>FILE NO.</b> MIN03071-01_Figure02_MWLocations.mxd		
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<b>OFFICE</b> TlEBA-VANC	<b>APVD</b> SK	<b>REV</b> 1
<b>DATE</b> October 12, 2016		<b>Figure 2</b>





**LEGEND**

**Surficial Geology**

**Glaciofluvial Deposits**

- Glaciofluvial Complex
- Glaciofluvial Fan Sediments

**Morainial Deposits**

- Till Apron
- Till Blanket
- Till Veneer

**Alluvial Deposits**

- Alluvial Sediments, Undivided
- Alluvial Fan Sediments
- Monitoring Well
- Vibrating Wire Piezometer

- Contour (20 m)
- Existing Road
- Existing Trail
- Existing Building/Structure
- Watercourse/Waterbody
- Wetland Extent

**Proposed Infrastructure**

- Proposed Road
- Dewatering Pipeline
- Diversion Ditch (Non Contact)
- Diversion Ditch (Contact Class A & B)
- Diversion Ditch (Contact Class C)
- Water
- Class A Storage Facility

- Class B & C Storage Facilities
- Overburden Stockpile
- Topsoil Stockpile Area
- Open Pit
- Reclaimed/Progressive Closure
- Seepage Collection Pond
- Other Facilities
- Underground Workings

**NOTES**  
 Base data provided by BMC Minerals (No. 1) Ltd. (Feb 2016)  
 Infrastructure from Knight Piesold (September 20, 2016)  
 Surficial geology from Cominco (1996)

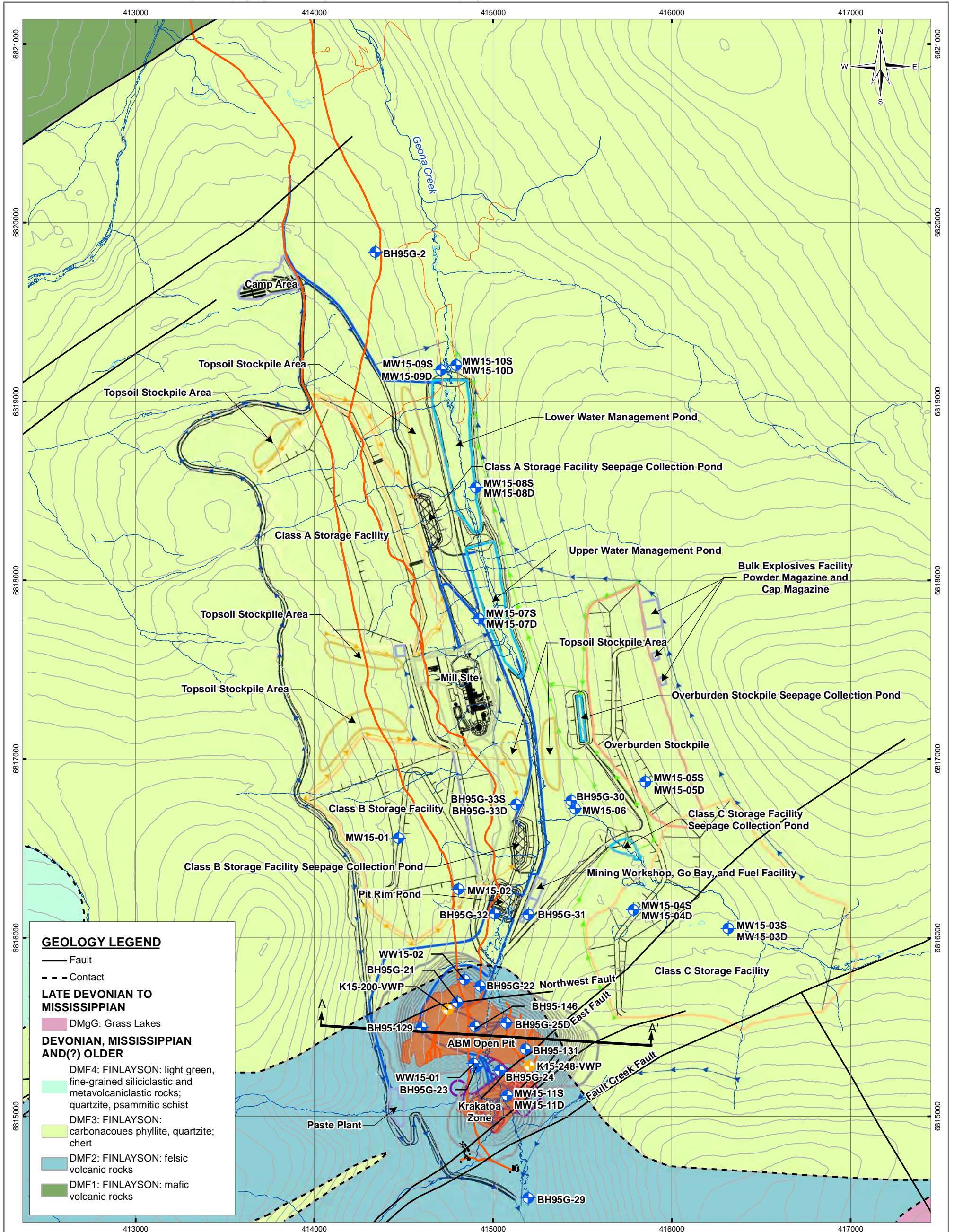
**STATUS**  
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**BASELINE HYDROGEOLOGY ASSESSMENT, KUDZ ZE KAYAH, YK**

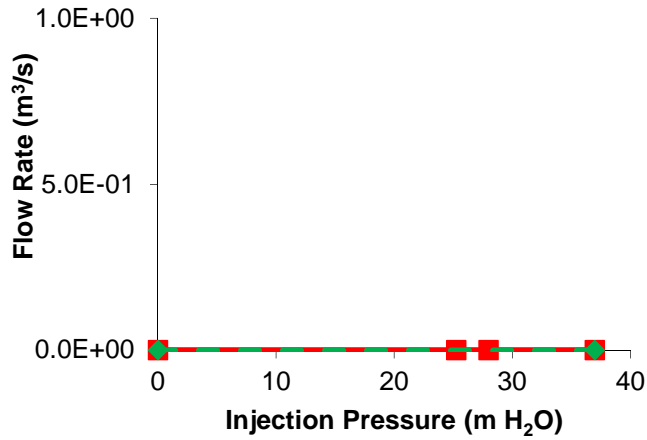
**Surficial Geology**

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<b>PROJECT NO.</b> ENVMIN03071-01	<b>DWN</b> MEZ	<b>CKD</b> SL
<b>OFFICE</b> TlEBA-VANC	<b>APVD</b> SK	<b>REV</b> 1
<b>DATE</b> October 12, 2016		<b>Figure 3</b>

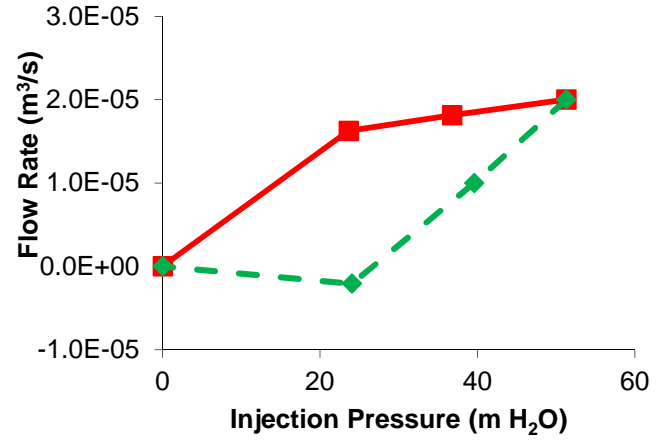




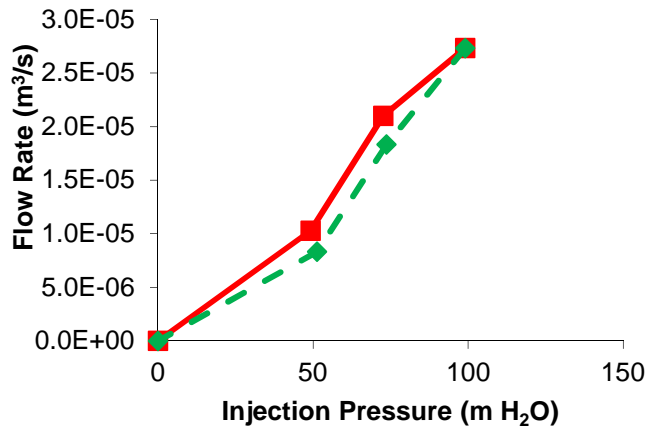
ABM2 / K15-204: 21.5 to 35m ah <sup>1</sup>



ABM2 / K15-204: 72.5 to 95m ah



ABM2 / K15-204: 123.5 to 149m ah



**LEGEND**

- Ascending Pressure
- ◆ Reducing Pressure

**NOTES**

<sup>1</sup> No measurable flow.

**CLIENT**



**Kudz Ze Kayah  
Hydrogeological Assessment**

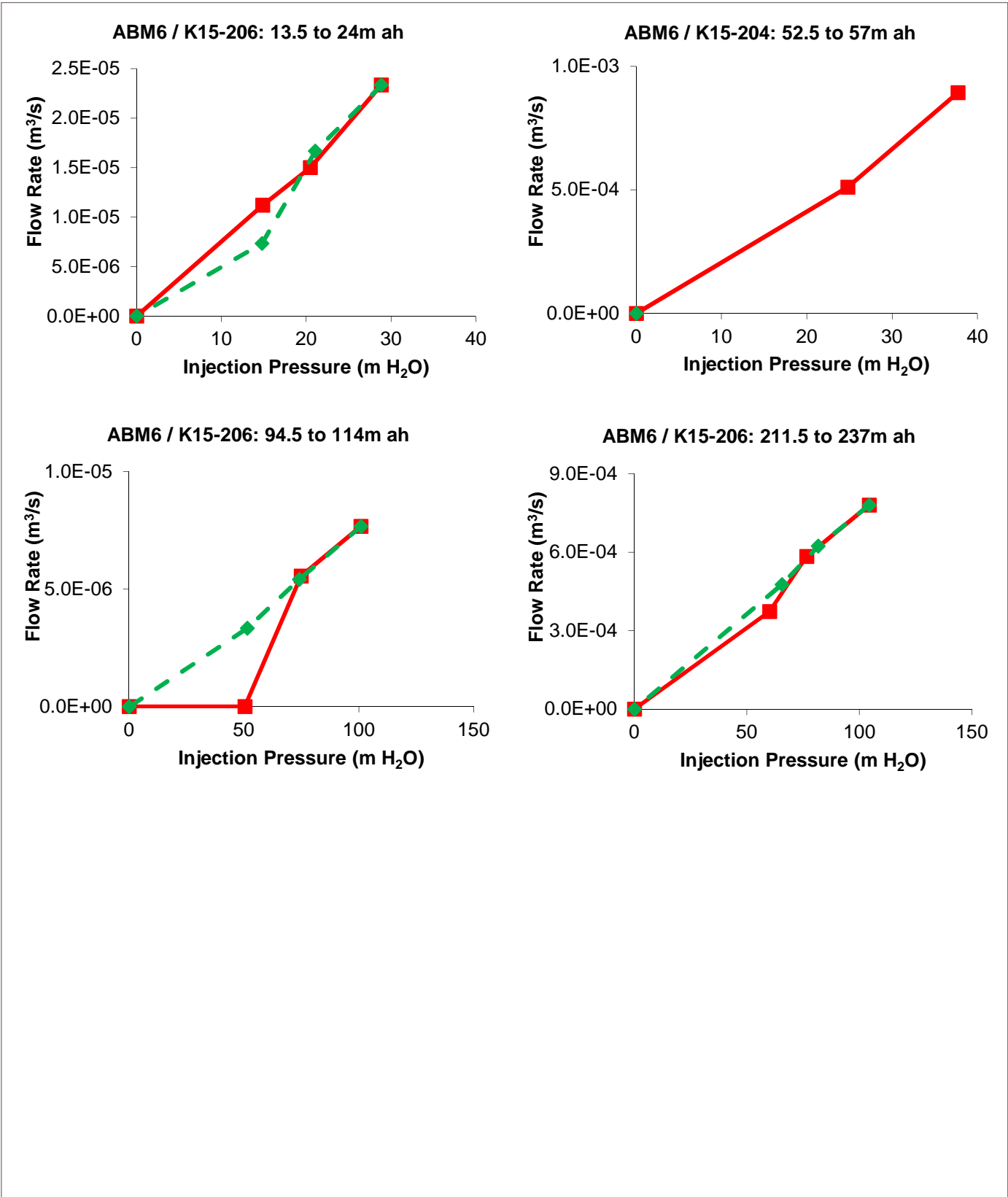
**Packer Test Diagnostic Plots  
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PROJECT NO. ENVMIN03071-01	DWN ER	CKD SK	APVD SK	REV 0
OFFICE EBA-WHSE	DATE June 23, 2016			

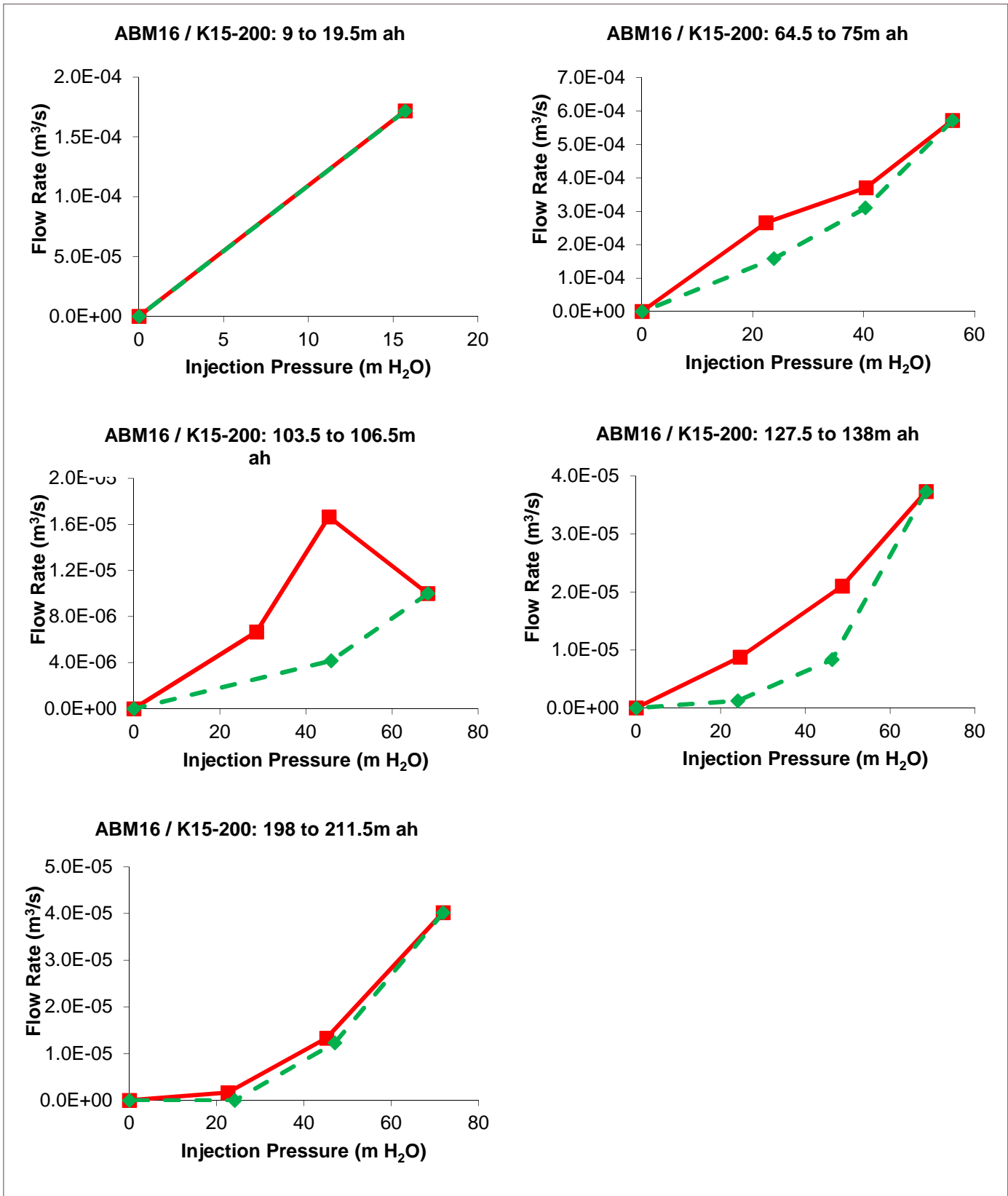
**Figure 5a**

**STATUS**  
ISSUED FOR USE





<b>LEGEND</b> Ascending Pressure Reducing Pressure	<b>NOTES</b>  <b>STATUS</b> ISSUED FOR USE	<b>CLIENT</b> 	<b>Kudz Ze Kayah Hydrogeological Assessment</b>				
			<b>Packer Test Diagnostic Plots ABM6 / K15-206</b>				
		<b>PROJECT NO.</b> ENVMIN03071-01	<b>DWN</b> ER	<b>CKD</b> SK	<b>APVD</b> SK	<b>REV</b> 0	<b>Figure 5b</b>
		<b>OFFICE</b> EBA-WHSE	<b>DATE</b> June 23, 2016				



**LEGEND**

- Ascending Pressure
- ◆— Reducing Pressure

**NOTES**

**STATUS**  
ISSUED FOR USE

**CLIENT**



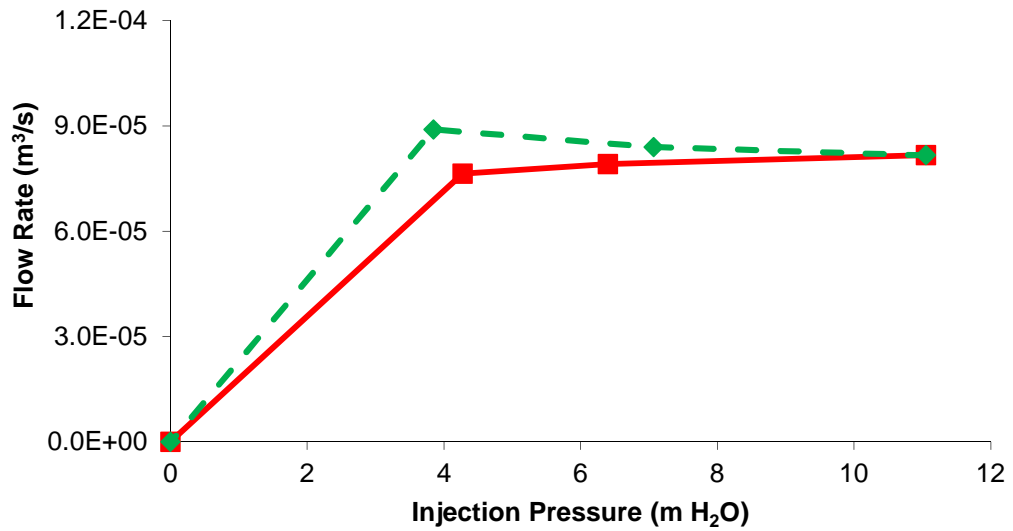
**Kudz Ze Kayah  
Hydrogeological Assessment**

**Packer Test Diagnostic Plots  
ABM16 / K15-200**

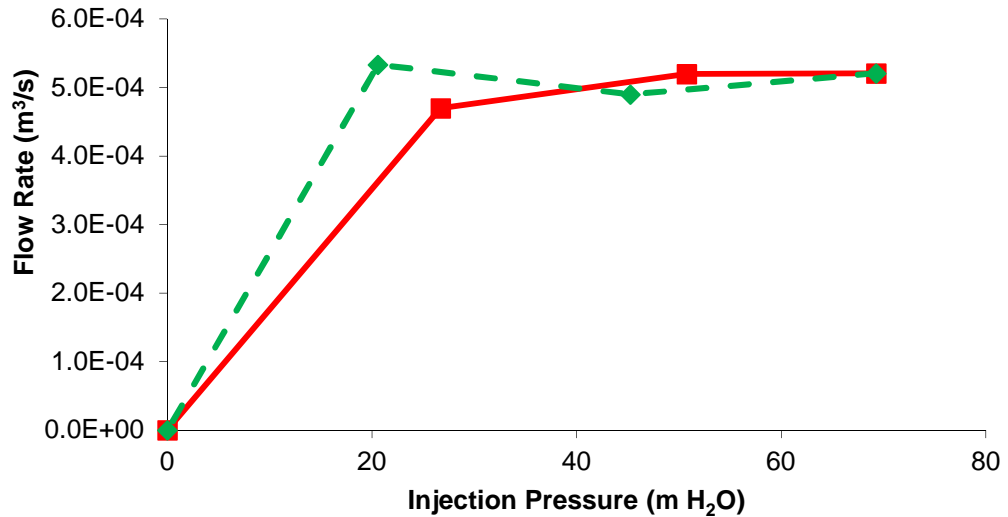
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<b>OFFICE</b> EBA-WHSE	<b>DATE</b> June 23, 2016			

**Figure 5c**

ABM18 / K15-202: 21.5 to 32m ah



ABM18 / K15-202: 57.5 to 71m ah



**LEGEND**

- Ascending Pressure
- ◆ Reducing Pressure

NOTES

STATUS  
ISSUED FOR USE

CLIENT

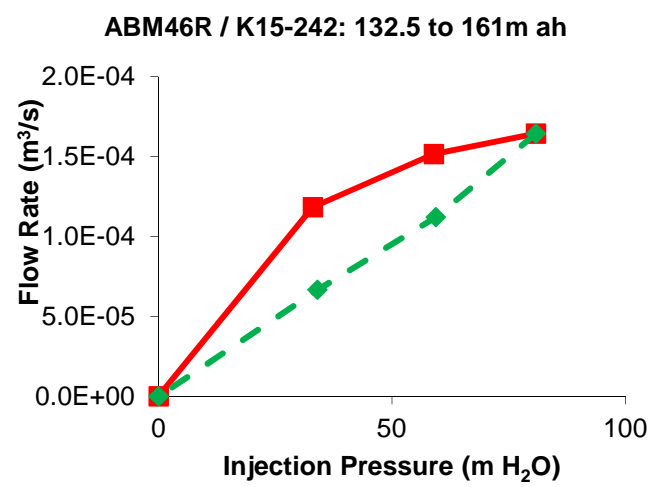
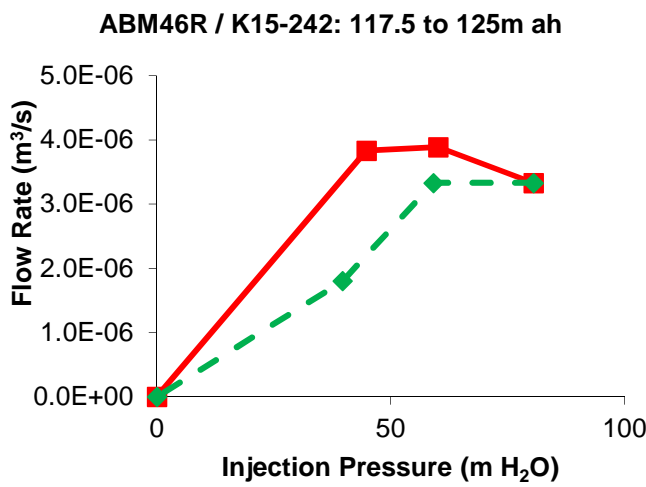
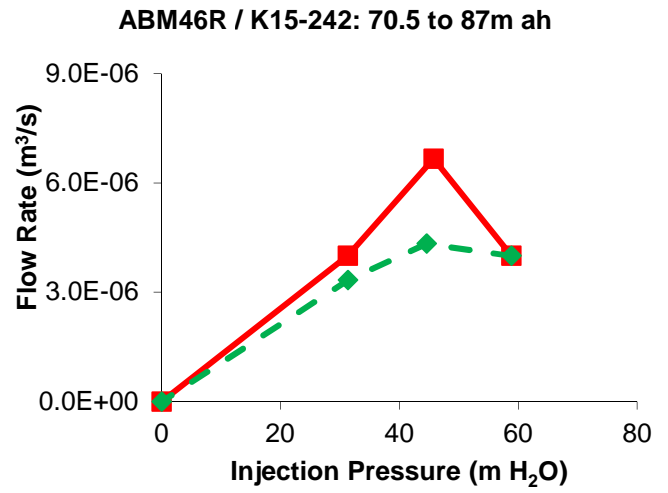
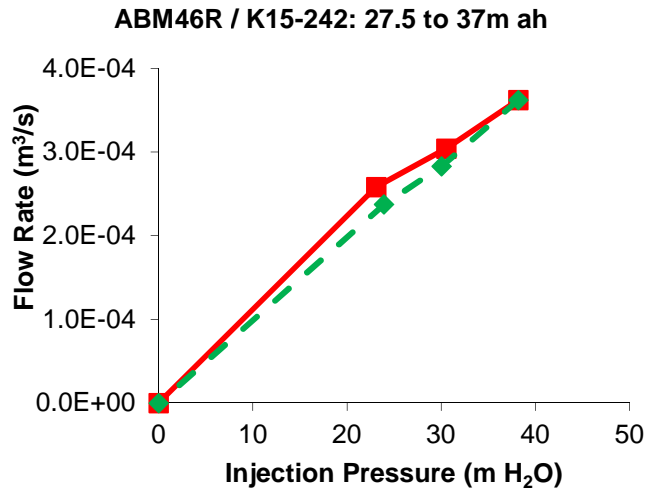


**Kudz Ze Kayah  
Hydrogeological Assessment**

**Packer Test Diagnostic Plots  
ABM18 / K15-202**

PROJECT NO. ENVMIN03071-01	DWN ER	CKD SK	APVD SK	REV 0
OFFICE EBA-WHSE	DATE June 23, 2016			

**Figure 5d**



**LEGEND**

- Ascending Pressure
- -◆- - Reducing Pressure

**NOTES**

STATUS  
ISSUED FOR USE

**CLIENT**

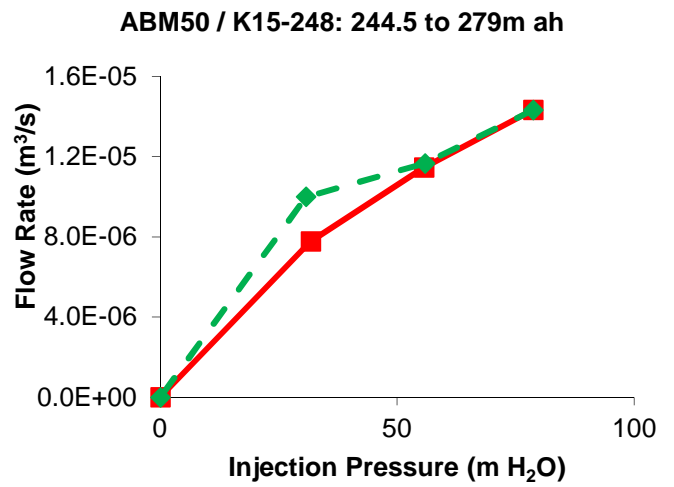
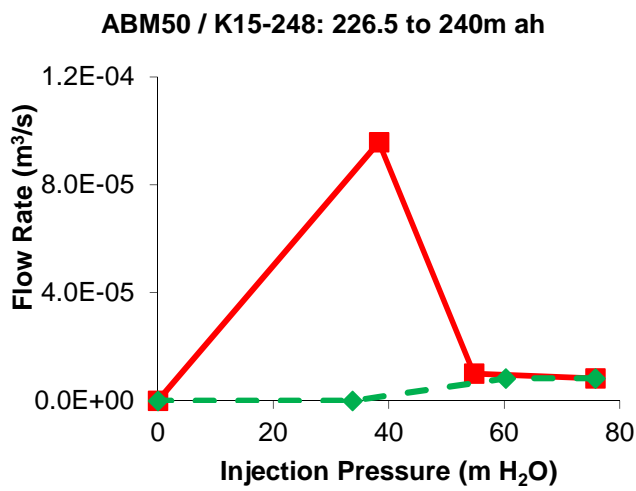
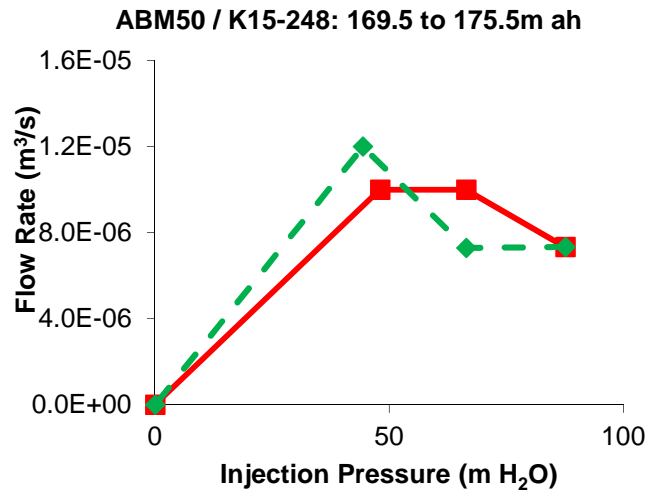
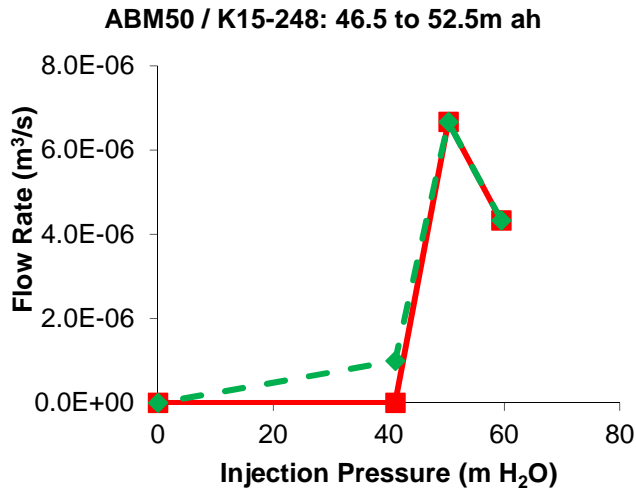


**Kudz Ze Kayah  
Hydrogeological Assessment**

**Packer Test Diagnostic Plots  
ABM46R / K15-242**

PROJECT NO. ENVMIN03071-01	DWN ER	CKD SK	APVD SK	REV 0
OFFICE EBA-WHSE	DATE June 23, 2016			

**Figure 5e**



**LEGEND**

- Ascending Pressure
- ◆ Reducing Pressure

NOTES

STATUS  
ISSUED FOR USE

CLIENT



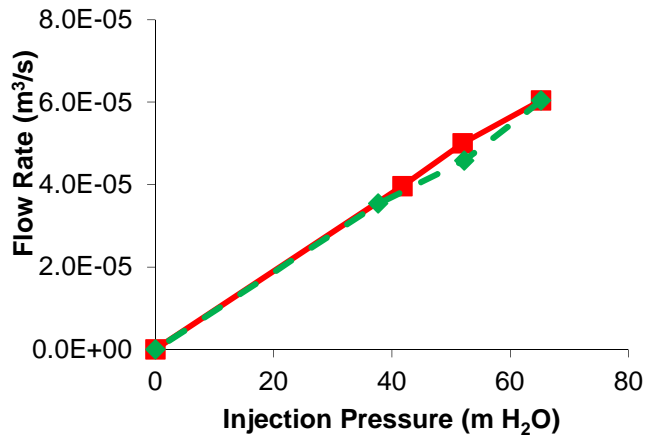
**Kudz Ze Kayah  
Hydrogeological Assessment**

**Packer Test Diagnostic Plots  
ABM50 / K15-248**

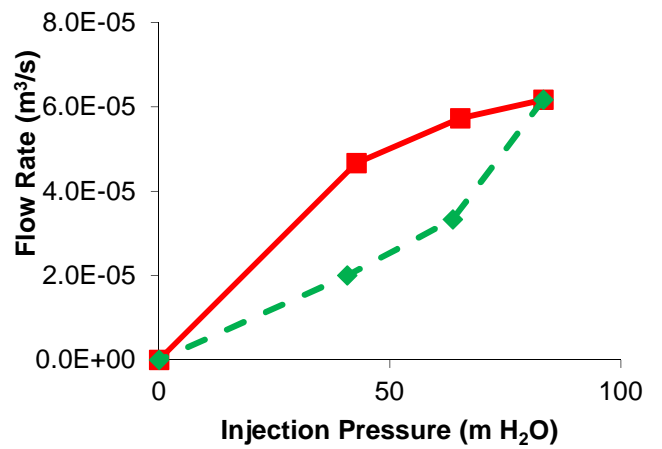
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OFFICE EBA-WHSE	DATE June 23, 2016			

**Figure 5f**

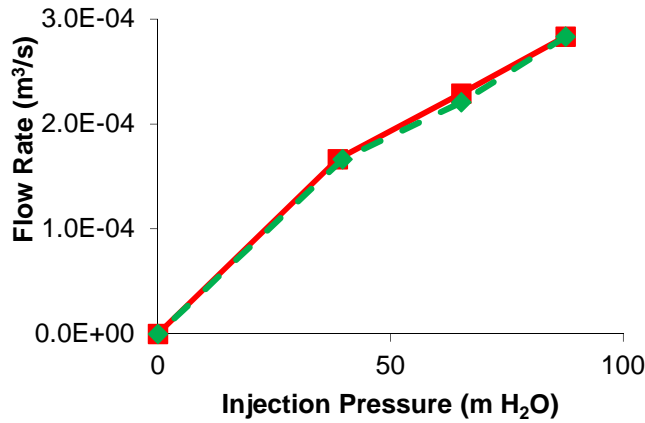
ABM51R / K15-265: 70.5 to 90m ah



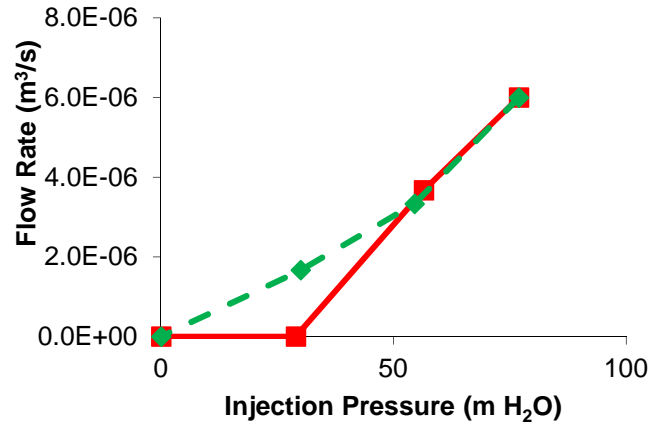
ABM51R / K15-265: 133.5 to 153m ah



ABM51R / K15-265: 190.5 to 201m ah



ABM51R / K15-265: 271.5 to 285m ah



**LEGEND**

- Ascending Pressure
- - -◆- - - Reducing Pressure

NOTES

STATUS  
ISSUED FOR USE

CLIENT



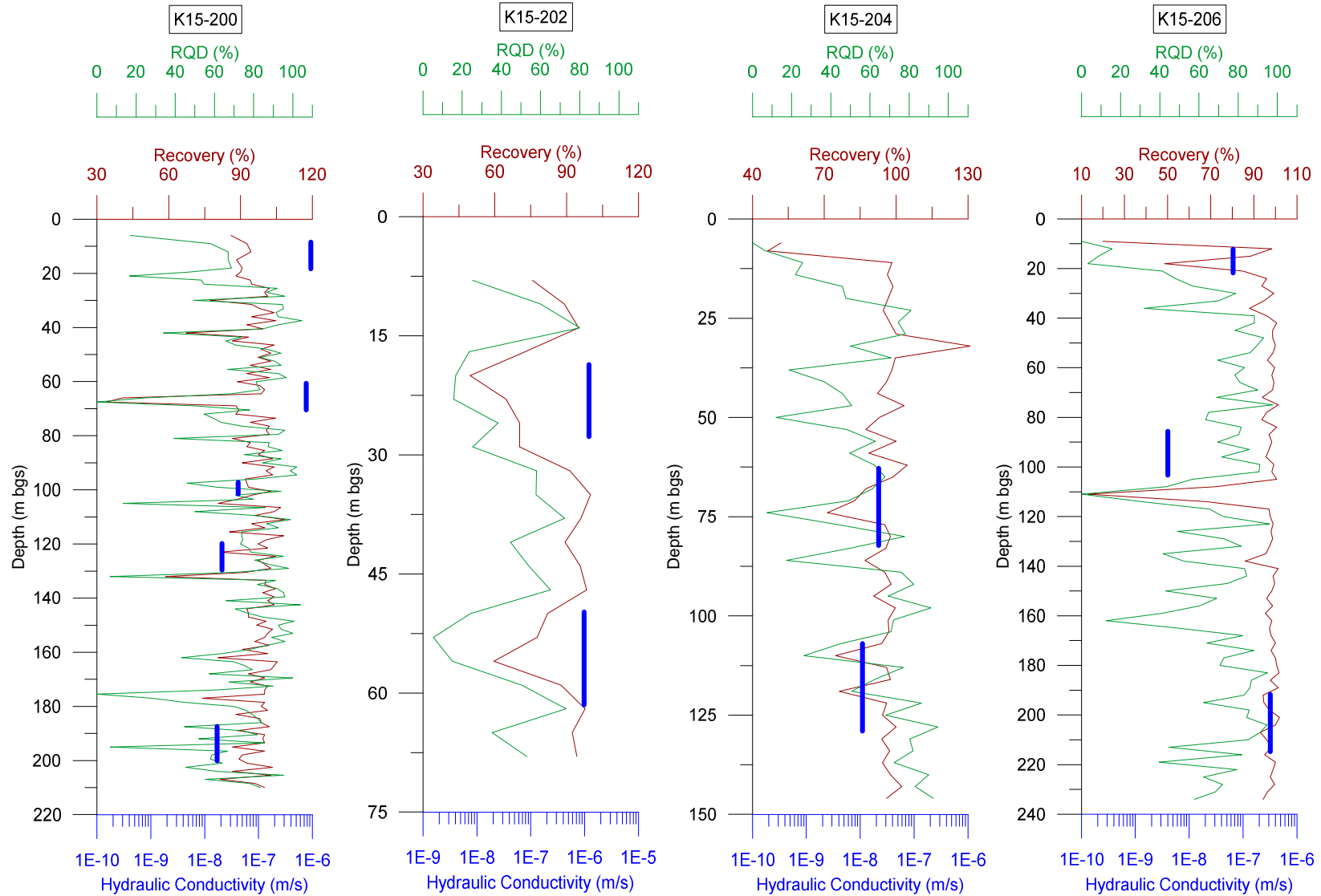
**Kudz Ze Kayah  
Hydrogeological Assessment**

**Packer Test Diagnostic Plots  
ABM51R / K15-265**

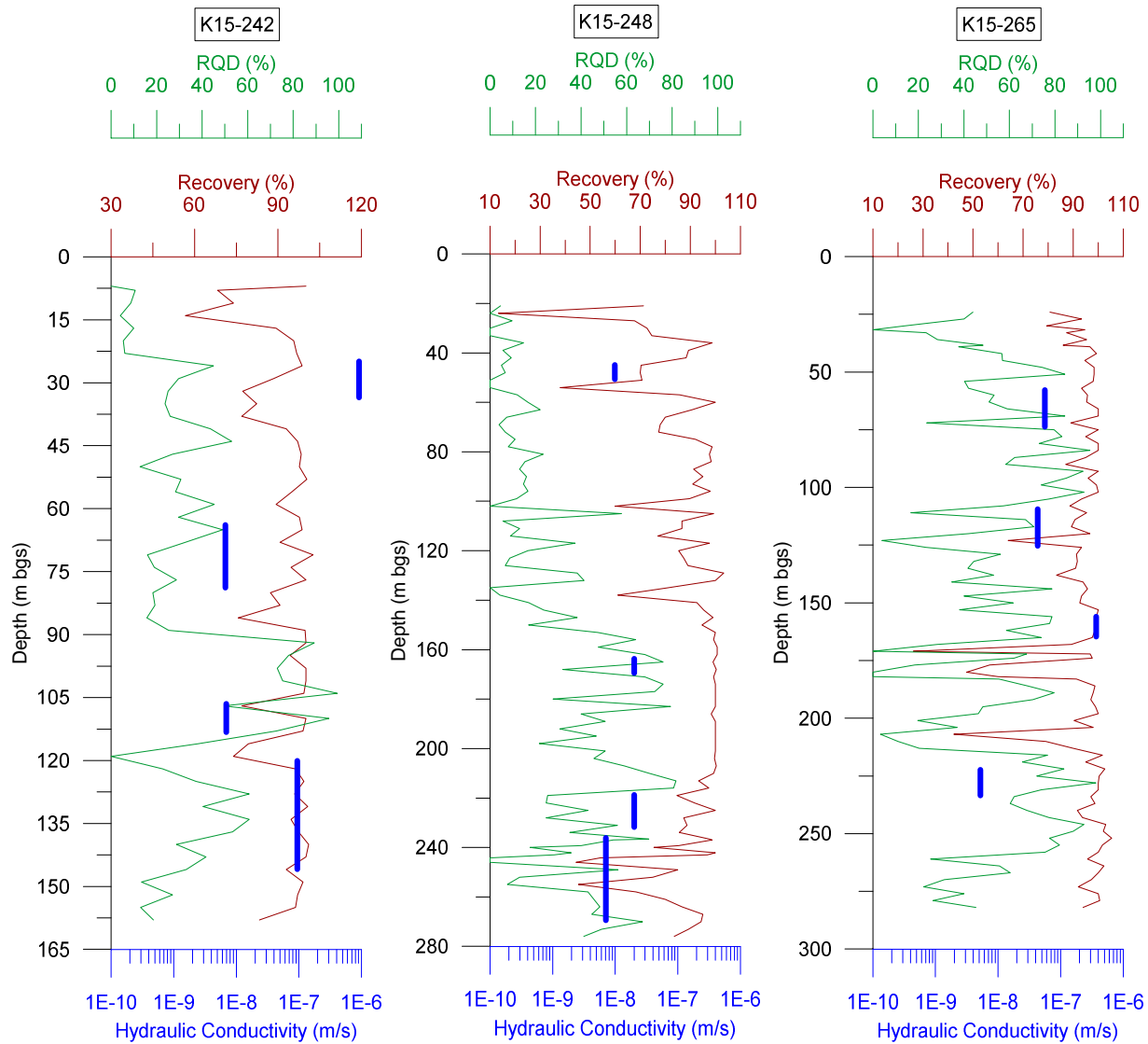
PROJECT NO. ENVMIN03071-01	DWN ER	CKD SK	APVD SK	REV 0
OFFICE EBA-WHSE	DATE June 23, 2016			

Figure 5g



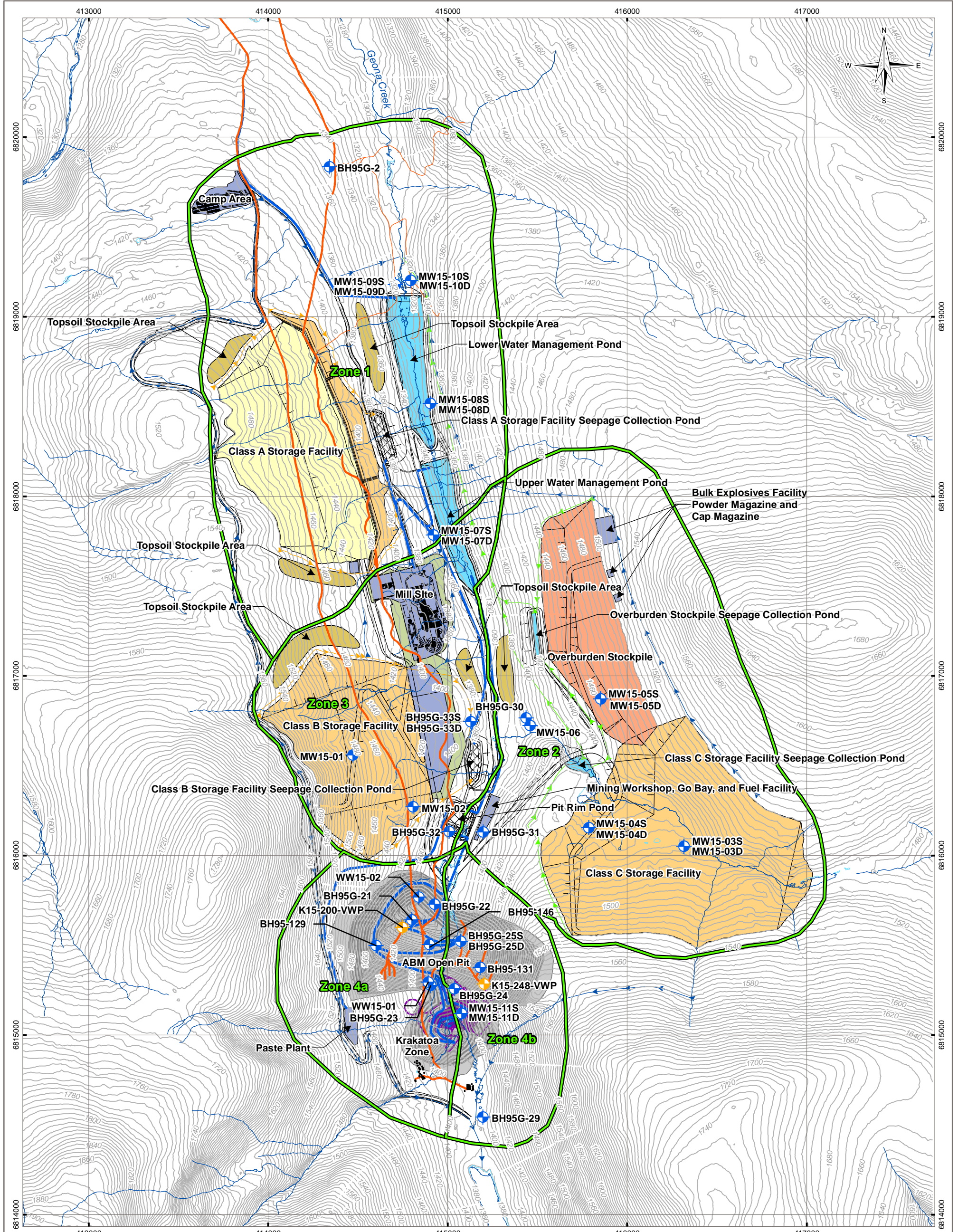


**Figure 6A: Inferred Hydraulic Conductivities, Recovery and RQD**



**Figure 6B: Inferred Hydraulic Conductivities, Recovery and RQD**





**LEGEND**

- Monitoring Well
  - Vibrating Wire Piezometer
  - Groundwater Geochemistry Zone
  - Contour (5 m)
  - Existing Road
  - Existing Trail
  - Existing Building/Structure
  - Watercourse/Waterbody
  - Wetland Extent
- Proposed Infrastructure**
- Proposed Road
  - Dewatering Pipeline
  - Diversion Ditch (Non Contact)
  - Diversion Ditch (Contact Class A & B)
  - Diversion Ditch (Contact Class C)
  - Water
  - Class A Storage Facility
  - Class B & C Storage Facilities
- Overburden Stockpile
  - Topsoil Stockpile
  - Open Pit
  - Reclaimed/Progressive Closure
  - Seepage Collection Pond
  - Other Facilities
  - Underground Workings

**BASELINE HYDROGEOLOGY ASSESSMENT, KUDZ ZE KAYAH, YK**

**Groundwater Geochemistry Zones**

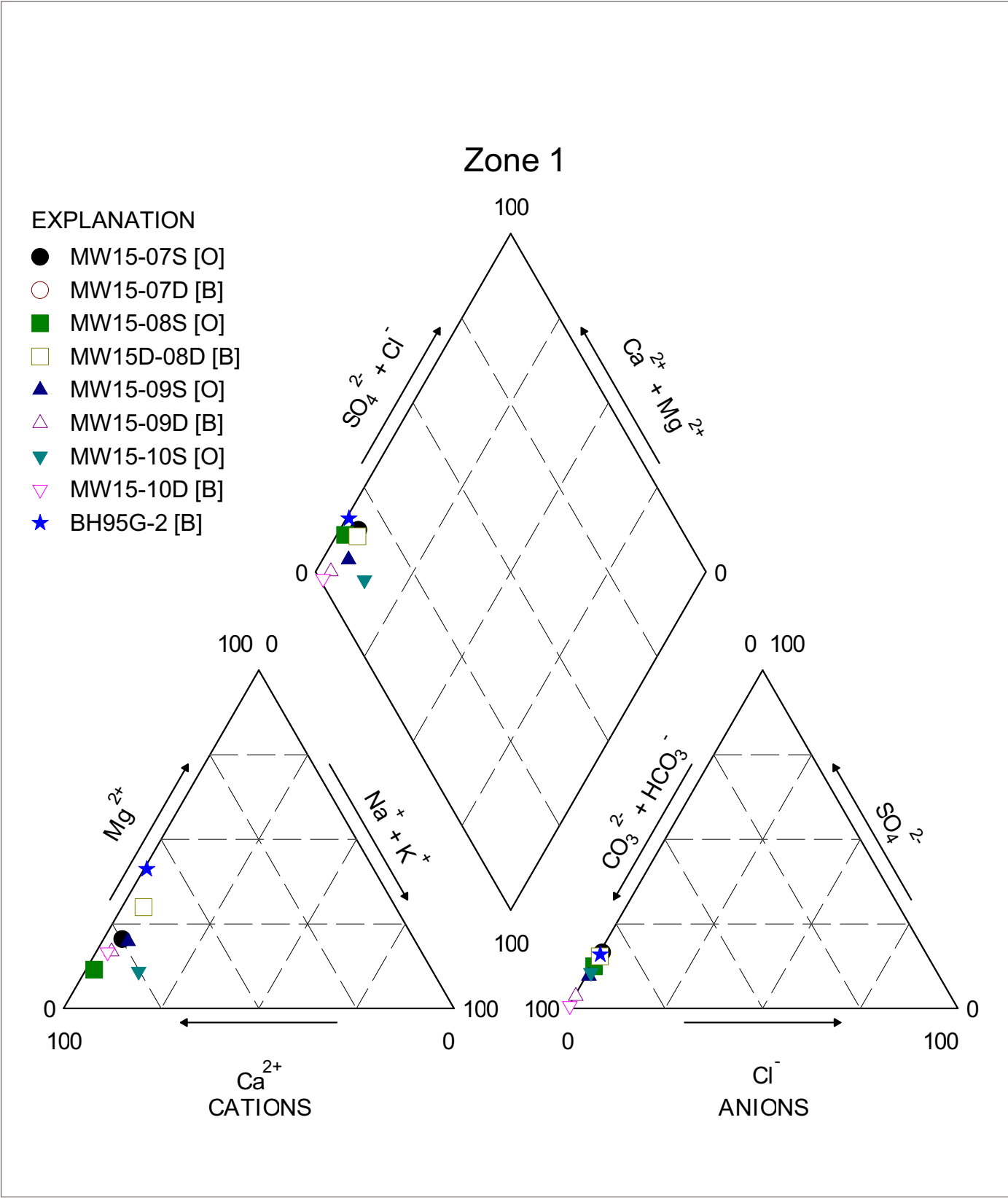
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<b>PROJECT NO.</b> ENVMIN03071-01	<b>DWN</b> MEZ	<b>CKD</b> SL
<b>APVD</b> SK	<b>REV</b> 1	
<b>OFFICE</b> TlEBA-VANC	<b>DATE</b> October 12, 2016	

**NOTES**  
Base data provided by BMC Minerals (No. 1) Ltd. (Feb 2016)  
Infrastructure from Knight Piesold (September 20, 2016)

**STATUS**  
ISSUED FOR USE

**Figure 7**



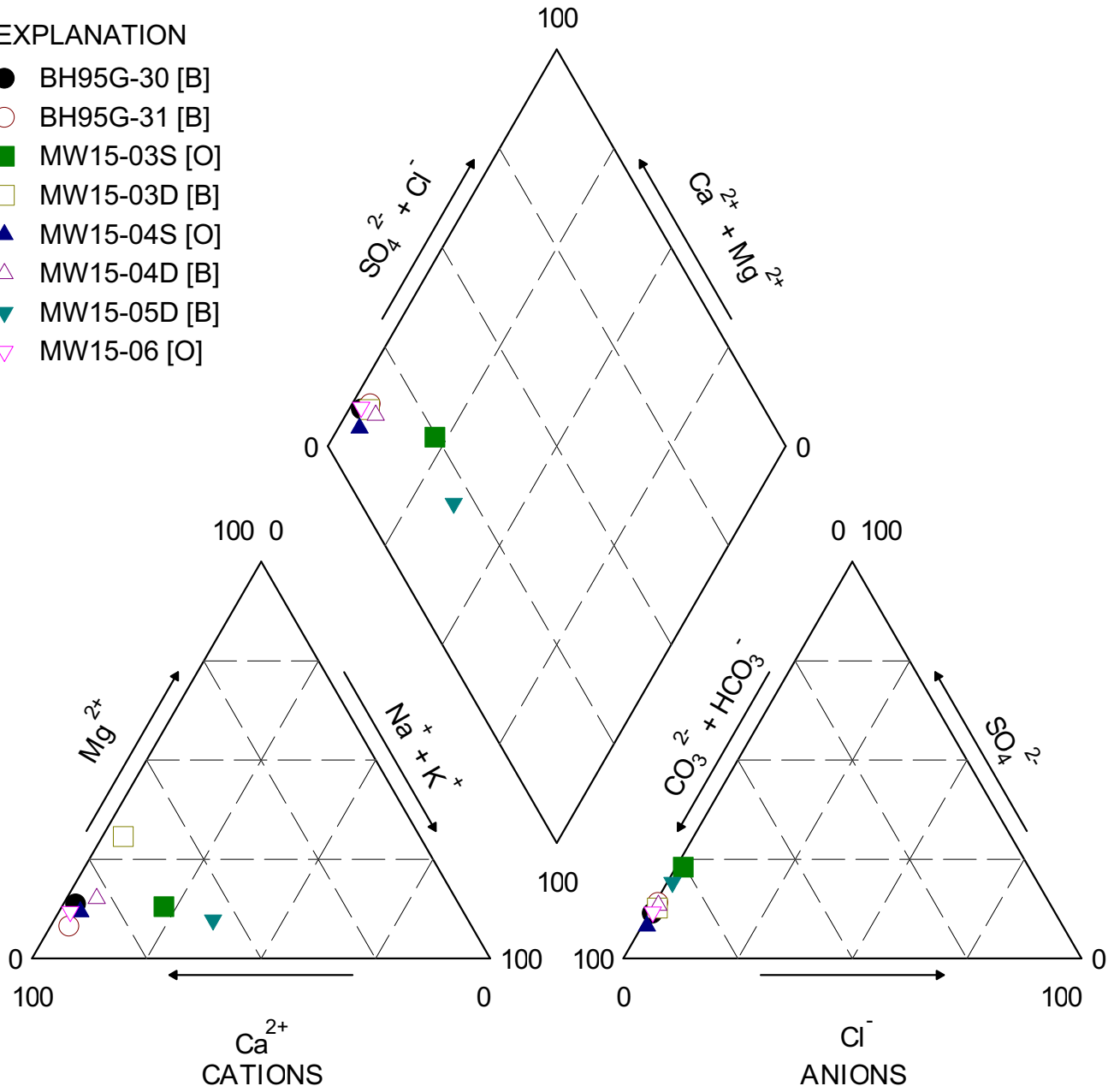


	<p>CLIENT</p>	<p><b>Baseline Hydrogeology Assessment Kudz Ze Kayah Project, Yukon</b></p>					
		<p><b>Piper Plot Zone 1</b></p>					
<p>STATUS ISSUED FOR USE</p>		<p>PROJECT NO. ENVMIN03071-01</p>	<p>DWN AS</p>	<p>CKD SK</p>	<p>APVD SK</p>	<p>REV 0</p>	<p><b>Figure 8a</b></p>
		<p>OFFICE EBA-WHSE</p>	<p>DATE June 23, 2016</p>				

## Zone 2

### EXPLANATION

- BH95G-30 [B]
- BH95G-31 [B]
- MW15-03S [O]
- MW15-03D [B]
- ▲ MW15-04S [O]
- △ MW15-04D [B]
- ▼ MW15-05D [B]
- ▽ MW15-06 [O]



CLIENT



### Baseline Hydrogeology Assessment Kudz Ze Kayah Project, Yukon

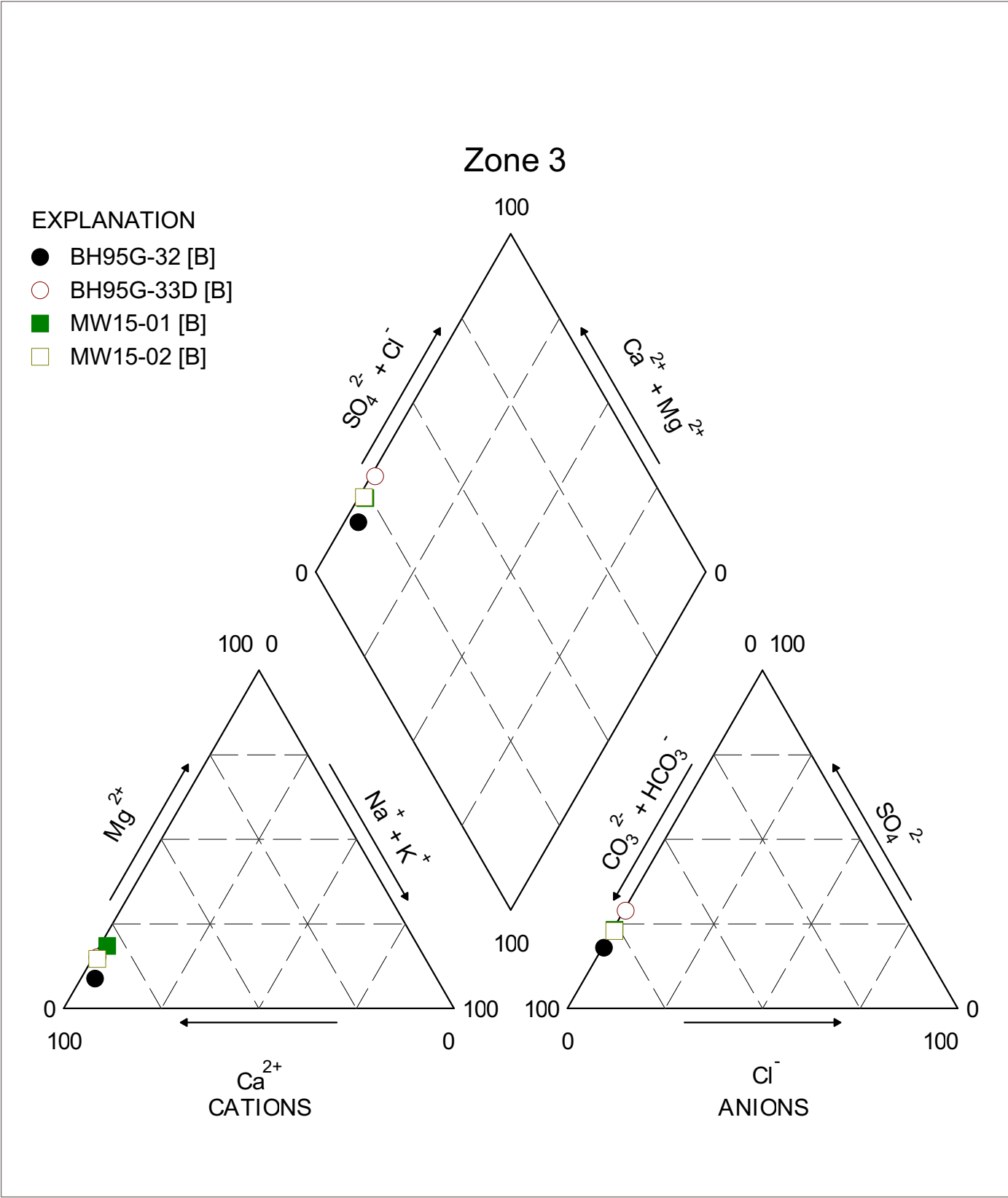
#### Piper Plot Zone 2



PROJECT NO. ENVMIN03071-01	DWN AS	CKD SK	APVD SK	REV 0
OFFICE EBA-WHSE	DATE June 23, 2016			

Figure 8b

STATUS  
ISSUED FOR USE



CLIENT



**Baseline Hydrogeology Assessment  
Kudz Ze Kayah Project, Yukon**

**Piper Plot  
Zone 3**



PROJECT NO. ENVMIN03071-01	DWN AS	CKD SK	APVD SK	REV 0
OFFICE EBA-WHSE	DATE June 23, 2016			

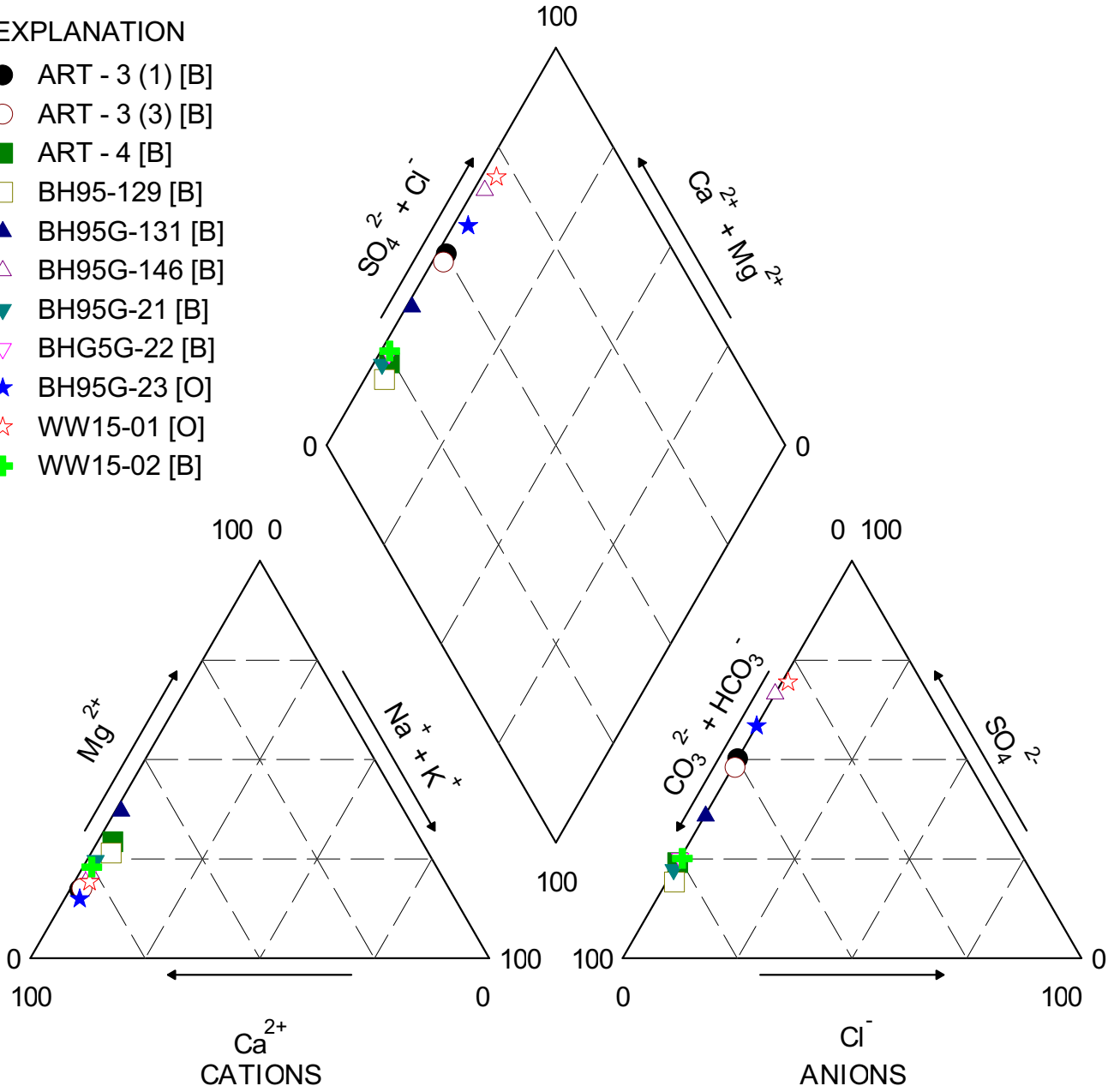
**Figure 8c**

STATUS  
ISSUED FOR USE

# Zone 4a

## EXPLANATION

- ART - 3 (1) [B]
- ART - 3 (3) [B]
- ART - 4 [B]
- BH95-129 [B]
- ▲ BH95G-131 [B]
- △ BH95G-146 [B]
- ▼ BH95G-21 [B]
- ▽ BHG5G-22 [B]
- ★ BH95G-23 [O]
- ☆ WW15-01 [O]
- ✚ WW15-02 [B]



CLIENT



## Baseline Hydrogeology Assessment Kudz Ze Kayah Project, Yukon

### Piper Plot Zone 4a



PROJECT NO. ENVMIN03071-01	DWN AS	CKD SK	APVD SK	REV 0
OFFICE EBA-WHSE	DATE June 23, 2016			

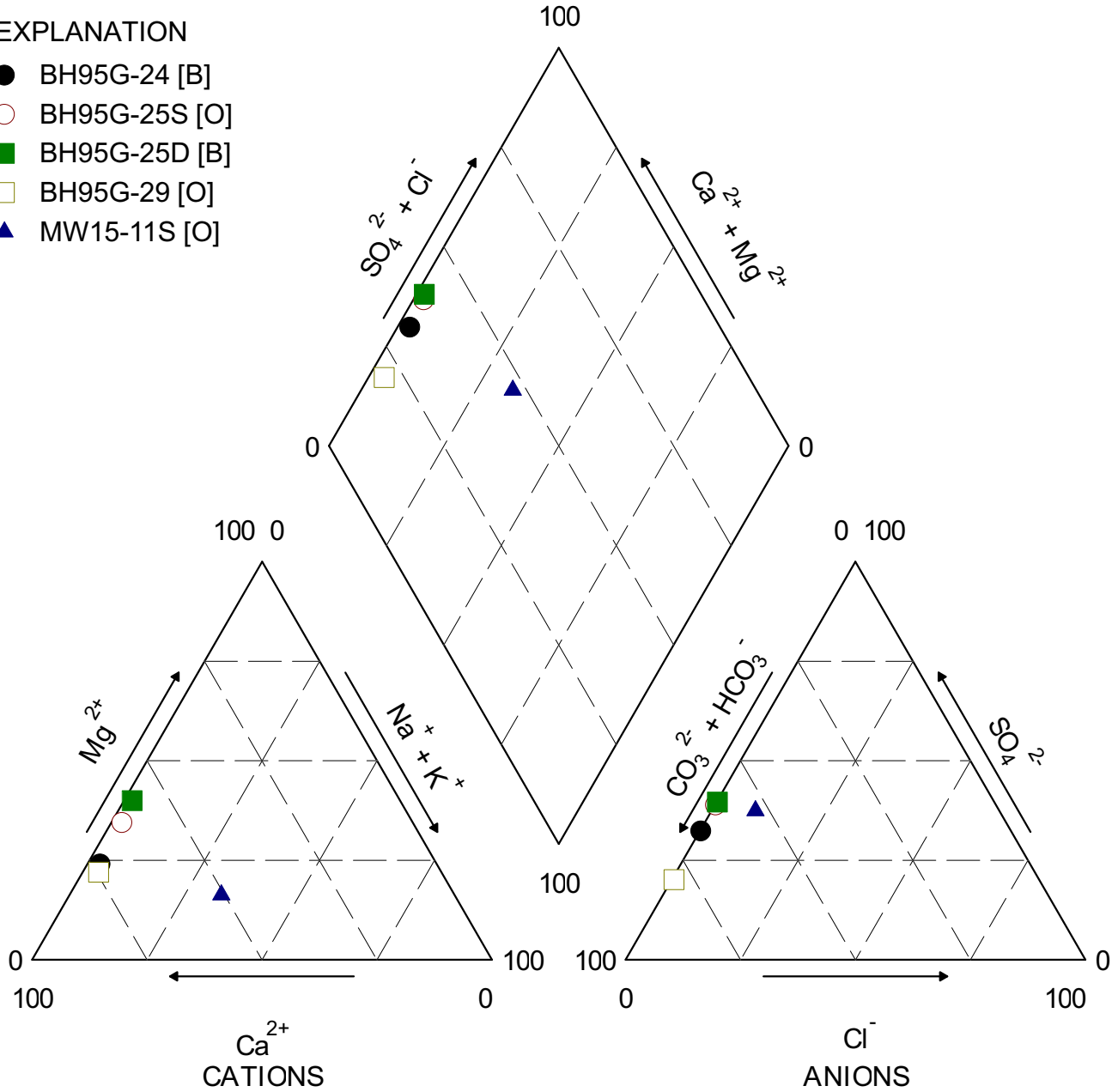
Figure 8d

STATUS  
ISSUED FOR USE

# Zone 4b

**EXPLANATION**

- BH95G-24 [B]
- BH95G-25S [O]
- BH95G-25D [B]
- BH95G-29 [O]
- ▲ MW15-11S [O]



CLIENT



**Baseline Hydrogeology Assessment  
Kudz Ze Kayah Project, Yukon**

**Piper Plot  
Zone 4b**

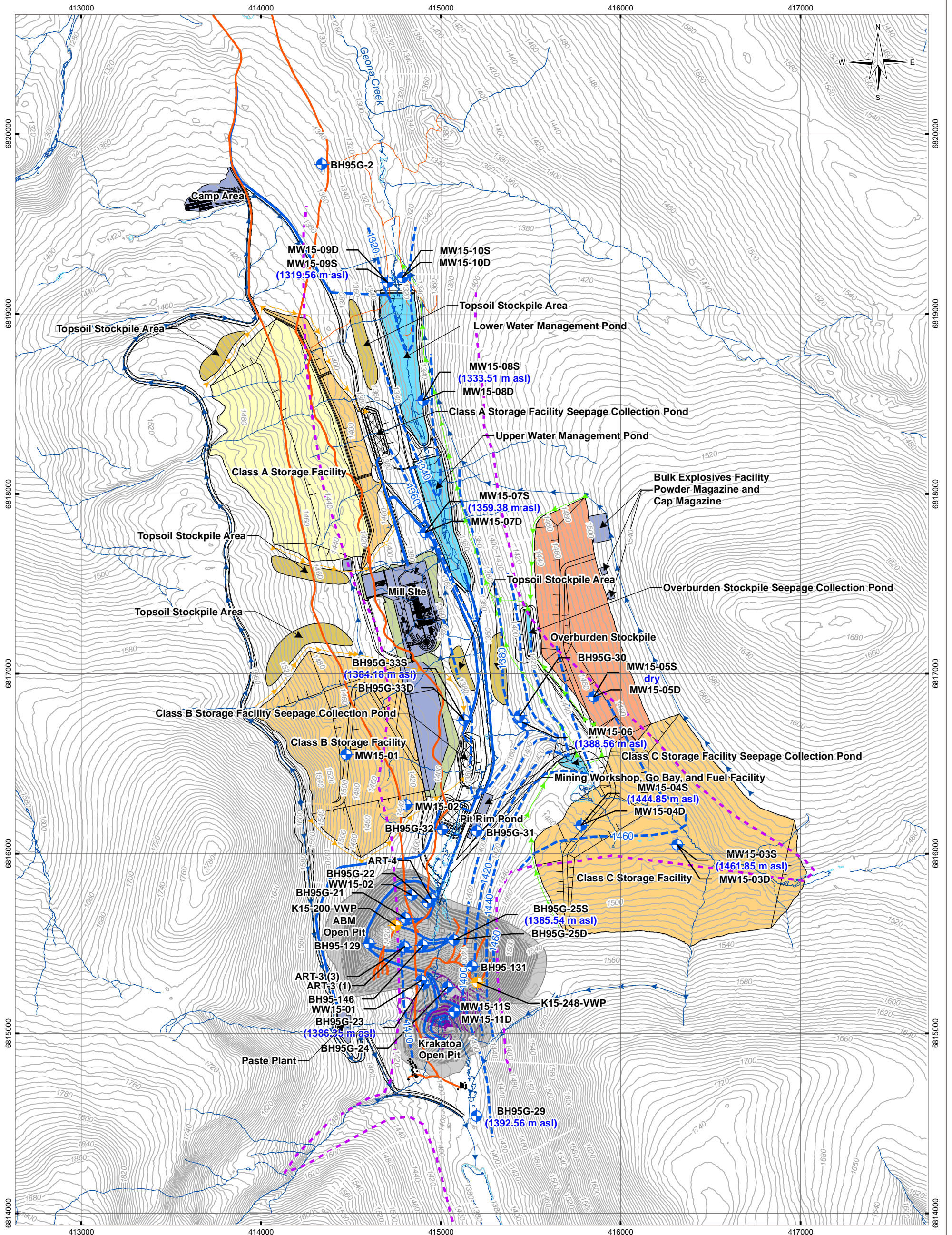


PROJECT NO. ENVMIN03071-01	DWN AS	CKD SK	APVD SK	REV 0
OFFICE EBA-WHSE	DATE June 23, 2016			

**Figure 8e**

STATUS  
ISSUED FOR USE





**LEGEND**

- |   |  |  |
|---|--|--|
| <ul style="list-style-type: none"> <li> Monitoring Well</li> <li> Vibrating Wire Piezometer</li> <li> Approximate Overburden Extent</li> <li> Overburden Groundwater Elevation Contour (m asl)</li> <li> Contour (5 m)</li> <li> Existing Road</li> <li> Existing Trail</li> <li> Existing Building/Structure</li> <li> Watercourse/Waterbody</li> <li> Wetland Extent</li> </ul> | <p><b>Footprint_line Legend</b></p> <ul style="list-style-type: none"> <li> Proposed Road</li> <li> Dewatering Pipeline</li> <li> Diversion Ditch (Non Contact)</li> <li> Diversion Ditch (Contact Class A &amp; B)</li> <li> Diversion Ditch (Contact Class C)</li> <li> Water</li> <li> Class A Storage Facility</li> <li> Class B &amp; C Storage Facilities</li> <li> Overburden Stockpile</li> <li> Topsoil Stockpile</li> <li> Open Pit</li> </ul> | <ul style="list-style-type: none"> <li> Reclaimed/Progressive Closure</li> <li> Seepage Collection Pond</li> <li> Other Facilities</li> <li> Underground Workings</li> </ul> |
|---|--|--|

**NOTES**  
 Base data provided by BMC Minerals (No. 1) Ltd. (Feb 2016)  
 Infrastructure from Knight Piesold (September 20, 2016)

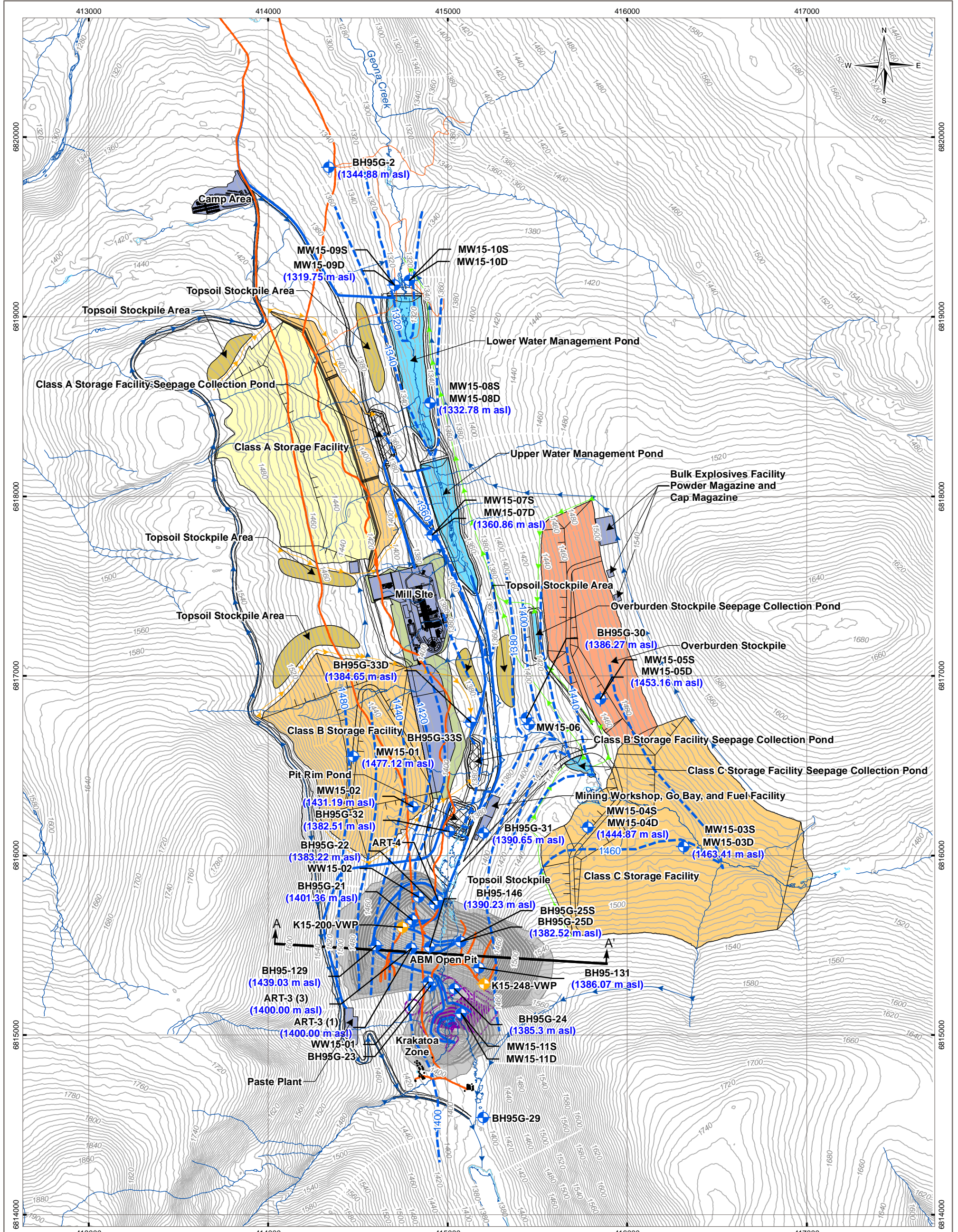
**STATUS**  
 ISSUED FOR USE

**BASILINE HYDROGEOLOGY ASSESSMENT, KUDZ ZE KAYAH, YK**

**Groundwater Contours Overburden Aquifer (September 2015)**

<b>PROJECTION</b> UTM Zone 9	<b>DATUM</b> NAD83	<b>CLIENT</b> 
Scale: 1:20,000		
400 200 0 400 Metres		
<b>FILE NO.</b> MIN03071-01_Figure09_GroundwaterOB.mxd		
<b>PROJECT NO.</b> ENVMIN03071-01	<b>DWN</b> MEZ	<b>CKD</b> SL
<b>OFFICE</b> TlEBA-VANC	<b>APVD</b> SK	<b>REV</b> 1
<b>DATE</b> October 12, 2016		<b>Figure 9</b>





**LEGEND**

- Monitoring Well
- Vibrating Wire Piezometer
- Bedrock Groundwater Elevation Contour (m asl)
- Cross Section
- Contour (5 m)
- Existing Road
- Existing Trail
- Existing Building/Structure
- Watercourse/Waterbody
- Wetland Extent

**Proposed Infrastructure**

- Proposed Road
- Dewatering Pipeline
- Diversion Ditch (Non Contact)
- Diversion Ditch (Contact Class A & B)
- Diversion Ditch (Contact Class C)
- Water
- Class A Storage Facility
- Class B & C Storage Facilities
- Overburden Stockpile
- Topsoil Stockpile
- Open Pit
- Reclaimed/Progressive Closure

- Seepage Collection Pond
- Other Facilities
- Underground Workings

**NOTES**  
 Base data provided by BMC Minerals (No. 1) Ltd. (Feb 2016)  
 Infrastructure from Knight Piesold (September 20, 2016)

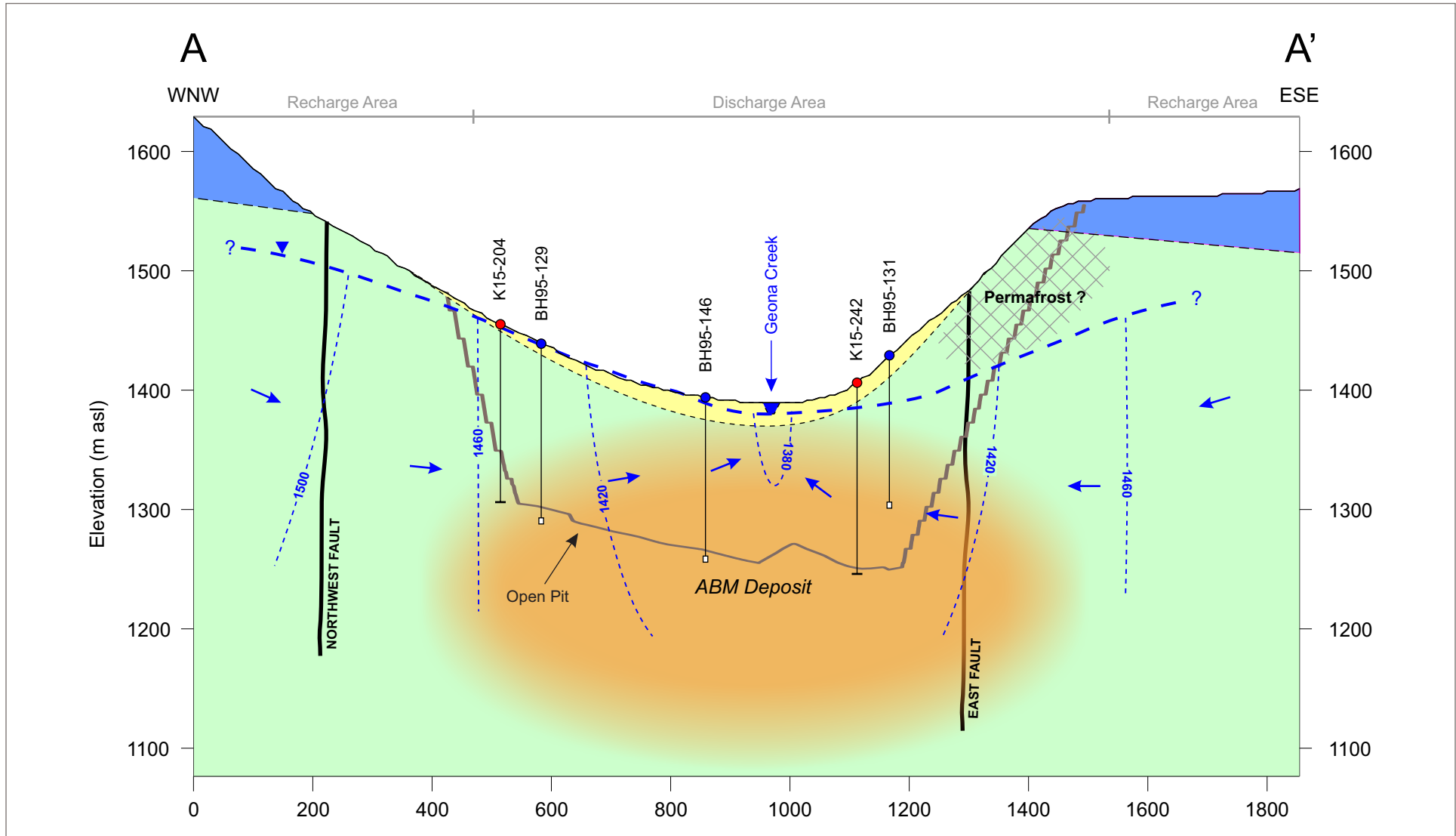
**STATUS**  
 ISSUED FOR USE

**BASELINE HYDROGEOLOGY ASSESSMENT, KUDZ ZE KAYAH, YK**

**Groundwater Contours  
 Bedrock Aquifer  
 (September 2015)**

<b>PROJECTION</b> UTM Zone 9	<b>DATUM</b> NAD83	<b>CLIENT</b> 
Scale: 1:20,000 400 200 0 400 Metres		
<b>FILE NO.</b> MIN03071-01_Figure10_GroundwaterBR.mxd	<b>PROJECT NO.</b> ENVMIN03071-01	<b>REV</b> 1
<b>OFFICE</b> TlEBA-VANC	<b>DATE</b> October 12, 2016	<b>Figure 10</b>





**LEGEND**

- Overburden
- Felsic volcanics
- Carbonaceous phyllite
- Mineral deposit

- Drill hole with packer tests
- Monitoring well
- Groundwater Table
- Inferred Groundwater Equipotential Contour (m asl)
- Groundwater Flow Direction

STATUS  
ISSUED FOR USE



**BASELINE HYDROGEOLOGY ASSESSMENT, KUDZ ZE KAYAH, YK**

**Hydrogeological Cross Section A - A'**

PROJECT NO. ENVMIN03071-01	DWN SK	CKD GR	APVD SK	REV 0
OFFICE EBA-WHSE	DATE June 23, 2016			

**Figure 11**

# APPENDIX A

## TETRA TECH'S GENERAL CONDITIONS

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# GENERAL CONDITIONS

## GEOENVIRONMENTAL REPORT

---

This report incorporates and is subject to these “General Conditions”.

---

### 1.1 USE OF REPORT AND OWNERSHIP

This report pertains to a specific site, a specific development, and a specific scope of work. It is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site or proposed development would necessitate a supplementary investigation and assessment.

This report and the assessments and recommendations contained in it are intended for the sole use of TETRA TECH's client. TETRA TECH does not accept any responsibility for the accuracy of any of the data, the analysis or the recommendations contained or referenced in the report when the report is used or relied upon by any party other than TETRA TECH's Client unless otherwise authorized in writing by TETRA TECH. Any unauthorized use of the report is at the sole risk of the user.

This report is subject to copyright and shall not be reproduced either wholly or in part without the prior, written permission of TETRA TECH. Additional copies of the report, if required, may be obtained upon request.

### 1.2 ALTERNATE REPORT FORMAT

Where TETRA TECH submits both electronic file and hard copy versions of reports, drawings and other project-related documents and deliverables (collectively termed TETRA TECH's instruments of professional service); only the signed and/or sealed versions shall be considered final and legally binding. The original signed and/or sealed version archived by TETRA TECH shall be deemed to be the original for the Project.

Both electronic file and hard copy versions of TETRA TECH's instruments of professional service shall not, under any circumstances, no matter who owns or uses them, be altered by any party except TETRA TECH. The Client warrants that TETRA TECH's instruments of professional service will be used only and exactly as submitted by TETRA TECH.

Electronic files submitted by TETRA TECH have been prepared and submitted using specific software and hardware systems. TETRA TECH makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

### 1.3 NOTIFICATION OF AUTHORITIES

In certain instances, the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by TETRA TECH in its reasonably exercised discretion.

### 1.4 INFORMATION PROVIDED TO TETRA TECH BY OTHERS

During the performance of the work and the preparation of the report, TETRA TECH may rely on information provided by persons other than the Client. While TETRA TECH endeavours to verify the accuracy of such information when instructed to do so by the Client, TETRA TECH accepts no responsibility for the accuracy or the reliability of such information which may affect the report.

# APPENDIX B

## WELL LOGS

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- Appendix B1 Monitoring well logs
- Appendix B2 Test well logs, particle size distribution, and development records
- Appendix B3 Well logs for VWP observation wells and exploration drill holes with packer testing data

# BMC Minerals (No. 1) Ltd.

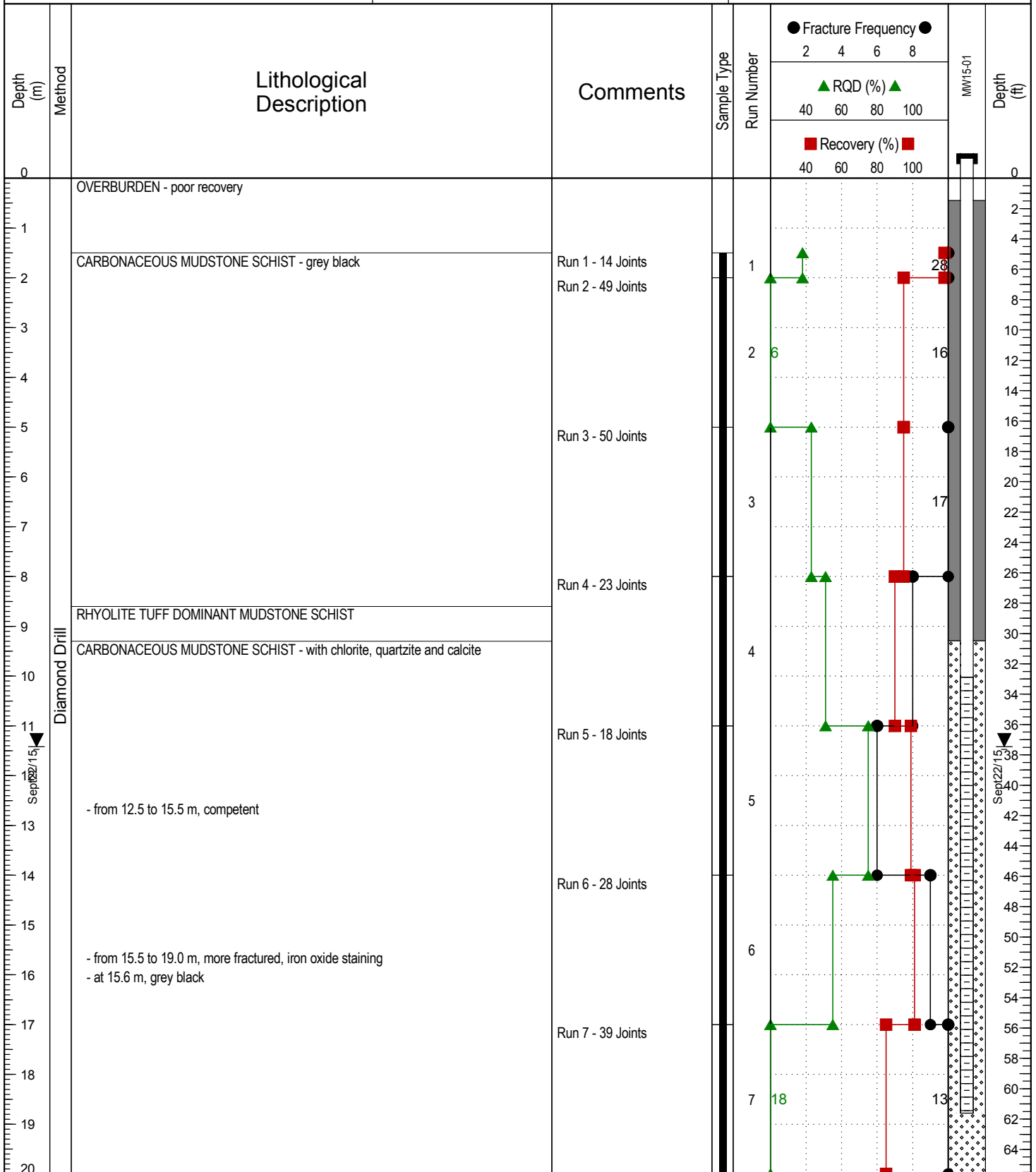
# Borehole No: MW15-01

Project: KZK Hydrogeological Assessment

Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Yukon



TETRA TECH EBA

Contractor: Geotech Drilling

Completion Depth: 20 m

Drilling Rig Type: Diamond Drill

Start Date: 2015 August 11

Logged By: KRR/ER

Completion Date: 2015 August 11

Reviewed By: SK

Page 1 of 2

**BMC Minerals (No. 1) Ltd.**

**Borehole No: MW15-01**

Project: KZK Hydrogeological Assessment

Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Yukon

Depth (m)	Method	Lithological Description	Comments	Sample Type	Run Number	● Fracture Frequency ●				MW15-01	Depth (ft)
						2	4	6	8		
						▲ RQD (%) ▲					
						40	60	80	100		
						■ Recovery (%) ■					
						40	60	80	100		
20		END OF BOREHOLE (20.00 metres) water - 9.58 metres on August 19, 2015 - 11.42 metres on September 22, 2015 Monitoring well installed to 18.78 metres Pipe stickup = 1.29 metres									66
21											68
22											70
23											72
24											74
25											76
26											78
27											80
28											82
29											84
30											86
31											88
32											90
33											92
34											94
35											96
36											98
37											100
38											102
39											104
40											106



**TETRA TECH EBA**

Contractor: Geotech Drilling

Completion Depth: 20 m

Drilling Rig Type: Diamond Drill

Start Date: 2015 August 11

Logged By: KRR/ER

Completion Date: 2015 August 11

Reviewed By: SK

Page 2 of 2



# BMC Minerals (No. 1) Ltd.

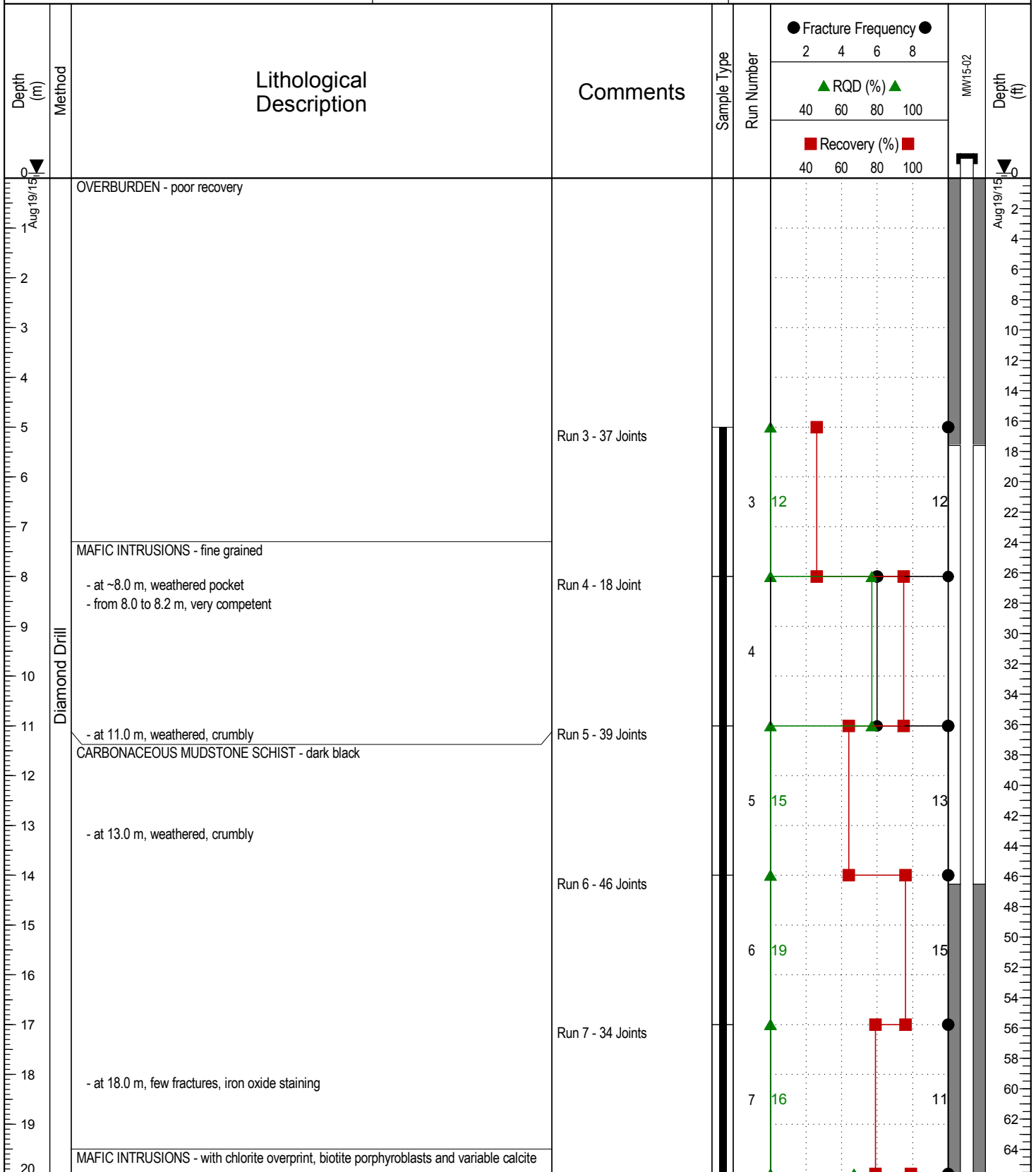
# Borehole No: MW15-02

Project: KZK Hydrogeological Assessment

Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Yukon



Contractor: Geotech Drilling

Completion Depth: 32 m

Drilling Rig Type: Diamond Drill

Start Date: 2015 August 12

Logged By: KRR/ER

Completion Date: 2015 August 12

Reviewed By: SK

Page 1 of 2

**BMC Minerals (No. 1) Ltd.**

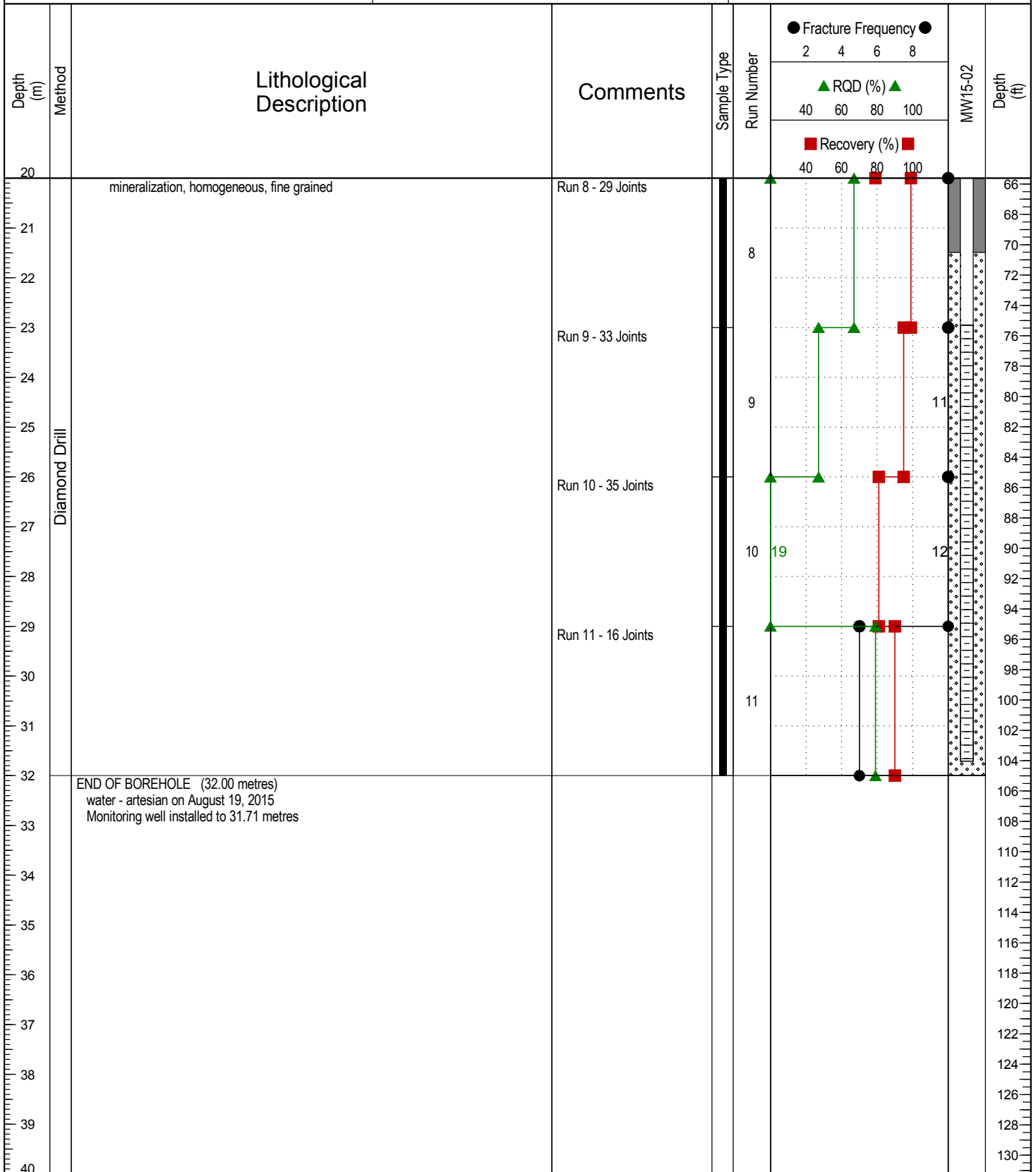
**Borehole No: MW15-02**

Project: KZK Hydrogeological Assessment

Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Yukon



Contractor: Geotech Drilling

Completion Depth: 32 m

Drilling Rig Type: Diamond Drill

Start Date: 2015 August 12

Logged By: KRR/ER

Completion Date: 2015 August 12

Reviewed By: SK

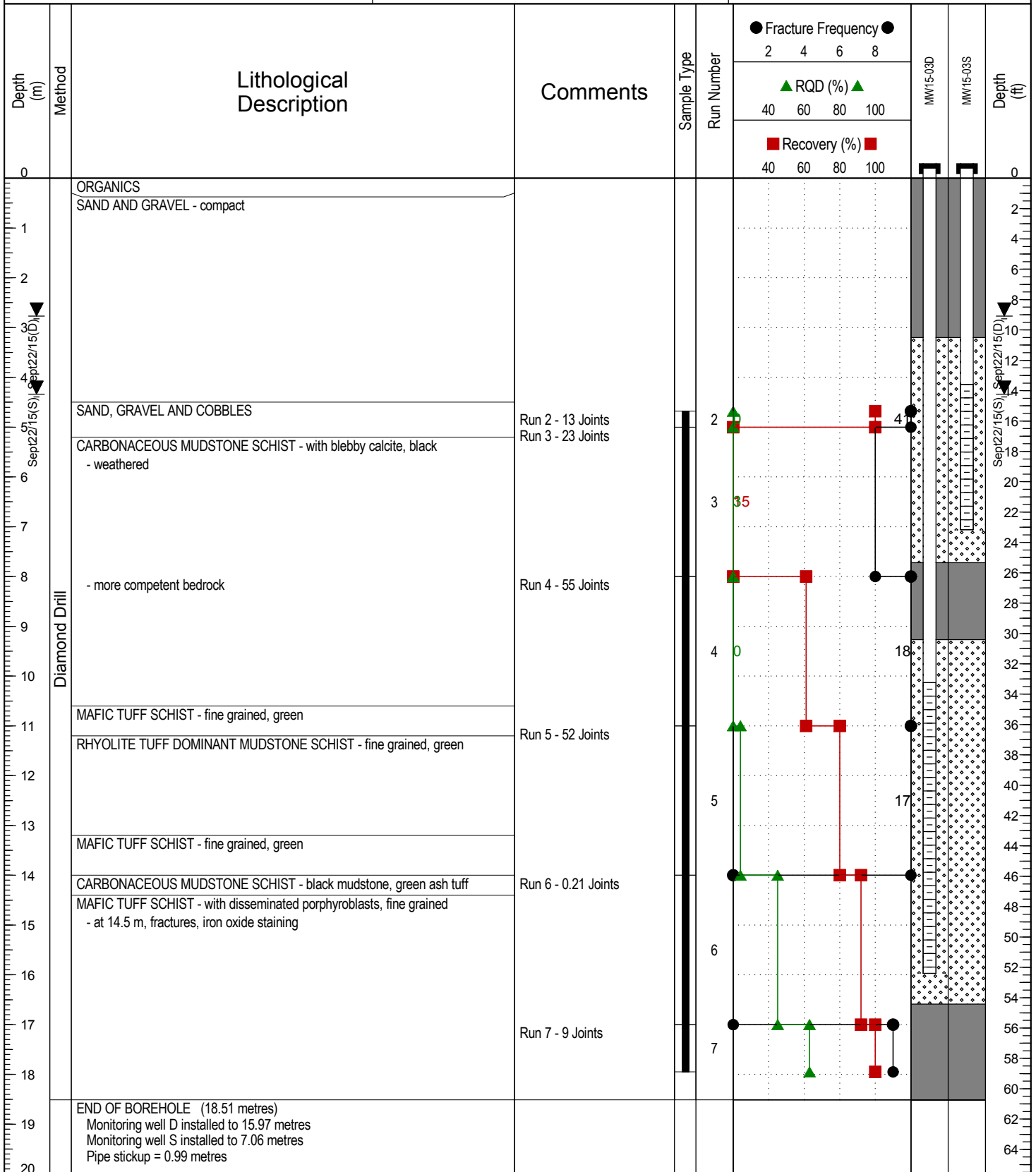
Page 2 of 2

# BMC Minerals (No. 1) Ltd.

# Borehole No: MW15-03

Project: KZK Hydrogeological Assessment  
 Location: Kudz Ze Kayah  
 Yukon

Project No: ENVMIN03071-01



Contractor: Geotech Drilling

Drilling Rig Type: Diamond Drill

Logged By: KRR/ER

Reviewed By: SK

Completion Depth: 18.51 m

Start Date: 2015 August 17

Completion Date: 2015 August 17

Page 1 of 2

**BMC Minerals (No. 1) Ltd.**

**Borehole No: MW15-03**

Project: KZK Hydrogeological Assessment

Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Yukon

Depth (m)	Method	Lithological Description	Comments	Sample Type	Run Number	Fracture Frequency ●		MW15-03D	MW15-03S	Depth (ft)
						2	4			
						▲ RQD (%) ▲				
						■ Recovery (%) ■				
						40	60	80	100	
						40	60	80	100	
20		MW15-03D water - 2.77 metres on September 22, 2015 MW15-03S water - 4.34 metres on September 22, 2015								66
21										68
22										70
23										72
24										74
25										76
26										78
27										80
28										82
29										84
30										86
31										88
32										90
33										92
34										94
35										96
36										98
37										100
38										102
39										104
40										106
										108
										110
										112
										114
										116
										118
										120
										122
										124
										126
										128
										130



**TETRA TECH EBA**

Contractor: Geotech Drilling

Completion Depth: 18.51 m

Drilling Rig Type: Diamond Drill

Start Date: 2015 August 17

Logged By: KRR/ER

Completion Date: 2015 August 17

Reviewed By: SK

Page 2 of 2

# BMC Minerals (No. 1) Ltd.

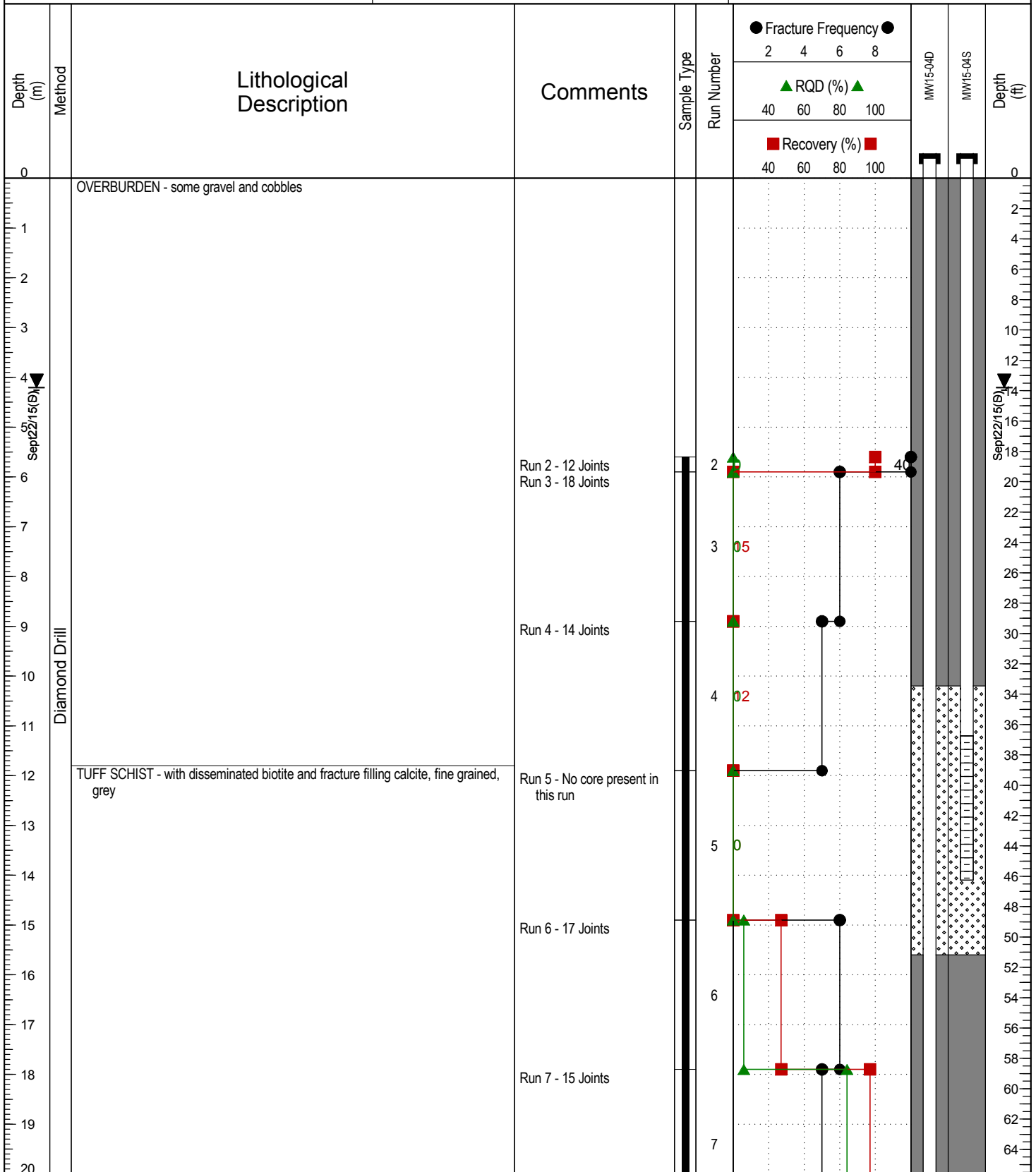
# Borehole No: MW15-04

Project: KZK Hydrogeological Assessment

Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Yukon



TETRA TECH EBA

Contractor: Geotech Drilling

Completion Depth: 33 m

Drilling Rig Type: Diamond Drill

Start Date: 2015 August 15

Logged By: KRR/ER

Completion Date: 2015 August 16

Reviewed By: SK

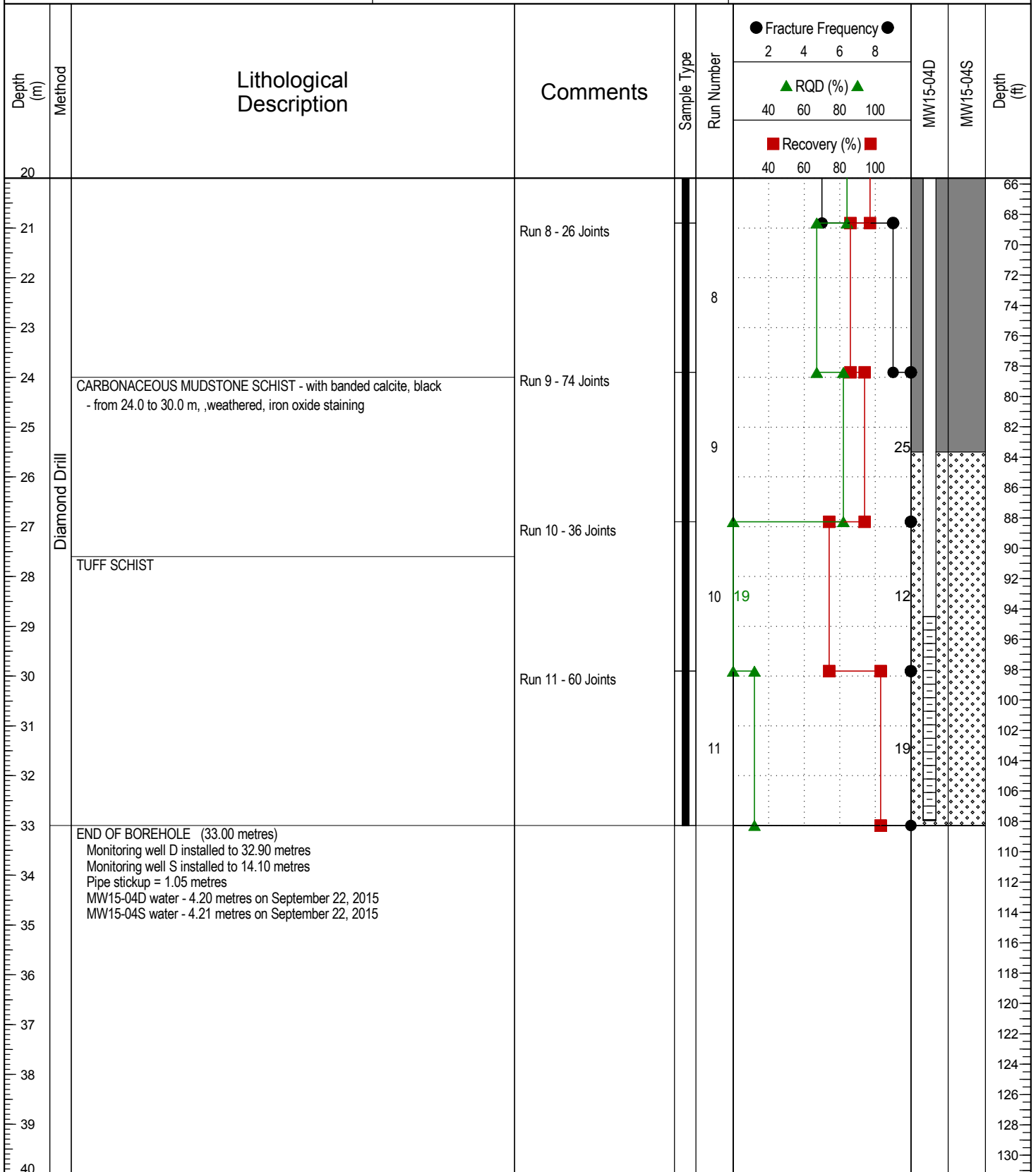
Page 1 of 2

# BMC Minerals (No. 1) Ltd.

# Borehole No: MW15-04

Project: KZK Hydrogeological Assessment  
 Location: Kudz Ze Kayah  
 Yukon

Project No: ENVMIN03071-01



TETRA TECH EBA

Contractor: Geotech Drilling

Drilling Rig Type: Diamond Drill

Logged By: KRR/ER

Reviewed By: SK

Completion Depth: 33 m

Start Date: 2015 August 15

Completion Date: 2015 August 16

Page 2 of 2

# BMC Minerals (No. 1) Ltd.

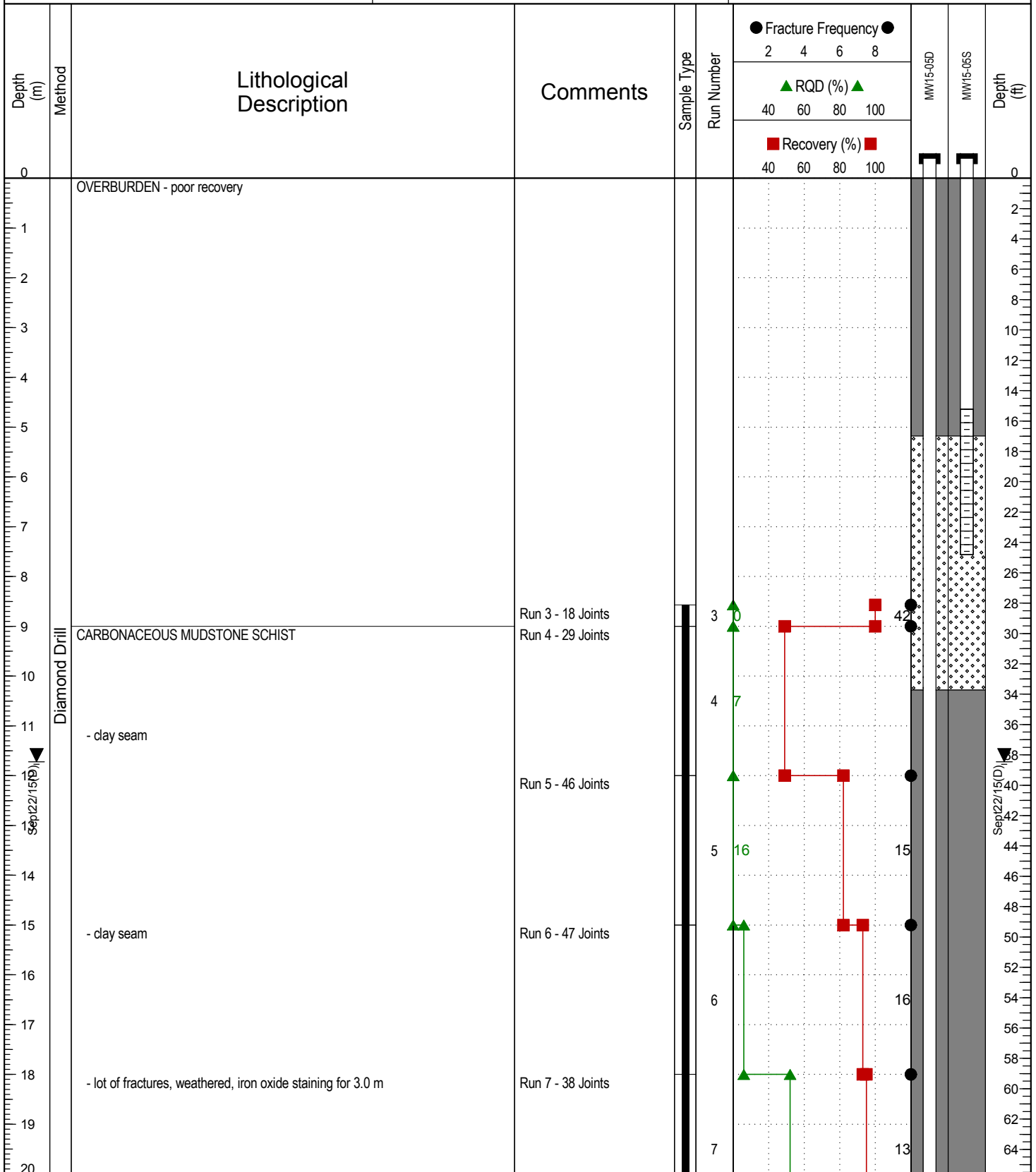
# Borehole No: MW15-05

Project: KZK Hydrogeological Assessment

Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Yukon



TETRA TECH EBA

Contractor: Geotech Drilling

Completion Depth: 30 m

Drilling Rig Type: Diamond Drill

Start Date: 2015 August 14

Logged By: KRR/ER

Completion Date: 2015 August 14

Reviewed By: SK

Page 1 of 2

**BMC Minerals (No. 1) Ltd.**

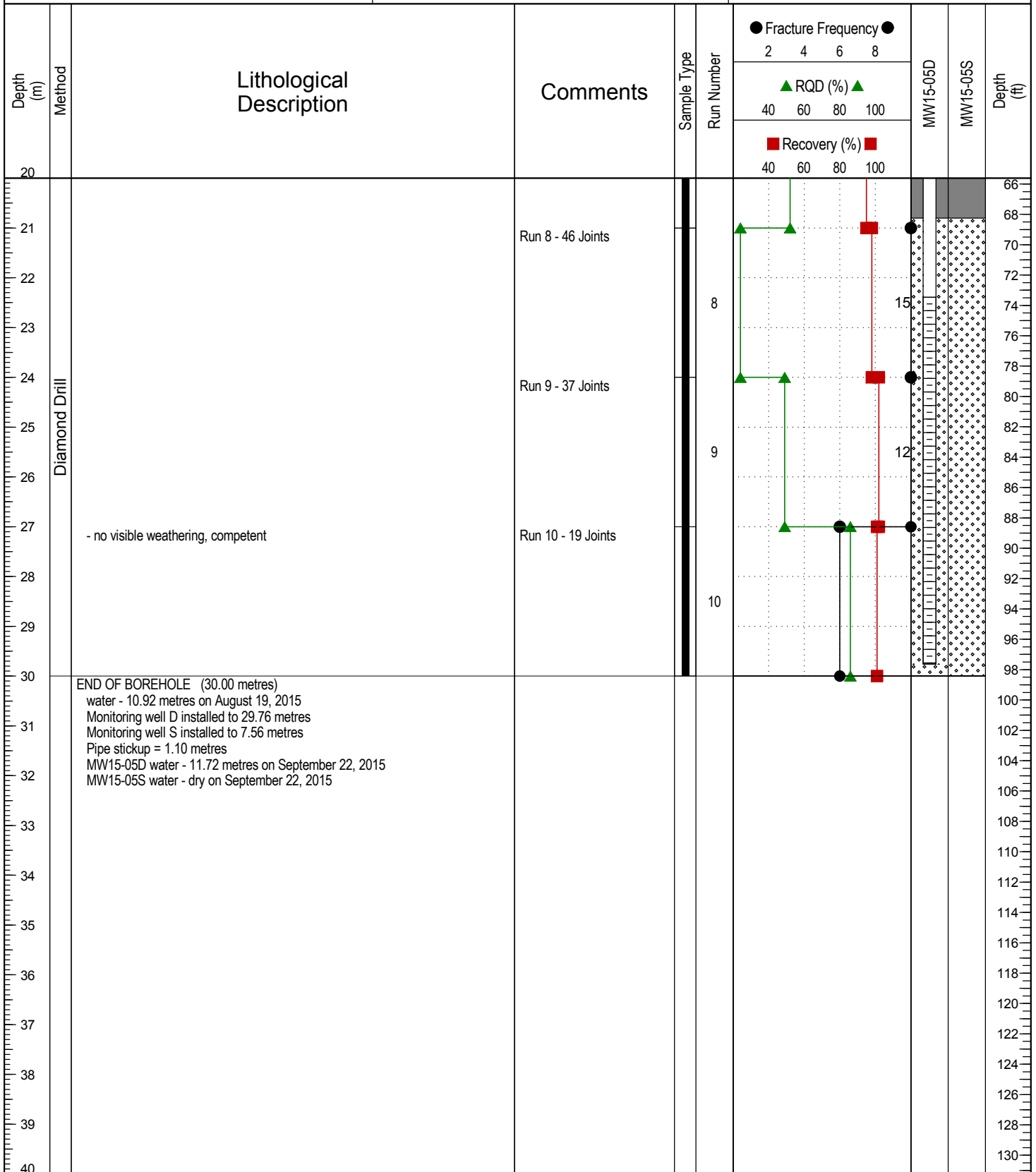
**Borehole No: MW15-05**

Project: KZK Hydrogeological Assessment

Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Yukon



Contractor: Geotech Drilling

Completion Depth: 30 m

Drilling Rig Type: Diamond Drill

Start Date: 2015 August 14

Logged By: KRR/ER

Completion Date: 2015 August 14

Reviewed By: SK

Page 2 of 2



**BMC Minerals (No. 1) Ltd.**


**Borehole No: MW15-06**

Project: KZK Hydrogeological Assessment

Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Yukon

Depth (m)	Method	Lithological Description	Comments	Run Number	MW15-06	Depth (ft)
0						0
0 to 9.70	Diamond Drill	ORGANICS SAND - loose	Pipe stickup = 1.07 metres			0 to 32
9.70 to 20		END OF BOREHOLE (9.70 metres) Monitoring well installed to 9.40 metres Pipe stickup = 1.07 metres MW15-06 water - artesian on September 22, 2015				32 to 64



**TETRA TECH EBA**

Contractor: Geotech Drilling

Completion Depth: 9.7 m

Drilling Rig Type: Diamond Drill

Start Date: 2015 August 14

Logged By: KRR/ER

Completion Date: 2015 August 15

Reviewed By: SK

Page 1 of 1

# BMC Minerals (No. 1) Ltd.

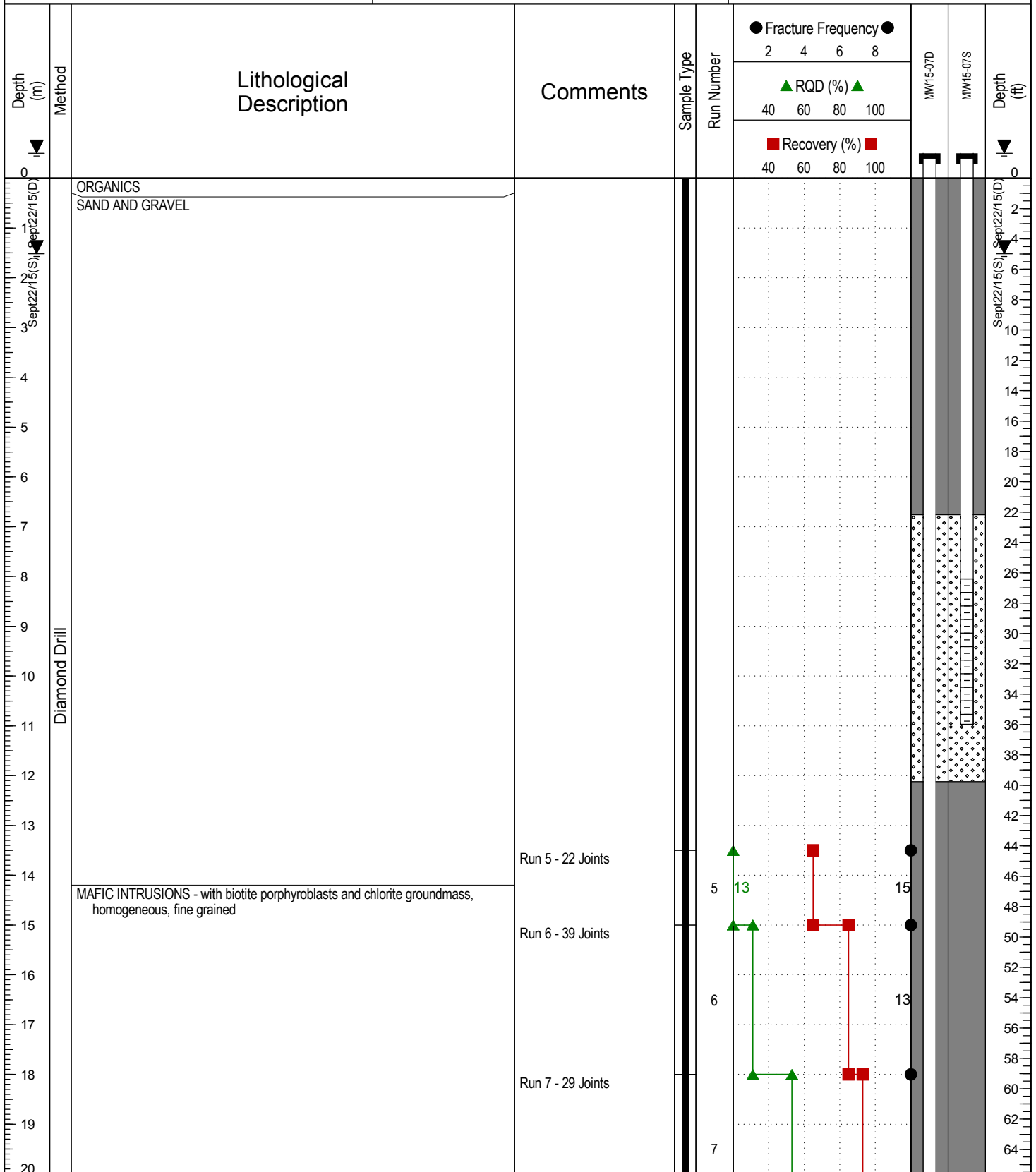
# Borehole No: MW15-07

Project: KZK Hydrogeological Assessment

Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Yukon



TETRA TECH EBA

Contractor: Geotech Drilling

Completion Depth: 33 m

Drilling Rig Type: Diamond Drill

Start Date: 2015 August 18

Logged By: KRR/ER

Completion Date: 2015 August 18

Reviewed By: SK

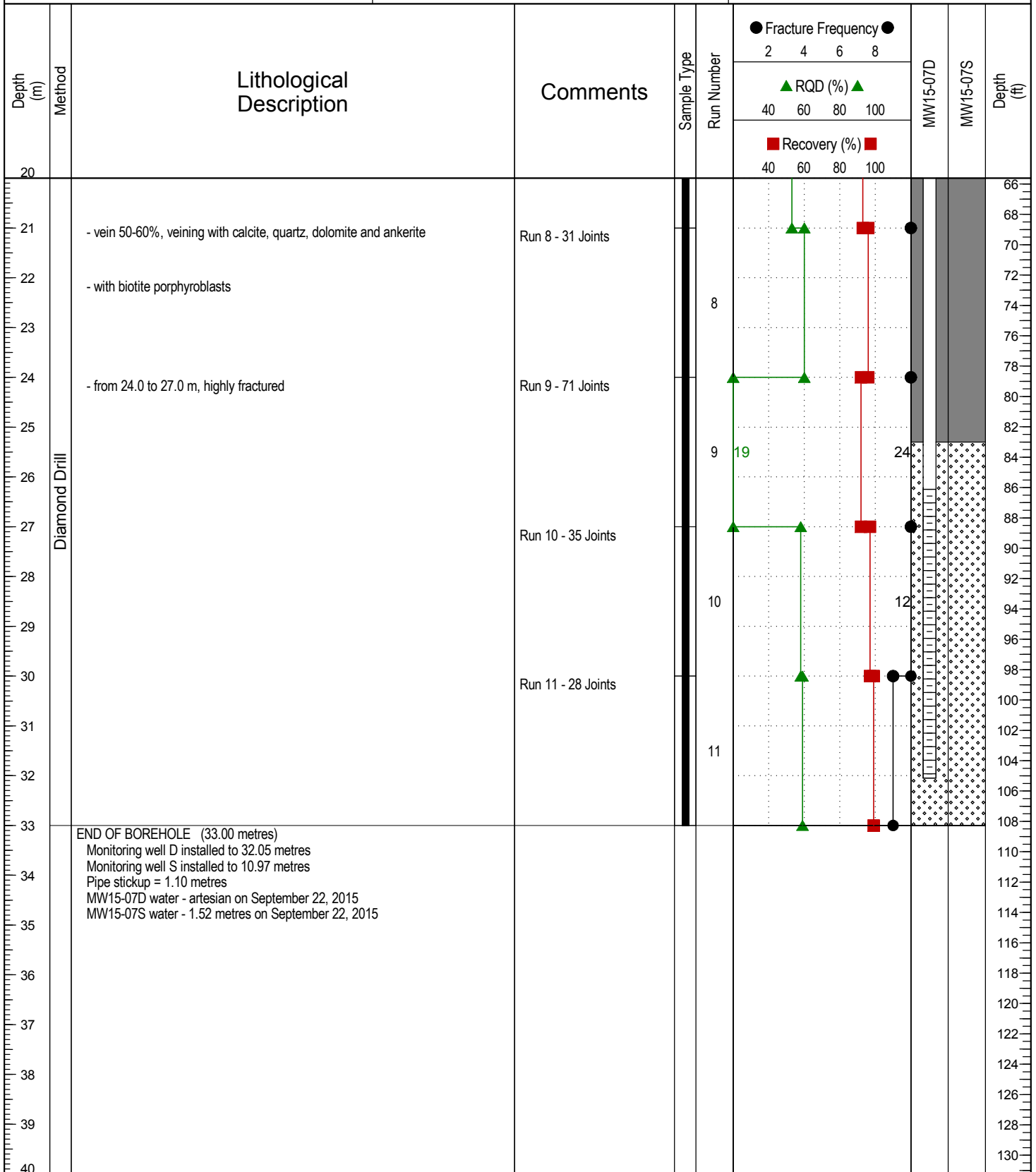
Page 1 of 2

# BMC Minerals (No. 1) Ltd.

# Borehole No: MW15-07

Project: KZK Hydrogeological Assessment  
 Location: Kudz Ze Kayah  
 Yukon

Project No: ENVMIN03071-01



TETRA TECH EBA

Contractor: Geotech Drilling

Drilling Rig Type: Diamond Drill

Logged By: KRR/ER

Reviewed By: SK

Completion Depth: 33 m

Start Date: 2015 August 18

Completion Date: 2015 August 18

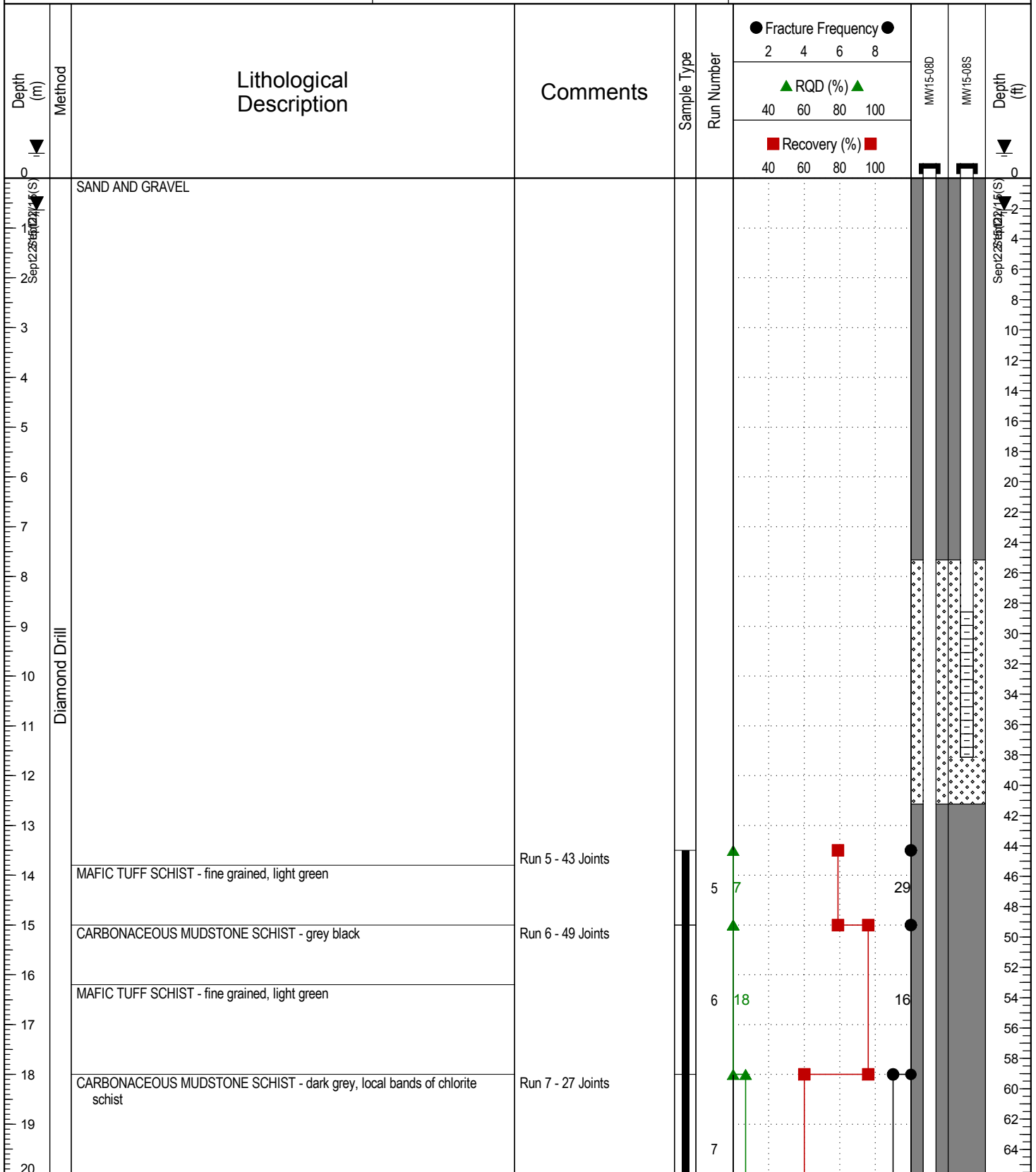
Page 2 of 2

# BMC Minerals (No. 1) Ltd.

## Borehole No: MW15-08

Project: KZK Hydrogeological Assessment  
 Location: Kudz Ze Kayah  
 Yukon

Project No: ENVMIN03071-01



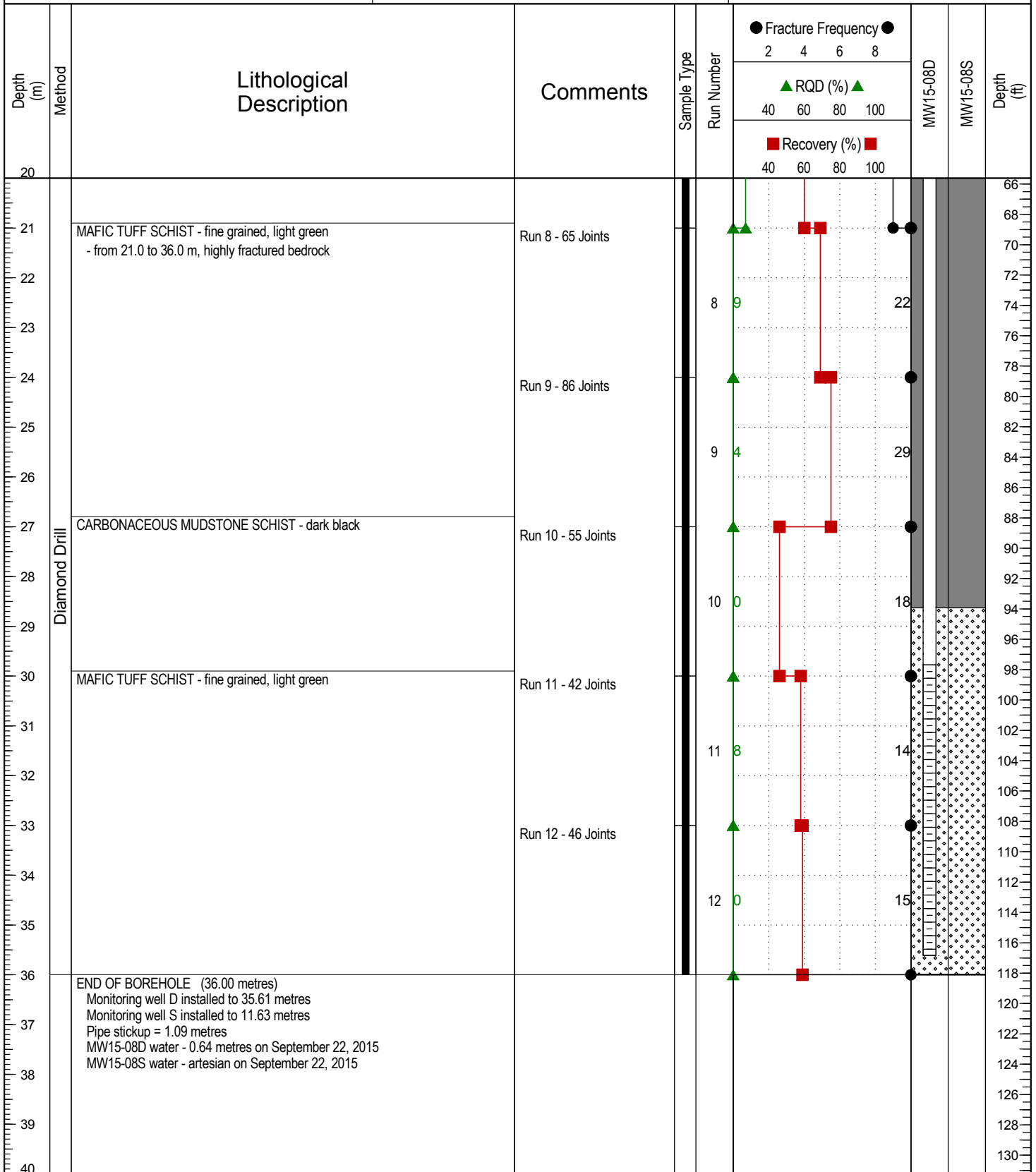
Contractor: Geotech Drilling	Completion Depth: 36 m
Drilling Rig Type: Diamond Drill	Start Date: 2015 August 12
Logged By: KRR/ER	Completion Date: 2015 August 12
Reviewed By: SK	Page 1 of 2

# BMC Minerals (No. 1) Ltd.

# Borehole No: MW15-08

Project: KZK Hydrogeological Assessment  
 Location: Kudz Ze Kayah  
 Yukon

Project No: ENVMIN03071-01



END OF BOREHOLE (36.00 metres)  
 Monitoring well D installed to 35.61 metres  
 Monitoring well S installed to 11.63 metres  
 Pipe stickup = 1.09 metres  
 MW15-08D water - 0.64 metres on September 22, 2015  
 MW15-08S water - artesian on September 22, 2015



Contractor: Geotech Drilling

Drilling Rig Type: Diamond Drill

Logged By: KRR/ER

Reviewed By: SK

Completion Depth: 36 m

Start Date: 2015 August 12

Completion Date: 2015 August 12

Page 2 of 2

# BMC Minerals (No. 1) Ltd.

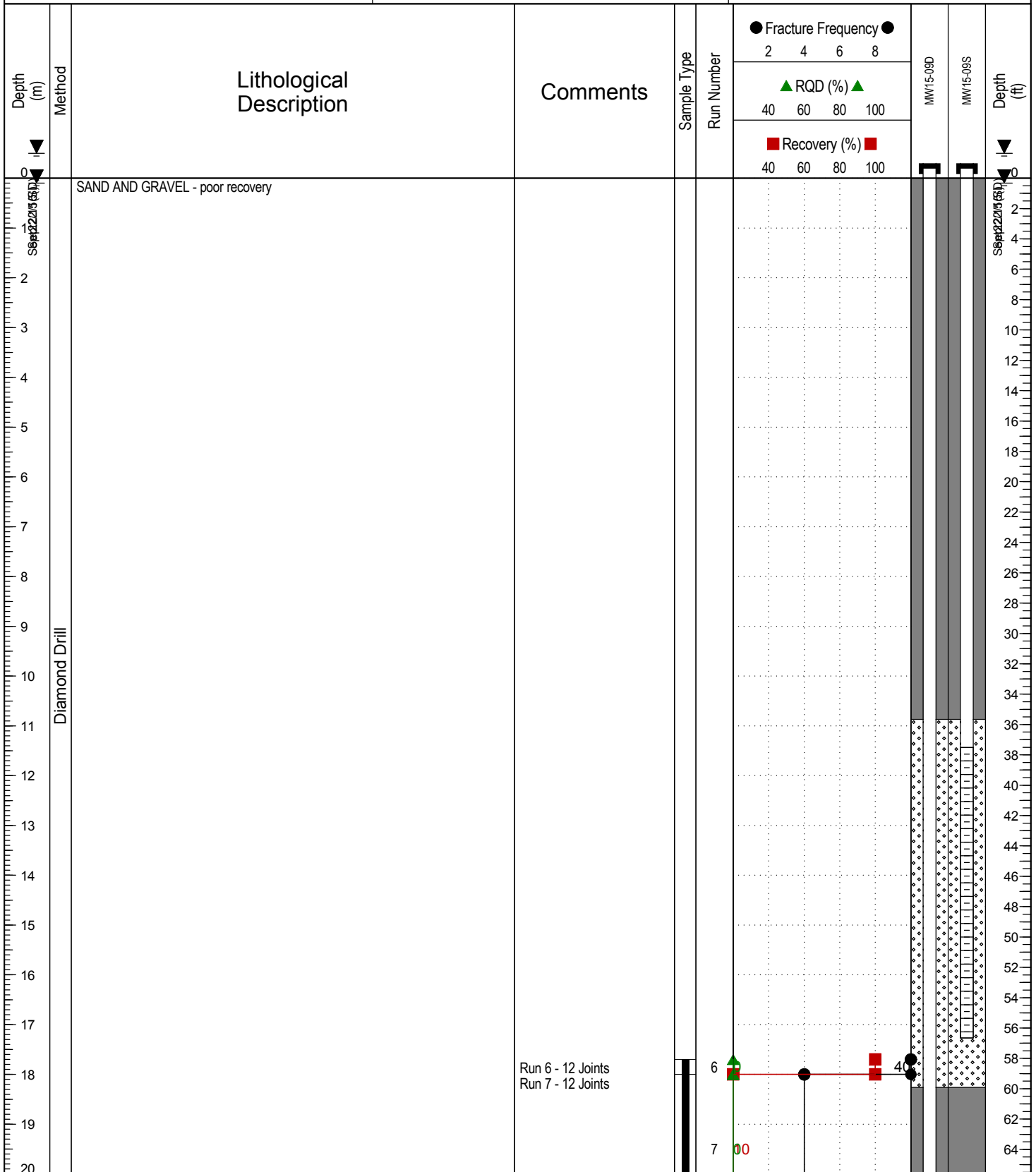
# Borehole No: MW15-09

Project: KZK Hydrogeological Assessment

Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Yukon



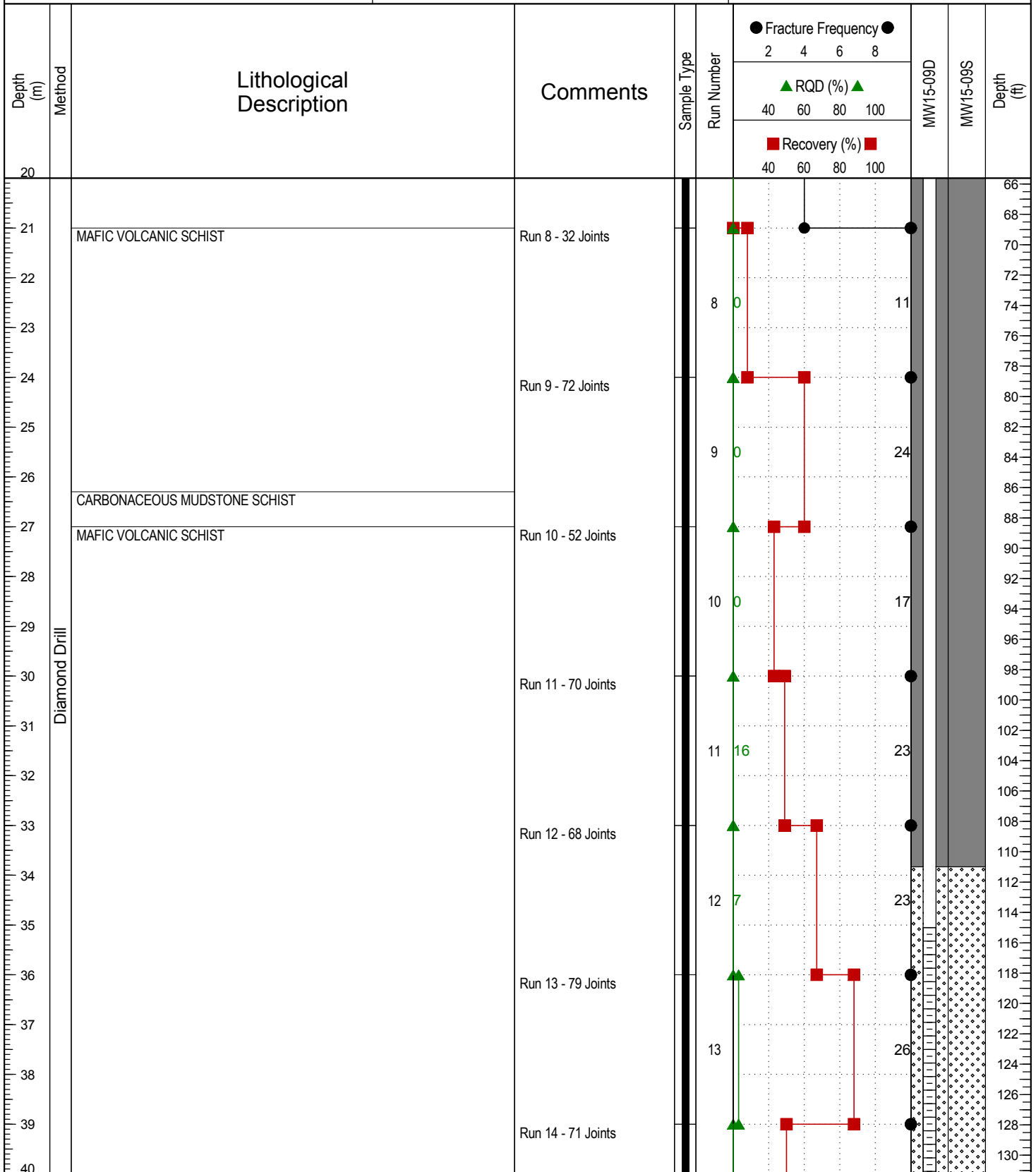
Contractor: Geotech Drilling	Completion Depth: 42 m
Drilling Rig Type: Diamond Drill	Start Date: 2015 August 10
Logged By: KRR/ER	Completion Date: 2015 August 10
Reviewed By: SK	Page 1 of 3

# BMC Minerals (No. 1) Ltd.

# Borehole No: MW15-09

Project: KZK Hydrogeological Assessment  
 Location: Kudz Ze Kayah  
 Yukon

Project No: ENVMIN03071-01



Contractor: Geotech Drilling

Drilling Rig Type: Diamond Drill

Logged By: KRR/ER

Reviewed By: SK

Completion Depth: 42 m

Start Date: 2015 August 10

Completion Date: 2015 August 10

Page 2 of 3

**BMC Minerals (No. 1) Ltd.**

**Borehole No: MW15-09**

Project: KZK Hydrogeological Assessment

Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Yukon

Depth (m)	Method	Lithological Description	Comments	Sample Type	Run Number	Fracture Frequency ●		MW15-09D	MW15-09S	Depth (ft)
						2	4 6 8			
						▲ RQD (%) ▲				
						■ Recovery (%) ■				
						40 60 80 100	40 60 80 100			
40	Diamond Drill	END OF BOREHOLE (42.00 metres) Monitoring well D installed to 40.89 metres Monitoring well S installed to 17.27 metre Pipe stickup = 0.58 metres MW15-09D water - artesian on September 22, 2015 MW15-09S water - 0.1 metres on September 22, 2015			14	9		24		132
41										134
42										136
43										138
44										140
45										142
46										144
47										146
48										148
49										150
50										152
51										154
52										156
53										158
54										160
55										162
56										164
57	166									
58	168									
59	170									
60	172									
	174									
	176									
	178									
	180									
	182									
	184									
	186									
	188									
	190									
	192									
	194									
	196									



**TETRA TECH EBA**

Contractor: Geotech Drilling

Completion Depth: 42 m

Drilling Rig Type: Diamond Drill

Start Date: 2015 August 10

Logged By: KRR/ER

Completion Date: 2015 August 10

Reviewed By: SK

Page 3 of 3



# BMC Minerals (No. 1) Ltd.

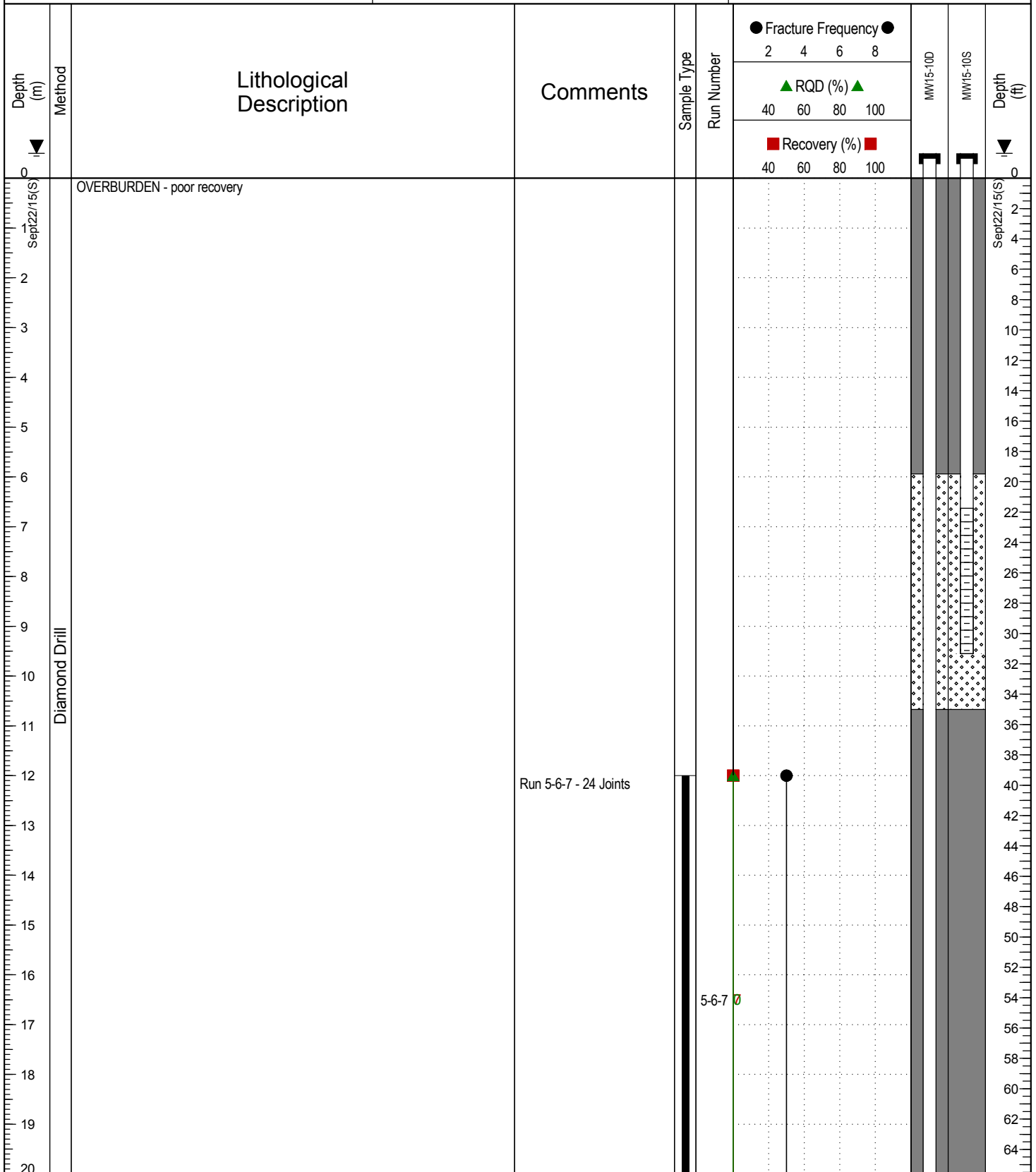
## Borehole No: MW15-10

Project: KZK Hydrogeological Assessment

Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Yukon



**TETRA TECH EBA**

Contractor: Geotech Drilling

Completion Depth: 36 m

Drilling Rig Type: Diamond Drill

Start Date: 2015 August 11

Logged By: KRR/ER

Completion Date: 2015 August 1

Reviewed By: SK

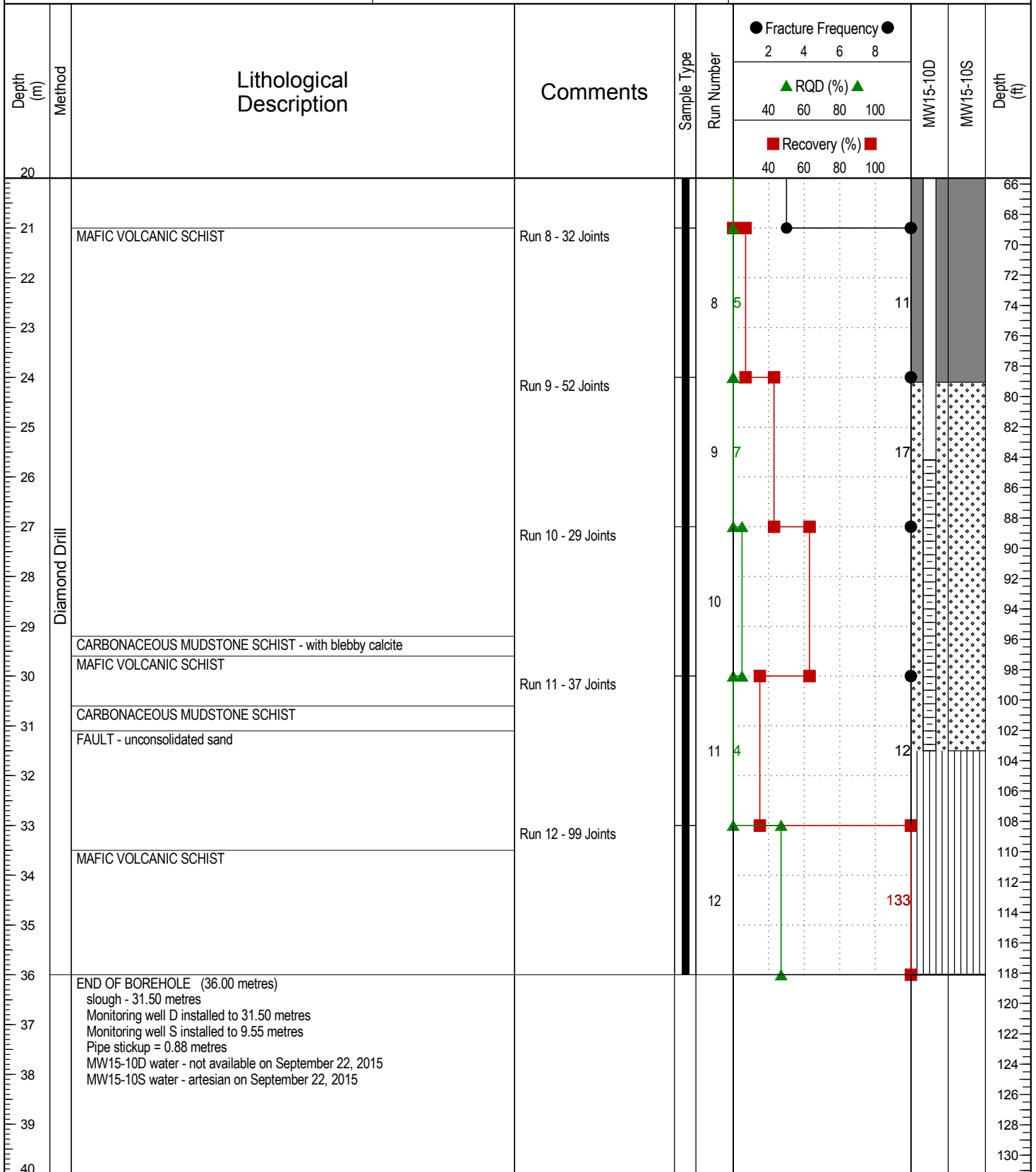
Page 1 of 2

# BMC Minerals (No. 1) Ltd.

# Borehole No: MW15-10

Project: KZK Hydrogeological Assessment  
 Location: Kudz Ze Kayah  
 Yukon

Project No: ENVMIN03071-01



Contractor: Geotech Drilling

Completion Depth: 36 m

Drilling Rig Type: Diamond Drill

Start Date: 2015 August 11

Logged By: KRR/ER

Completion Date: 2015 August 1

Reviewed By: SK

Page 2 of 2

# BMC Minerals (No. 1) Ltd.

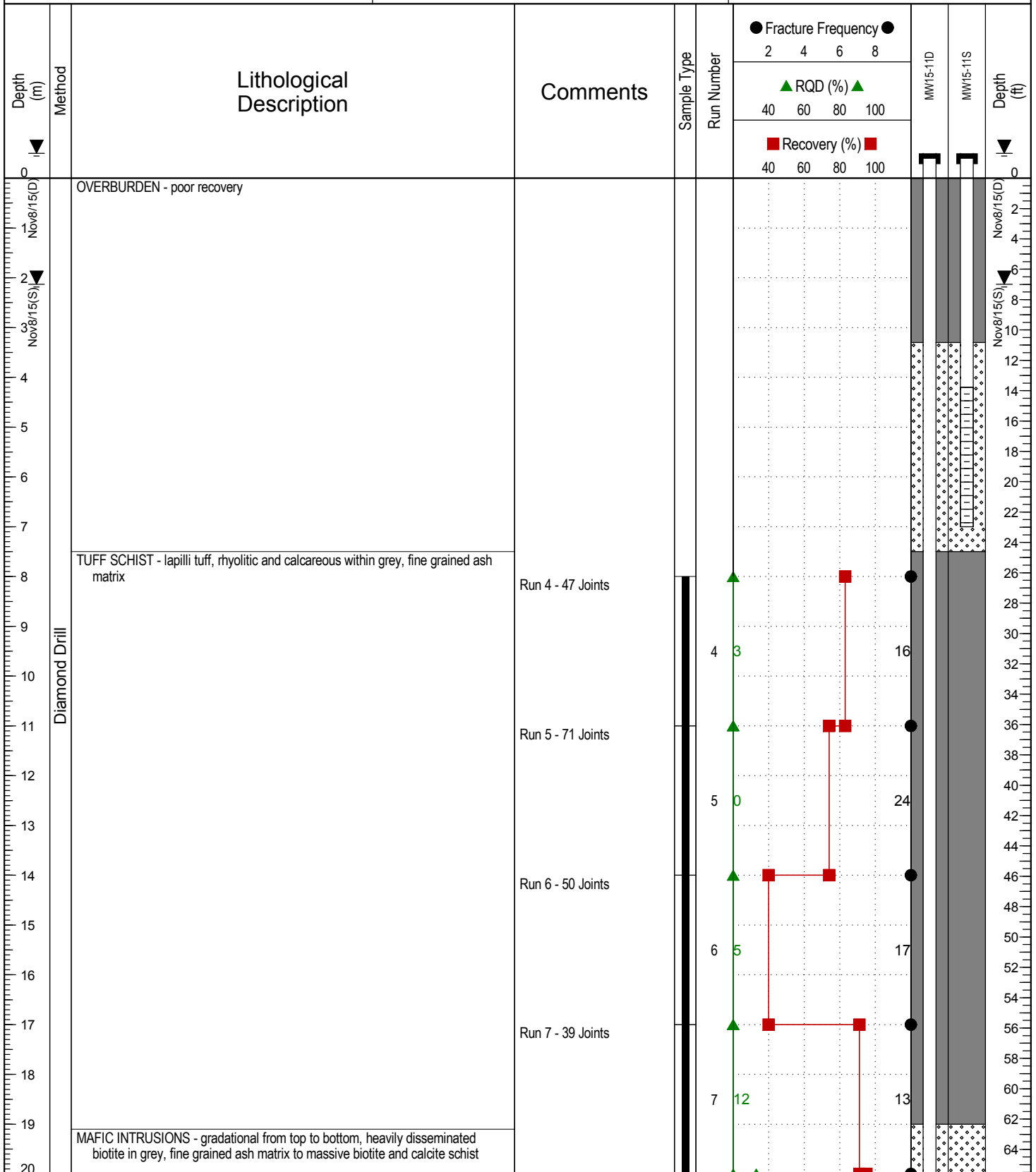
## Borehole No: MW15-11

Project: KZK Hydrogeological Assessment

Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Yukon



TETRA TECH EBA

Contractor: Geotech Drilling

Completion Depth: 35.5 m

Drilling Rig Type: Diamond Drill

Start Date: 2015 November 6

Logged By: KRR/ER

Completion Date: 2015 November 7

Reviewed By: SK

Page 1 of 2

**BMC Minerals (No. 1) Ltd.**

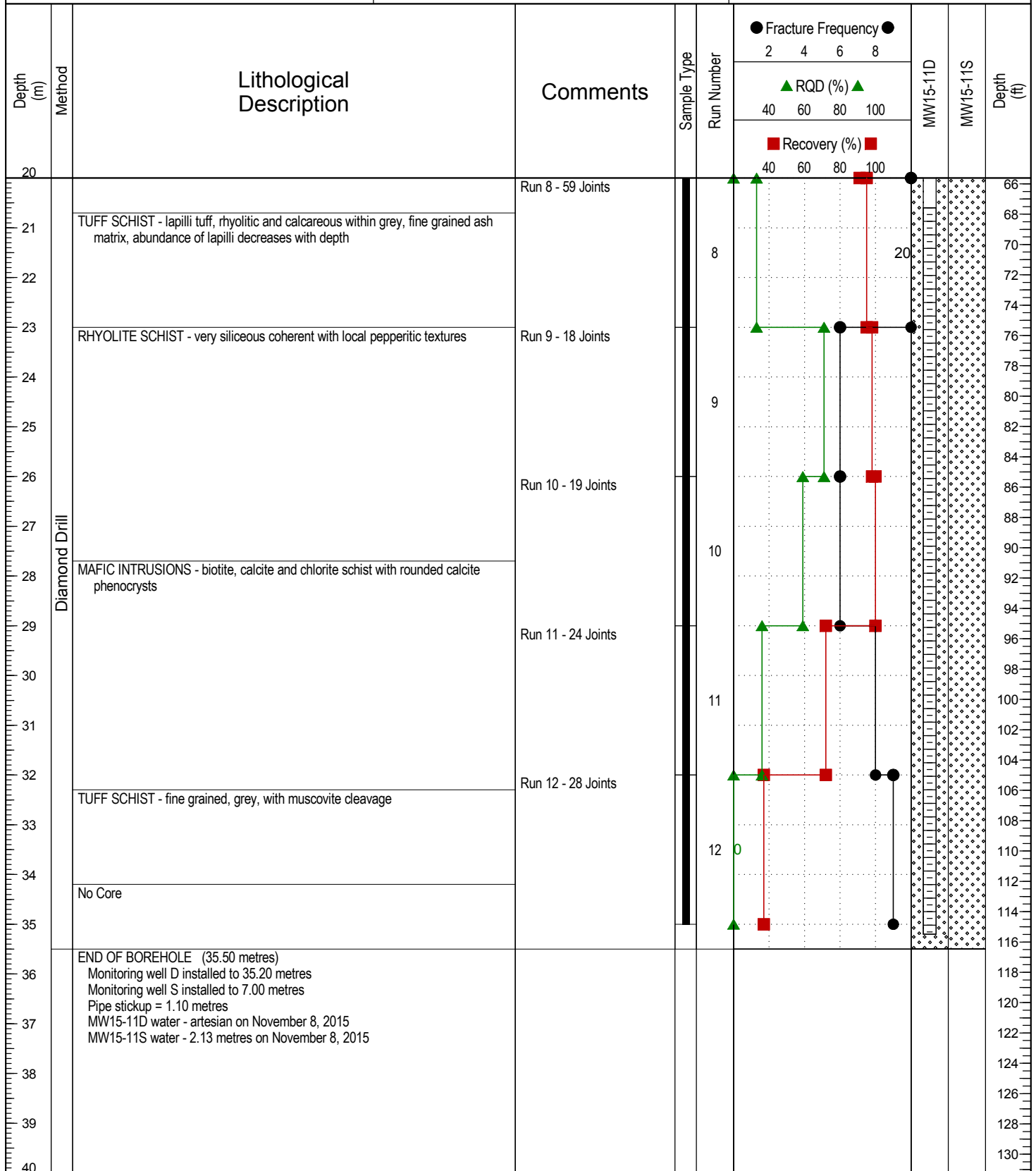
**Borehole No: MW15-11**

Project: KZK Hydrogeological Assessment

Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Yukon



Contractor: Geotech Drilling

Completion Depth: 35.5 m

Drilling Rig Type: Diamond Drill

Start Date: 2015 November 6

Logged By: KRR/ER

Completion Date: 2015 November 7

Reviewed By: SK

Page 2 of 2

PROJECT: 952-1523

**RECORD OF BOREHOLE: BH95G-2**

SHEET 1 OF 2

LOCATION: Dam Site B, West Valley Wall

DRILLING DATE: May 17, 1995

DATUM: G.S.

INCLINATION: -90 AZIMUTH:

DRILL RIG: Boyles Brothers - Rotary

DRILLING CONTRACTOR: D.J. Drilling



DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	PENETRATION RATE (mm/min)	FLUSH - COLOUR - % RETURN	FR-FRACTURE		F-FAULT		SM-SMOOTH		FL-FLEXURED		NOTES TEST RESULTS
								CL-CLEAVAGE		J-JOINT		R-ROUGH		UE-UNEVEN		
								SH-SHEAR		P-POLISHED		ST-STEPPED		W-WAVY		
								VN-VEIN		S-SLICKENSIDED		PL-PLANAR		C-CURVED		
RECOVERY		R.Q.D.		FRACT.		DISCONTINUITY DATA		ROCK STR.		WEATH.						
TOTAL CORE %	SOLID CORE %	%	INDEX	DIP w.r.t. CORE AXIS	TYPE AND SURFACE DESCRIPTION	MPa	INDEX (w)									
80	80	80	PEX 0.3m	0		1	1									
20	20	20		30		2	2									
80	80	80		60		3	3									
20	20	20		90		4	4									
80	80	80		90		5	5									
20	20	20		90		6	6									
80	80	80		90		7	7									
20	20	20		90		8	8									
80	80	80		90		9	9									
20	20	20		90		10	10									
80	80	80		90		11	11									
20	20	20		90												
0		Ground Surface		1360.00												
		Topsoil.		0.00												
				0.15												
1		Firm, wet, brown SILT/sandy SILT, little gravel, occasional boulder.		1358.48												
				1.52	1											
2		Firm to stiff, brownish grey, clayey SILT, little gravel, trace ice lenses.		1356.96												
				3.04	2											
3		Stiff, brownish grey, clayey SILT, little sand and gravel, occasional cobbles.		1355.13												
				4.87	3											
4					4											
5		<b>BEDROCK</b> Weak, weathered, fractured, laminated METASEDIMENTS. Some brown, stiff to firm clay, silt layers. (Clay/silt layers at 7.6 - 8.2m).			5											
6					6											
7					7											
8					8											
9		Moderately strong, slightly weathered, black, laminated METASEDIMENTS. Some quartz/calcite veins.		1351.78												
				8.22	6											
10					7											
11					8											
12		Highly fractured, weak, weathered, black METASEDIMENTS.		1349.03												
				10.97	7											
13					8											
14					9											
15		Moderately strong, slightly weathered, brown stained, laminated METASEDIMENTS. Some quartz veining.		1346.90												
				13.10	7											
16		Completely desintegrated METASEDIMENTS.		1344.16												
				15.84	9											
17		Moderately strong, slightly weathered METASEDIMENTS. Laminated 20 - 30 degrees.		1343.55												
				16.45	9											
18		Highly fractured shear zone, some voids.		1342.63												
				17.37	10											
19		Moderately strong, slightly weathered, black laminated METASEDIMENTS, some quartz veins, laminated at 20 - 30 degrees angle.		1341.72												
				18.28	11											
20		CONTINUED ON NEXT PAGE														

DEPTH SCALE:

CLIENT: Cominco

LOGGED: L.W.

1 to 100

**Golder Associates**

DATE: May 17, 1995

CHECKED: M.D.

DATA FORM: R. 10/95

DATA INPUT: June/95



PROJECT: 952-1523

# RECORD OF BOREHOLE: BH95G-2

SHEET 2 OF 2

LOCATION: Dam Site B, West Valley Wall

DRILLING DATE: May 17, 1995

DATUM: G.S.

INCLINATION: -90 AZIMUTH:

DRILL RIG: Boyles Brothers - Rotary

DRILLING CONTRACTOR: D.J. Drilling



DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	PENETRATION RATE (m/min.)	FLUSH % RETURN	FR-FRACTURE		F-FAULT		SM-SMOOTH		FL-FLEXURED		NOTES TEST RESULTS
								CL-CLEAVAGE		J-JOINT		R-ROUGH		UE-UNEVEN		
								SH-SHEAR		P-POLISHED		ST-STEPPED		W-WAVY		
								VN-VEIN		S-SLICKENSIDED		PL-PLANAR		C-CURVED		
RECOVERY		R.Q.D. %	FRACT. INDEX PER 0.3m	DISCONTINUITY DATA				ROCK STR. (MPa)	WEATH- ERING INDEX (w)							
TOTAL CORE %	SOLID CORE %			TYPE AND SURFACE DESCRIPTION		DIP w.r.t. CORE AXIS	W1			W2	W3	W4				
20		CONTINUED FROM PREVIOUS PAGE														
21		Same as above.			11											Caved Material
21		End of Borehole.		1338.67 21.33												
22																
23																
24																
25																
26																
27																
28																
29																
30																
31																
32																
33																
34																
35																
36																
37																
38																
39																
40																

DEPTH SCALE:

CLIENT: Cominco

LOGGED: L.W.

1 to 100

Golder Associates

DATE: May 17, 1995

CHECKED: M.D.

PROJECT: 952-15231

# RECORD OF BOREHOLE: BH95G-21

SHEET 1 OF 1

LOCATION: 6815640N, 414802E, PIT AREA WEST

DRILLING DATE: Aug. 9, 1995

DATUM: NAD 83

INCLINATION: -90 AZIMUTH:

DRILL RIG: Boyles Brothers - Rotary

DRILLING CONTRACTOR: D.J. Drilling



DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	PENETRATION RATE (m/min)	FLUSH COLOUR % RETURN	FR-FRACTURE				F-FAULT			SM-SMOOTH			FL-FLEXURED			NOTES TEST RESULTS
								CL-CLEAVAGE				J-JOINT			R-ROUGH			UE-UNEVEN			
								SH-SHEAR				P-POLISHED			ST-STEPPED			W-WAVY			
								VN-VEIN				S-SLICKENSIDED			PL-PLANAR			C-CURVED			
RECOVERY		R.Q.D.		FRACT. INDEX PER 0.3m		DISCONTINUITY DATA						ROCK STR. (MPa)		WEATH. ERING INDEX (W)							
TOTAL CORE %	SOLID CORE %	%	%	DP W/L CORE AXIS	TYPE AND SURFACE DESCRIPTION						W1	W2	W3	W4							
0		Ground Surface		1402.74																	
		TOPSOIL		0.15																	
1		Compact to dense, moist, brown, silty fine SAND, some gravel, occasional cobble.			1																
2				1400.74																	Bentonite Seal
2				2.00																	
3					2																
4																					
5		Bedrock - moderately strong, slightly weathered light grey SCHIST.			3																
6					4																
7					5																
8					6																
9																					
10		End of Borehole		1392.68																	
10				10.06																	

DATA INPUT: BAD-SEPT-95

DEPTH SCALE:

CLIENT: Cominco

LOGGED: L.P.

1 to 100

Golder Associates

DATE: Aug. 9, 1995

CHECKED: C.J.C.

PROJECT: 952-1523I

# RECORD OF BOREHOLE: BH95G-22

SHEET 1 OF 1

LOCATION: 6815728N, 414928E, PIT AREA (CEN/NOR)

DRILLING DATE: Aug. 9, 1995

DATUM: NAD 83

INCLINATION: -90 AZIMUTH:

DRILL RIG: Boyles Brothers - Rotary

DRILLING CONTRACTOR: D.J. Drilling



DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	PENETRATION RATE (m/min)	FLUSH % RETURN	FR-FRACTURE		F-FAULT		SM-SMOOTH		FL-FLEXURED		NOTES TEST RESULTS	
								CL-CLEAVAGE		J-JOINT		R-ROUGH		UE-UNEVEN			
								SH-SHEAR		P-POLISHED		ST-STEPPED		W-WAVY			
								VN-VEIN		S-SLICKENSIDED		PL-PLANAR		C-CURVED			
RECOVERY		R.Q.D. %	FRACT. INDEX PER 0.3m	DISCONTINUITY DATA		ROCK STR. (MPa)	WEATH- ERING INDEX (w)										
TOTAL CORE %	SOLID CORE %			DP w.r.t. CORE AXIS	TYPE AND SURFACE DESCRIPTION												
0		Ground Surface		1385.14													
1		Compact, moist, brown, sandy SILT, trace to some gravel, trace clay, occasional cobbles.		0.00	1												
2																	
3		Compact to dense, moist to wet, brown, gravelly SAND to sandy GRAVEL, trace silt.		1382.55	2												
4					2.59												
5		Bedrock - moderately strong, slightly weathered, grey-white SCHIST.		1380.57	3												
6					4.57	4											
7						5											
8		End of Borehole		1377.87	6												
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	
18																	
19																	
20																	

DATA FORM: RC

DATA INPUT: SEPT. 95



DEPTH SCALE:

CLIENT: Cominco

LOGGED: L.P.

DATE: Aug. 8/9, 1995

CHECKED: C.J.C.

1 to 100

### Golder Associates



PROJECT: 952-15231

### RECORD OF BOREHOLE: BH95G-23

SHEET 1 OF 1

LOCATION: 6815275N, 414906E, PIT AREA (SOU.CEN.)

DRILLING DATE: Aug. 10, 1995

DATUM: NAD 83

INCLINATION: -90 AZIMUTH:

DRILL RIG: Boyles Brothers - Rotary

DRILLING CONTRACTOR: D.J. Drilling



DATA INPUT: BAD-SEPT '95 DATA FORM: ROCKMUS

DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	PENETRATION RATE (m/min)	FLUSH COLOUR % RETURN	FR-FRACTURE CL-CLEAVAGE SH-SHEAR VN-VEIN				F-FAULT J-JOINT P-POLISHED S-SLICKENSIDED			SM-SMOOTH R-ROUGH ST-STEPPED PL-PLANAR			FL-FLEXURED UE-UNEVEN W-WAVY C-CURVED			NOTES TEST RESULTS		
								RECOVERY		R.Q.D. %	FRACT. INDEX PER 0.3m	DISCONTINUITY DATA			ROCK STR. (MPa)	WEATHERING INDEX (W)							
								TOTAL CORE %	SOLID CORE %			TYPE AND SURFACE DESCRIPTION	W1	W2		W3	W4						
0		Ground Surface		1386.21																			
1		Compact to dense SAND, some silt, some gravel to silty SAND and GRAVEL, occasional cobbles to boulders. ... becoming more coarse with depth.	[Symbolic Log: Dotted pattern]	0.00	1																Aug. 26 1995 Native Backfill		
2				2																		Bentonite Seal	
3				3																			
4				4																			
5				5																			
6				6																			
7		Dense to very dense, moist, grey, silty SAND and GRAVEL to SAND some gravel, some silt, boulders and cobbles.	[Symbolic Log: Dotted pattern]	1376.15	7																		
8				8																			
9				9																			
10		Bedrock - mux - chlorite - calcite SCHIST with biotite porphyroblasts sill - mafic - strong foliation, high calcite content (15%). End of Borehole	[Symbolic Log: Dotted pattern]	1371.58	9																		
11				10.06																			
12				14.17																			
13				1372.04	9																		
14				1371.58																			
15				14.63																			
16																							
17																							
18																							
19																							
20																							



Sand Pack

32mm dia. PVC Screen

Slough

P/PL-R

DEPTH SCALE:

1 to 100

CLIENT: Cominco

Golder Associates

LOGGED: L.P.

DATE: Aug. 10, 1995

CHECKED: C.J.C.

PROJECT: 952-1523I

# RECORD OF BOREHOLE: BH95G-24

SHEET 1 OF 1

LOCATION: 6815257N, 415038E, PIT AREA (SOU.CEN.)

DRILLING DATE: Aug. 11, 1995

DATUM: NAD 83

INCLINATION: -90 AZIMUTH:

DRILL RIG: Boyles Brothers - Rotary

DRILLING CONTRACTOR: D.J. Drilling



DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	PENETRATION RATE (m/min)	FLUSH % RETURN	FR-FRACTURE		F-FAULT		SM-SMOOTH		FL-FLEXURED		NOTES TEST RESULTS
								CL-CLEAVAGE		J-JOINT		R-ROUGH		UE-UNEVEN		
								SH-SHEAR		P-POLISHED		ST-STEPPED		W-WAVY		
								VN-VEIN		S-SLICKENSIDED		PL-PLANAR		C-CURVED		
RECOVERY		R.Q.D. %	FRACT. INDEX PER 0.3m	DISCONTINUITY DATA		ROCK STR. (MPa)	WEATH- ERING INDEX (w)									
TOTAL CORE %	SOLID CORE %			DP W.P.L. CORE AXIS	TYPE AND SURFACE DESCRIPTION		W1	W2	W3	W4						
0		Ground Surface		1385.33 0.00												
1		Compact to very dense, moist brown-grey SAND, some silt to silty SAND, some gravel, occasional cobbles and boulders.			1											Aug. 25 1995  Bentonite Seal
2	2															
3	3															
4		Dense to very dense, moist, grey, silty SAND to SAND, some silt, some gravel, occasional cobbles and boulders. (TILL-LIKE)		1380.30 5.03	4										Sand Pack	
5	5															
6		Brown, gravelly SAND to sandy GRAVEL, trace to some silt.		1378.47 6.86	5										32mm dia. PVC Screen	
7	7															
8		Bedrock - weathered to slightly weathered, weak to moderately strong black-white SCHIST.		1376.80 8.53	6											
9	9															
10		End of Borehole		1375.58 9.75												

DATA FORM: R-100

SEPT. 95

DEPTH SCALE:  
1 to 100

CLIENT: Cominco  
**Golder Associates**

LOGGED: L.P.  
DATE: Aug. 11, 1995  
CHECKED: C.J.C.

PROJECT: 952-15231

# RECORD OF BOREHOLE: BH95G-25

SHEET 1 OF 2

LOCATION: 6815521N, 415074E, PIT AREA E. OF LAKE

DRILLING DATE: Aug. 12, 1995

DATUM: NAD 83

INCLINATION: -90 AZIMUTH:

DRILL RIG: Boyles Brothers - Rotary

DRILLING CONTRACTOR: D.J. Drilling



DEPTH SCALE METRES	DRILLING RECORD	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	PENETRATION RATE (mm/min)	FLUSH	COLOUR & RETURN	FR-FRACTURE	F-FAULT	SM-SMOOTH	FL-FLEXURED	NOTES TEST RESULTS			
								CL-CLEAVAGE	J-JOINT	R-ROUGH	UE-UNEVEN				
DESCRIPTION		SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	PENETRATION RATE (mm/min)	FLUSH	COLOUR & RETURN	SH-SHEAR	P-POLISHED	ST-STEPPED	W-WAVY	WEATHERING INDEX (w)			
DESCRIPTION								VN-VEIN	S-SLUICKENSIDED	PL-PLANAR	C-CURVED				
DEPTH SCALE METRES	DRILLING RECORD	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	PENETRATION RATE (mm/min)	FLUSH	COLOUR & RETURN	RECOVERY		R.Q.D. %	FRACT. INDEX PER 0.3m	DISCONTINUITY DATA		ROCK STR. (MPa)	WEATHERING INDEX (w)
								TOTAL CORE %	SOLID CORE %			TYPE AND SURFACE DESCRIPTION	DP W.r.t CORE AXIS		
0	Ground Surface		1386.29												
0	TOPSOIL		1385.99												
0	0.30			1											Native Backfill
1	Soft to firm, moist, light brown, sandy SILT to silty SAND, trace gravel, occasional cobbles.														
2	1.83		1384.46												
2	2			2											Shallow
3	Compact to dense, moist, brown, gravelly SAND to sandy GRAVEL, some silt, occasional cobbles.														
4	4.27		1382.02												
4	3			3											Bentonite Seal
5															
6				4											
7															
7				5											Sand Pack
8															
8				6											
9															
9				7											32mm dia. PVC Screen
10	Dense to very dense, moist, dark grey SAND, some silt, some gravel to SAND and GRAVEL, trace to some silt, occasional cobbles and boulders. (TILL-LIKE)														
11				8											
12															
12				9											
13															
13				10											
14															
14				11											
15															
15				12											Bentonite Seal
16															
16				13											
17			1389.22												
17			17.07												
17				13											F-PL-RVR
18															
18				14											Sand Pack
18	Bedrock - AT/AY Sericite - quartz SCHIST with pyrite in foliations and as irregular blebs. Well foliated weakly chlorite and dolomite. Altered felsic tuff.														
18				14											32mm dia. PVC Screen
19															
19				15											
20															
20				15											
20	CONTINUED ON NEXT PAGE														

DATA FORM: ROCKMVB

DATA INPUT: BAD-SEPT-95

DEPTH SCALE:

1 to 100

CLIENT: Cominco

Golder Associates

LOGGED: LP.

DATE: Aug. 12, 1995

CHECKED: C.J.C.

PROJECT: 952-15231

**RECORD OF BOREHOLE: BH95G-29**

SHEET 1 OF 1

LOCATION: 6814542N, 415198E, SW. WASTE DUMP

DRILLING DATE: Aug. 17&18, 1995

DATUM: NAD 83

INCLINATION: -90 AZIMUTH:

DRILL RIG: Boyles Brothers - Rotary

DRILLING CONTRACTOR: D.J. Drilling



DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	PENETRATION RATE (m/min)	FLUSH COLOUR % RETURN	FR-FRACTURE		F-FAULT		SM-SMOOTH		FL-FLEXURED		NOTES TEST RESULTS
								CL-CLEAVAGE		J-JOINT		R-ROUGH		UE-UNEVEN		
								SH-SHEAR		P-POLISHED		ST-STEPED		W-WAVY		
0		Ground Surface		1391.68												
		Soft, black TOPSOIL.		0.00												
				1391.22												Aug. 26 1995 Native Backfill
1				0.46	1											
2																
3																
4		Compact to dense, moist to wet, brown SAND, some gravel, trace to some silt, to silty SAND, some gravel, occasional cobbles to boulders.														
5																
6																
7																
8																
9				1383.45												
10				8.23												
11																
12																
13		Dense to very dense, moist, grey SAND, some gravel to SAND and GRAVEL, trace to some silt, cobbles and boulders. (TILL-LIKE)														
14																
15																
16																
17																
18																
19		Felsic to intermediate Lapilli Tuff quartz sericite chlorine and biotite SCHIST, grey green.		1373.28												
		End of Borehole		18.40												
				1372.48												
20				19.20												

DATA FORM: R-26

SEPT. 95  
DATA INPUT

DEPTH SCALE:

CLIENT: Cominco

LOGGED: L.P.

DATE: Aug. 17&18, 1995

CHECKED: C.J.C.

1 to 100

**Golder Associates**



PROJECT: 952-15231

# RECORD OF BOREHOLE: BH95G-30

SHEET 1 OF 1

LOCATION: 6816765N, 415439E, NE WASTE DUMP

DRILLING DATE: Aug. 19-21, 1995

DATUM: NAD 83

INCLINATION: -90 AZIMUTH:

DRILL RIG: Boyles Brothers - Rotary

DRILLING CONTRACTOR: D.J. Drilling



DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	PENETRATION RATE (m/min)	FLUSH COLOUR % RETURN	FR-FRACTURE			F-FAULT			SM-SMOOTH			FL-FLEXURED			NOTES TEST RESULTS
								CL-CLEAVAGE			J-JOINT			R-ROUGH			UE-UNEVEN			
								SH-SHEAR			P-POLISHED			ST-STEPPED			W-WAVY			
VN-VEIN			S-SUCKENSIDED			PL-PLANAR			C-CURVED											
		RECOVERY		R.Q.D.		FRACT. INDEX PER 0.3m		DISCONTINUITY DATA				ROCK STR. (MPa)		WEATHERING INDEX (W)						
		TOTAL CORE %	SOLID CORE %	%				TYPE AND SURFACE DESCRIPTION				ST	UE	W	W					
												1	2	3	4					
0		Ground Surface		1387.12																
1				0.00	1															
2																			Aug. 26 1995	
3					2															
4																				
5		Compact to dense, moist to wet, brown SAND, some gravel to SAND and GRAVEL, trace to some silt, cobbles and boulders.			3														Bentonite Seal	
6					4															
7																				
8					5															
9																				
10					6															
11																				
12					7															
13				1374.32	8															
14		Bedrock - ARGILLITE MUDSTONE with carbonate bands.		12.80																
15																				
16																				
17		Sericite-quartz SCHIST. Abundant disseminated to 1 + 5mm sulphide.		1372.22																
18				14.90	10														Sand Pack	
19																				
20		End of Borehole		1367.92	12														32mm dia. PVC Screen	
				19.20																

DATA FORM: ROCKMVB

DEPTH SCALE: 1 to 100

CLIENT: Cominco

Golder Associates

LOGGED: L.P.

DATE: Aug. 19-21, 1995

CHECKED: C.J.C.

PROJECT: 952-15231

**RECORD OF BOREHOLE: BH95G-31**

SHEET 1 OF 1



LOCATION: 6816127N, 415200E, NE WASTE DUMP

DRILLING DATE: Aug. 21, 1995

DATUM: NAD 83

INCLINATION: -90 AZIMUTH:

DRILL RIG: Boyles Brothers - Rotary

DRILLING CONTRACTOR: D.J. Drilling

DEPTH SCALE METRES	DRILLING RECORD	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	PENETRATION RATE (m/min)	FLUSH % RETURN	FR-FRACTURE		F-FAULT		SM-SMOOTH		FL-FLEXURED		NOTES TEST RESULTS
							CL-CLEAVAGE		J-JOINT		R-ROUGH		UE-UNEVEN		
							SH-SHEAR		P-POLISHED		ST-STEPPED		W-WAVY		
							VN-VEIN		S-SLICKENSIDED		PL-PLANAR		C-CURVED		
RECOVERY		R.Q.D. %	FRACT. INDEX PER 0.3m	DISCONTINUITY DATA		ROCK STR. (MPa)	WEATH- ERING INDEX (W)								
TOTAL CORE %	SOLID CORE %			DIP w.r.t. CORE AXIS	TYPE AND SURFACE DESCRIPTION										
0	Ground Surface		1391.04												
1	Compact to dense, moist, brown SAND, some gravel, trace to some silt, occasional cobbles.		0.00												
2															
3															
4															
5	Bedrock - thin interbeds of ARGILLITE and mafic tuff - mafic tuff to chlorite - calcite SCHIST +/- biotite.		1386.47												
6			4.57												
7															
8	Chlorite calcite SCHIST massive to calcite banded, minor cone breakage.		1384.04												
9			7.00												
10	End of Borehole		1380.98												
10.06			10.06												

DATA FORM: RC-95

DATA INPUT: SEPT. 95

DEPTH SCALE:

CLIENT: Cominco

LOGGED: L.P.

DATE: Aug. 21, 1995

CHECKED: C.J.C.

1 to 100

**Golder Associates**

PROJECT: 952-15231

# RECORD OF BOREHOLE: BH95G-32

SHEET 1 OF 1

LOCATION: 6816133N, 415009E, NW WASTE DUMP

DRILLING DATE: Aug. 22/23, 1995

DATUM: NAD 83

INCLINATION: -90 AZIMUTH:

DRILL RIG: Boyles Brothers - Rotary

DRILLING CONTRACTOR: D.J. Drilling



DEPTH SCALE METRES	DRILLING RECORD	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	PENETRATION RATE (mm/min)	FLUSH	COLOUR	% RETURN	FR-FRACTURE		F-FAULT		SM-SMOOTH		FL-FLEXURED		NOTES TEST RESULTS			
									CL-CLEAVAGE	SH-SHEAR	J-JOINT	P-POLISHED	R-ROUGH	ST-STEPPED	UE-UNEVEN	W-WAVY				
									VN-VEIN	S-SLICKENSIDED	PL-PLANAR	C-CURVED								
RECOVERY		R.Q.D. %	FRACT. INDEX PER 0.3m	DISCONTINUITY DATA		ROCK STR. (MPa)	WEATHERING INDEX (w)													
TOTAL CORE %	SOLID CORE %			TYPE AND SURFACE DESCRIPTION	DP w.r.t. CORE AXIS															
0	Ground Surface		1385.85																	
1	Compact to dense, brown SAND, some gravel, trace to some silt, occasional cobbles.		0.00	1																
2																				
3																				
4																				
5																				
6	Dense to very dense, grey SAND and GRAVEL, trace to some silt, occasional cobbles.		1380.15	6																
7																				
8																				
9																				
10	Bedrock - biotite porphyry dyke matrix.		1376.79	10																
11																				
12																				
13	Quartz vein inclusions of mafic volcanic Biotite SCHIST.		1374.85	11																
14																				
15	Chlorite SCHIST with disseminated biotite and calcite.		1373.15	12																
16																				
17	End of Borehole		1370.70	13																
18			16.15																	

DATA FORM: ROCKMVS

DATA INPUT: BAD SEPT '95

DEPTH SCALE: 1 to 100

CLIENT: Cominco  
**Golder Associates**

LOGGED: L.P.  
DATE: Aug. 22/23, 1995  
CHECKED: C.J.C.

Bentonite Seal

Aug. 26, 1995

Sand Pack

32mm dia. PVC Screen

WC = 3.5%

J,PL & I  
S-R

J,PL,S

J/B,PL,S  
R

B/PL,R

B/RL-1/R

PROJECT: 952-1523I

# RECORD OF BOREHOLE: BH95G-33

SHEET 1 OF 1

LOCATION: 6816743N, 415130E, NW WASTE DUMP

DRILLING DATE: Aug. 24, 1995

DATUM: NAD 83

INCLINATION: -90 AZIMUTH:

DRILL RIG: Boyles Brothers - Rotary

DRILLING CONTRACTOR: D.J. Drilling



DEPTH SCALE METRES	DRILLING RECORD	DESCRIPTION	SYMBOLIC LOG	ELEV. DEPTH (m)	RUN No.	PENETRATION RATE (m/min)	FLUSH % RETURN	FR-FRACTURE		F-FAULT		SM-SMOOTH		FL-FLEXURED		NOTES TEST RESULTS	
								CL-CLEAVAGE		J-JOINT		R-ROUGH		UE-UNEVEN			
								SH-SHEAR		P-POLISHED		ST-STEPPED		W-WAVY			
								VN-VEIN		S-SLICKENSIDED		PL-PLANAR		C-CURVED			
RECOVERY		R.Q.D. %	FRACT. INDEX PER 0.3m	DISCONTINUITY DATA		ROCK STR. (MPa)	WEATH- ERING INDEX (w)										
TOTAL CORE %	SOLID CORE %			DP W.F.L. CORE AXES	TYPE AND SURFACE DESCRIPTION			1	2	3	4						
0		Ground Surface		1389.72													
1		Compact, dry to moist, light brown, silty SAND to SAND, some silt, some gravel, occasional cobbles.		0.00													Bentonite Seal
2			1388.20														Sand Pack
3			1.52														32mm dia. PVC Screen
4																	Shallow (dry)
5		Compact to dense, moist, light brown SAND, some gravel to sandy GRAVEL, trace to some silt, occasional cobbles.															Deep
6																	Bentonite Seal
7			1382.40														
8			7.32														
9		Bedrock - chlorite calcite SCHIST with possible tuff fragments, strong foliation but competent core pieces >20 cm, 10 cm Argillite at 11.8m.															
10																	Sand Pack
11																	32mm dia. PVC Pipe
12																	
13		End of Borehole		1376.62													
14				13.10													
15																	
16																	
17																	
18																	
19																	
20																	

DATA FORM: F-103

DATA INCL. SEPT '95

DEPTH SCALE:  
1 to 100

CLIENT: Cominco

**Golder Associates**

LOGGED: L.P.  
DATE: Aug. 24, 1995  
CHECKED: C.J.C.



PROJECT: 952-1523

# RECORD OF BOREHOLE BH95-129

SHEET 1 OF 1

LOCATION: Kudz-Ze-Kayah

BORING DATE: May 12, 1995

DATUM: G.S.

SAMPLER HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m		HYDRAULIC CONDUCTIVITY, k, cm/s		ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	SHEAR STRENGTH Cu, kPa	WATER CONTENT, PERCENT Wp		
0		Ground Surface		0.00							
		Casing - Overburden		4.90							32mm dia. PVC pipe
10		Schist									Backfill
20											
30											
40											
50											
60		Mafic Dyke		72.10							75.7mm dia. hole
70											
80		Schist									Bentonite seal
90											
100											
110		Moderate Ore Envelope Alteration		123.30							Sand pack
120		Schist		128.60							
130		Strong Ore Envelope Alteration/Sulphide Rock.		130.70							
140		Schist		140.80							
150		End of Hole		160.00							32mm dia. PVC screen

DATA INPUT July 95

DEPTH SCALE  
1 to 1000

Golder Associates

LOGGED: M.D.  
CHECKED: M.D.

PROJECT: 952-1523

# RECORD OF BOREHOLE BH95-131

SHEET 1 OF 1

LOCATION: Kudz-Ze-Kayah

BORING DATE: May 13, 1995

DATUM: G.S.

SAMPLER HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES			DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	SHEAR STRENGTH Cu, kPa		
0		Ground Surface		0.00						
10		Casing - Overburden		10.00						32mm dia. PVC pipe
20		Schist	[Wavy pattern]							Backfill
30										
40										
50										
60		Siliceous Argillite	[Wavy pattern]							75.7mm dia. hole
70										
80		Schist	[Wavy pattern]	88.90						Bentonite seal
90		Massive Sulphide Rock	[Wavy pattern]							
100										
110		Schist	[Wavy pattern]	99.10						
120		Schist	[Wavy pattern]							Sand pack
130										
140		End of Hole	[Wavy pattern]	116.70						32mm dia. PVC screen
150				128.00						

DATA INPUT: w 1 July 95

DEPTH SCALE

1 to 1000

Golder Associates

LOGGED: M.D.

CHECKED: M.D.

PROJECT: 952-1523

# RECORD OF BOREHOLE BH95-146

SHEET 1 OF 1

LOCATION: Kudz-Ze-Kayah

BORING DATE: May 21, 1995

DATUM: G.S.

SAMPLER HAMMER, 63.5kg; DROP, 760mm



DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m	HYDRAULIC CONDUCTIVITY, k, cm/s		ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER TYPE	BLOWS/0.3m	SHEAR STRENGTH Cu, kPa	WATER CONTENT, PERCENT Wp		
0		Ground Surface		0.00						
		Casing - Overburden		3.70						
10		Schist								32mm dia. PVC pipe
20										Drilling Bentonite Mud seal
30		Sulphides.		35.30						
40					38.70					
50		Schist								
60										
70		Pyrite/Pyrrhotite.		71.30						76.2mm dia. hole
80					79.20					
90		Schist		81.50						Bentonite seal
100										
110		Pyrite/Pyrrhotite/Biotite.								
120										
130		Schist		124.70						
		Massive Sulphides.		127.00						
		Schist.		132.30						
140		End of Hole		138.70						Sand pack 32mm dia. PVC screen

DATA INPUT: w/ July '95

DEPTH SCALE

1 to 1000

Golder Associates

LOGGED: M.D.

CHECKED: M.D.

**BMC Minerals (No. 1) Ltd.**

**Borehole No: WW15-01**

Project: KZK Hydrogeological Assessment

Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Yukon

UTM: 414895 E; 6815770 N; Z 9

Depth (m)	Method	Soil Description	Notes and Comments	Depth (ft)
0			0.64 m	0
0 - 4.30		SAND AND GRAVEL (FILL) - trace silt, occasional cobbles and boulders, poorly graded, dry, light brown, subangular to subrounded gravel		0 - 14
4.30 - 15.23	Tricone	GRAVEL - some sand, trace fine sand and silt, poorly graded, moist, dark brown, medium to coarse sand, subangular to subrounded gravel	Neat Portland Grout Surface Seal	14 - 50
15.23		SAND AND GRAVEL - some silt, well graded, damp, light brown to grey, fine to coarse sand	4.30 m	50
15.23 - 15.23		- very wet, grey brown, black and white. medium to coarse sand, angular gravel	205mm ID Water Well casing (-0.64-11.6m)	50 - 50
15.23 - 15.23		SAND - trace silt and fine sand, trace gravel, uniformly graded, very wet, grey brown black and white, medium to coarse sand	11.20 m K-Packer ID 176mm	50 - 50
15.23 - 15.23		SAND AND GRAVEL - trace silt and fine sand, well graded, very wet, white brown and grey, angular to subangular gravel	11.30 m 0 slot riser ID 176mm	50 - 50
15.23 - 15.23			Veriperm continuous slot wire round screen, 80 slot, ID 176mm (12.00 to 15.20m)	50 - 50
15.23 - 15.23		END OF BOREHOLE (15.23 metres) - contact with top of bedrock water - 4.60 metres on October 4, 2015 Well installed to 15.23 metres	15.23 m	50 - 50



**TETRA TECH EBA**

Contractor: Midnight Sun Drilling

Completion Depth: 15.23 m

Drilling Rig Type: Air Rotary

Start Date: 2015 August 1

Logged By: AJS

Completion Date: 2015 August 2

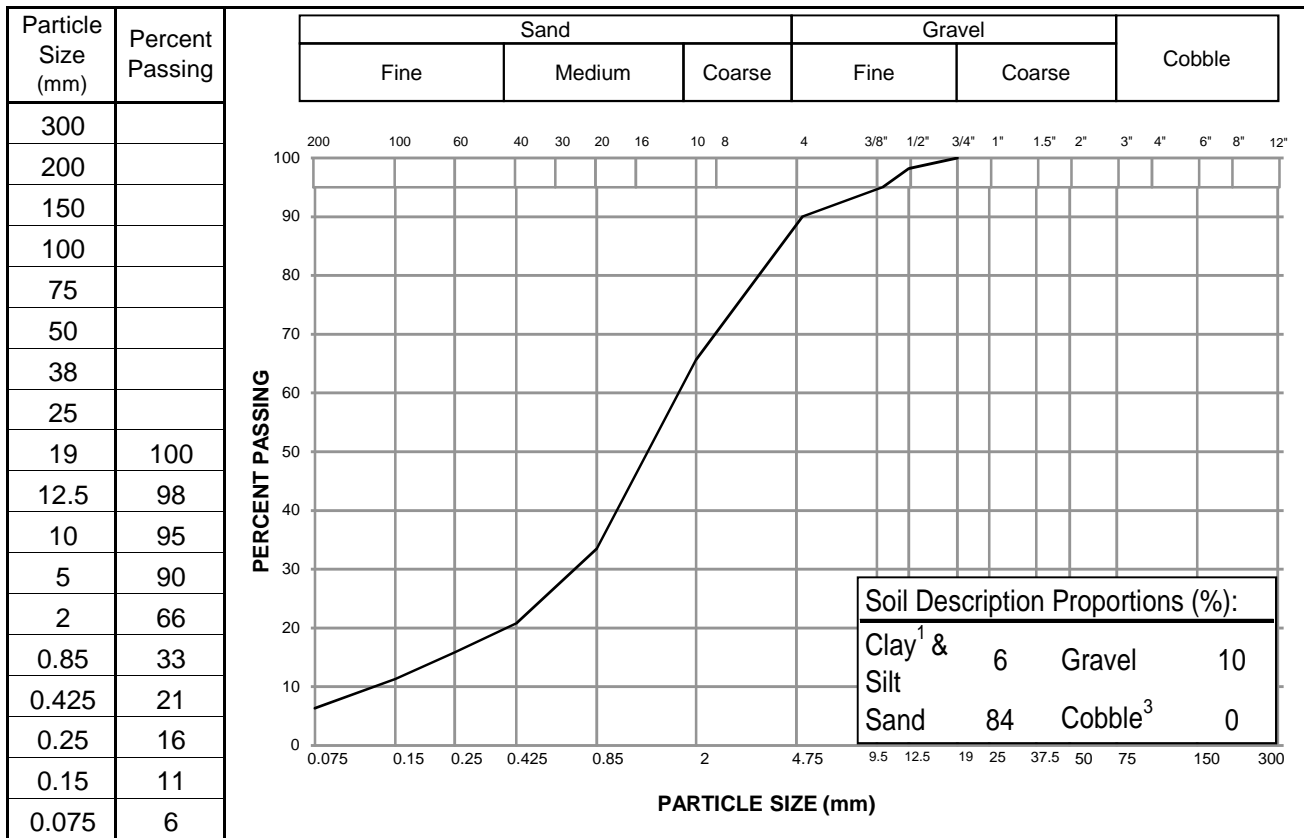
Reviewed By: SK

Page 1 of 1

# PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Kudz Ze Kyah	Sample No.:	1
Project No.:	ENVMIN03071	Material Type:	Sand
Site:	Kudz Ze Kyah	Sample Loc.:	WW15-01
Client:	BMC	Sample Depth:	12.2 m (40 ft) bg
Client Rep.:		Sampling Method:	Drilled with air rotary, from
Date Tested:	August 1, 2015	By:	AJS
		Date sampled:	August 1, 2015
Soil Description <sup>2</sup> :	SAND (med to coarse), trace silt, fine sand, gravel	Sampled By:	Adam Seeley
		USC Classification:	Cu: 13.8 Cc: 2.3
Moisture Content:	-100.0%		



Notes: <sup>1</sup> The upper clay size of 2 um, per the Canadian Foundation Engineering Manual  
<sup>2</sup> The description is visually based & subject to EBA description protocols  
<sup>3</sup> If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification: \_\_\_\_\_

Remarks: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Reviewed By: SK

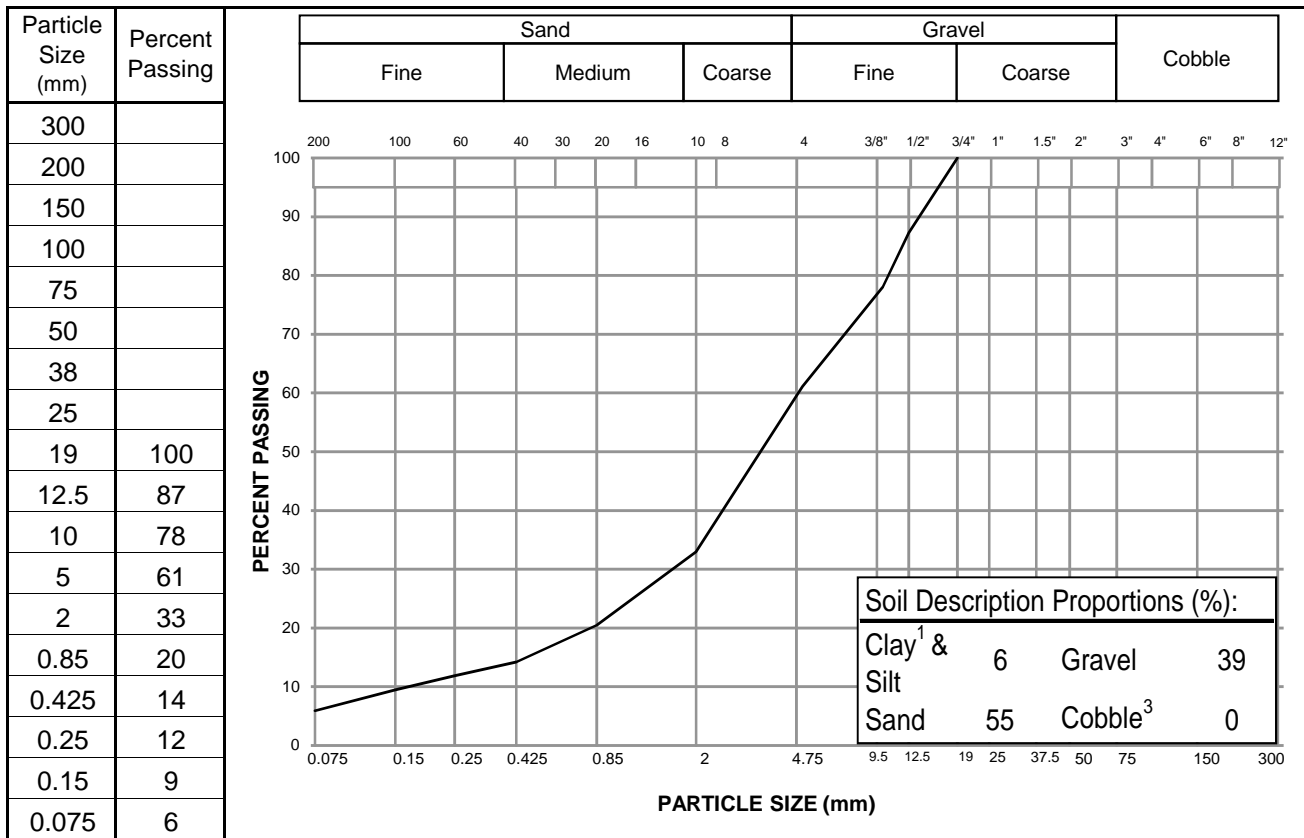
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# PARTICLE SIZE ANALYSIS REPORT

ASTM D422, C136 & C117

Project:	Kudz Ze Kyah	Sample No.:	2
Project No.:	ENVMIN07071	Material Type:	
Site:	Kudz Ze Kyah	Sample Loc.:	WW15-01
Client:	BMC	Sample Depth:	14 m (46 ft) bg
Client Rep.:		Sampling Method:	Drilled with air rotary, from
Date Tested:	August 1, 2015	By:	AJS
		Date sampled:	August 1, 2015
Soil Description <sup>2</sup> :	SAND (med to coarse) and GRAVEL, tra	Sampled By:	Adam Seeley
		USC Classification:	Cu: 28.5 Cc: 3.6
Moisture Content:	-100.0%		



Notes: <sup>1</sup> The upper clay size of 2 um, per the Canadian Foundation Engineering Manual  
<sup>2</sup> The description is visually based & subject to EBA description protocols  
<sup>3</sup> If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification: \_\_\_\_\_

Remarks: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Reviewed By: SK

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**Site:** Kudz Ze Kyah  
**Job No.:** ENVMIN03071  
**Well ID:** WW15-01  
**Date:** August 1 & 2, 2015  
**Development Method:** Jetting and air lifting

**Development Record**

Date	Time	Time Spent Developing (min)	Estimated Purge Rate During Development (US GPM)	Total Volume Purged During Development (gal)	Total Volume Purged During Development (L)	Turbidity (estimated tablespoons sand in 5 gal pail)	Notes
1 Aug, 2015	16:45	0	250	0	0	-	commence development
	16:47	2	250	500	1893	7 - 8	
	16:55	10	250	2500	9464	1	
	17:03	18	250	4500	17034	6	moved down screen
	17:10	25	250	6250	23659	-	halted development due to water blowing out around casing. Welded three HQ drill rods to the casing to relieve pressure
	17:40	25	250	6250	23659	-	re-commenced development
	17:45	30	250	7500	28391	2	
	17:58	43	250	10750	40693	1.5	
	18:20	65	250	16250	61513	2	
2 Aug, 2015	18:30	75	250	18750	70976	-	halted development, end of day
	8:27	75	250	18750	70976	-	re-commenced development
	8:30	78	250	19500	73815	2	
	8:45	93	250	23250	88011	0.3	up high in screen
	9:20	128	250	32000	121133	0.5	
	9:35	143	250	35750	135328	0.3	
	9:55	163	250	40750	154255	0.2	
	9:57	165	250	41250	156148	-	Halted development - sump was almost full and in danger of overflowing.

Notes: Did not surge during development as driller worried about pressure blowing water to surface outside of the casing.

# BMC Minerals (No. 1) Ltd.

## Borehole No: WW15-02

Project: KZK Hydrogeological Assessment

Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Yukon

UTM: 414843 E; 6815770 N; Z 9

Depth (m) ▼	Method	Soil Description	Notes and Comments	Depth (ft) ▼
0				0
1	Tricone	SAND AND SILT - some gravel, completely weathered schist, poorly graded, dry, loose, brown		2
2				4
3		SCHIST - highly weathered, dry, weak, light brown, iron staining in fractures		6
4		- light brown to grey		8
5		- soft, light brown		10
6				12
7				14
8		- some quartz, slightly weathered, light grey		16
9				18
10				20
11				22
12	DHH			24
13		- water observed flowing into borehole (@~0.3 L/s) following removal of drill rods		26
14				28
15				30
16				32
17				34
18				36
19				38
20				40



**TETRA TECH EBA**

Contractor: Midnight Sun Drilling

Completion Depth: 38.1 m

Drilling Rig Type: Air Rotary

Start Date: 2015 July 30

Logged By: AJS

Completion Date: 2015 July 30

Reviewed By: SK

Page 1 of 2



**BMC Minerals (No. 1) Ltd.**

**Borehole No: WW15-02**

Project: KZK Hydrogeological Assessment

Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Yukon

UTM: 414843 E; 6815770 N; Z 9

Depth (m)	Method	Soil Description	Notes and Comments	WW15-02	Depth (ft)
20					66
21		- damp, grey			68
22					70
23					72
24		- water in returns			74
25					76
26		- fresh, dark grey			78
27					80
28					82
29	DHH				84
30					86
31					88
32					90
33					92
34					94
35					96
36					98
37					100
38					102
39					104
40					106
					108
					110
					112
					114
					116
					118
					120
					122
					124
					126
					128
					130
		END OF BOREHOLE (38.10 metres) water - 0.84 metres above ground on October 3, 2015 PVC liner installed from 0.76 to 3.81 metres Note: Open hole from 3.4 to 38.1 metres			

← 22.90 m

Screen, 20 slot, schedule 40 PVC, 152mm OD, 133mm ID

← 35.00 m

Solid casing, schedule 40 PVC 152mm OD, 133mm ID

← 38.10 m



Contractor: Midnight Sun Drilling

Completion Depth: 38.1 m

Drilling Rig Type: Air Rotary

Start Date: 2015 July 30

Logged By: AJS

Completion Date: 2015 July 30

Reviewed By: SK

Page 2 of 2

**Site:** Kudz Ze Kyah  
**Job No.:** ENVMIN03071  
**Well ID:** WW15-02  
**Date:** 30-Jul-15  
**Development Method:** Jetting and air lifting

**Development Record**

Date	Time	Time Spent Developing (min)	Estimated Purge Rate During Development (US GPM)	Total Volume Purged During Development (gal)	Total Volume Purged During Development (L)	Turbidity (estimated tablespoons sand in 5 gal pail)	Notes
30 July, 2015	16:35	0	25	0	0	-	commence development
	16:36	1	25	25	95	4	
	16:42	7	25	175	662	1	
	16:51	16	25	400	1514	0.3	
	17:00	25	25	625	2366	0.3	
	17:10	35	25	875	3312	0.3	cease development, turbidity below desired 0.5 tablespoons for approx 20 min

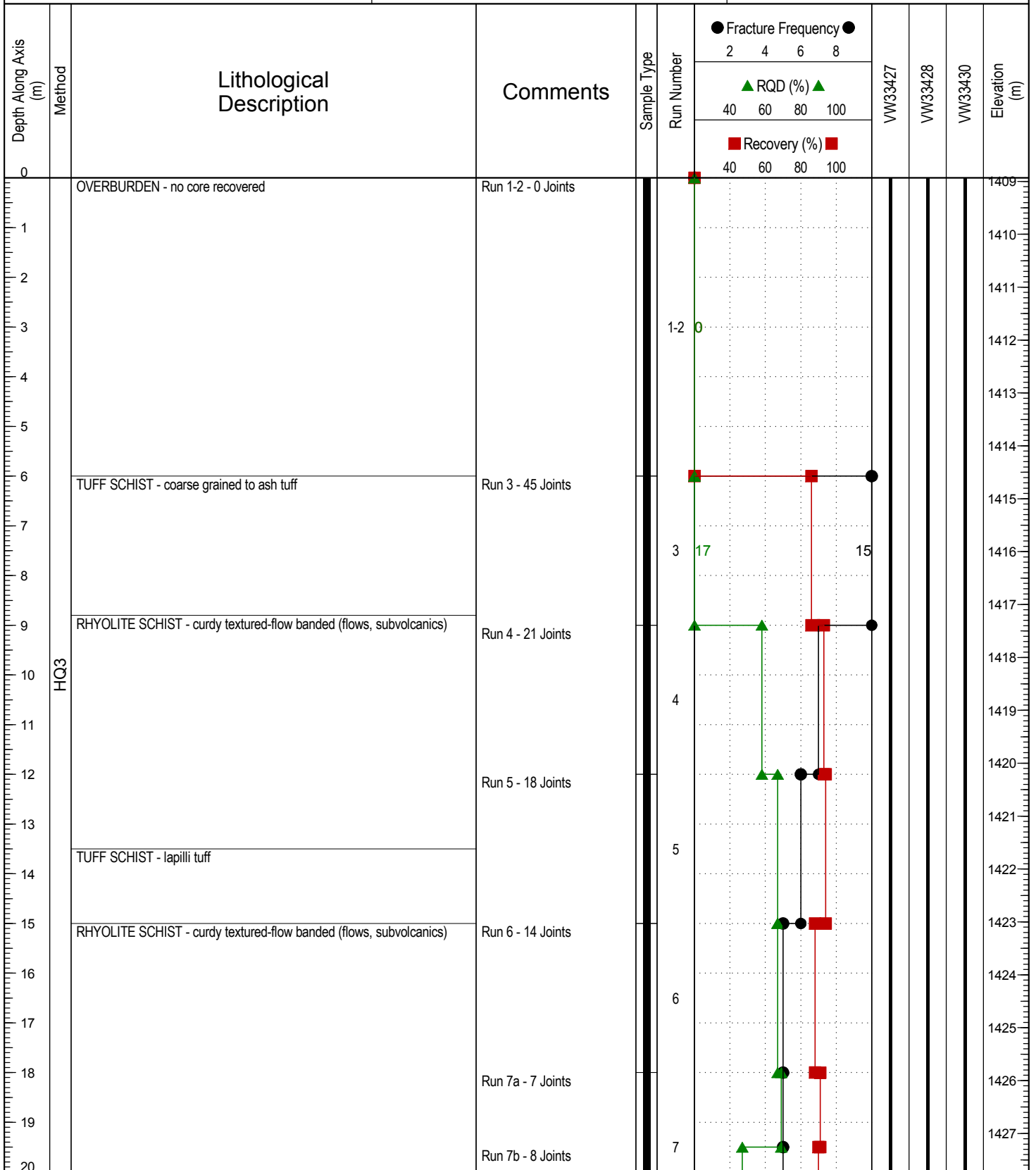
Notes: Did not surge during development as driller worried about pressure blowing water to surface outside of the casing.

# BMC Minerals (No. 1) Ltd.

# Borehole No: K15-200-VWP

Project: KZK Hydrogeological Assessment  
 Location: Kudz Ze Kayah  
 Yukon

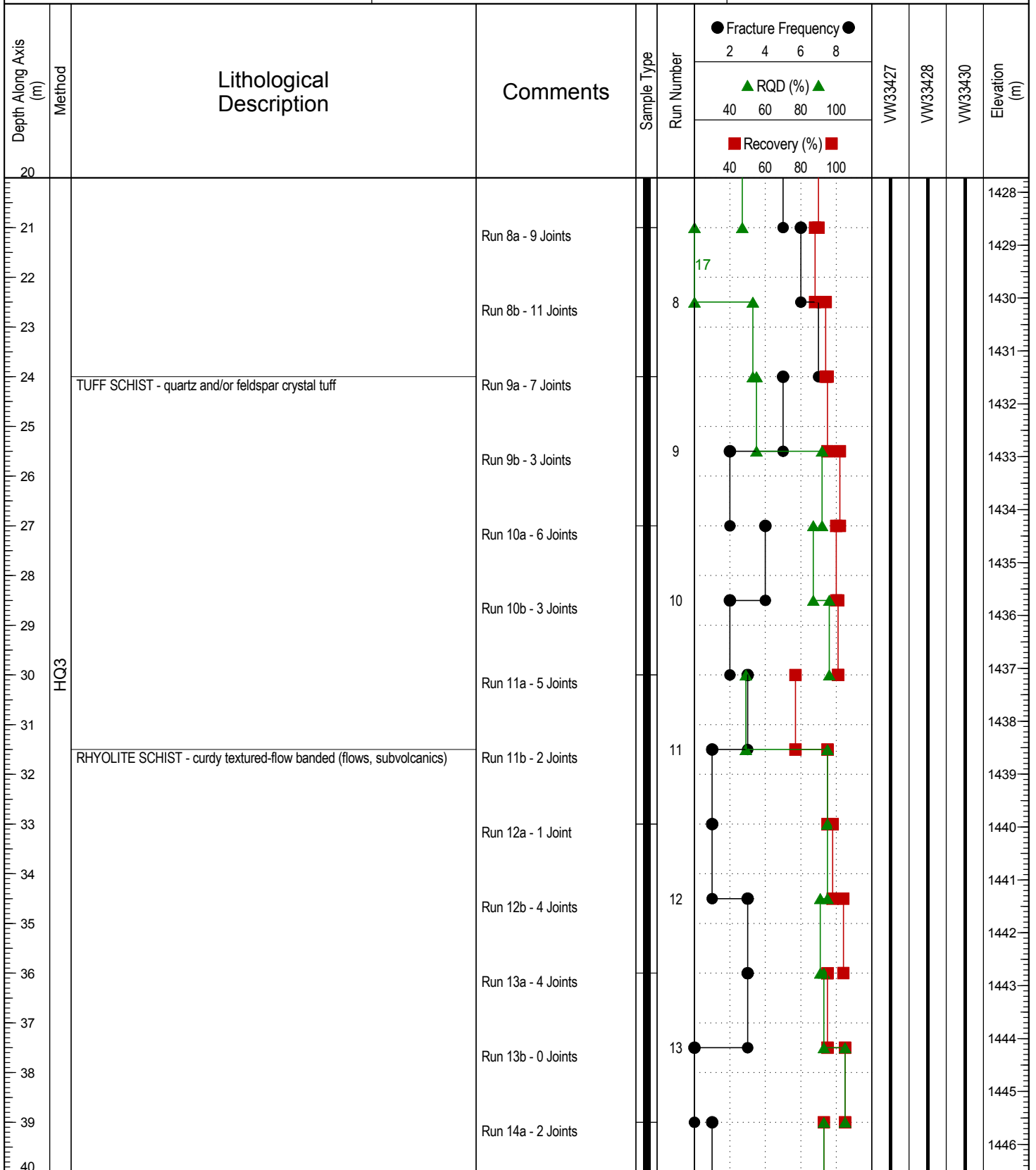
Project No: ENVMIN03071-01  
 Ground Elev: 1408.934 m  
 UTM: 414748.527 E; 6815599.239 N; Z 9 NAD83



**TETRA TECH EBA**

Contractor: Geotech Drilling  
 Drilling Rig Type: Hydracore  
 Logged By: Client  
 Reviewed By: SK

Completion Depth: 211.5 m  
 Start Date: 2015 July 30  
 Completion Date: 2015 August 3  
 Page 1 of 11



Contractor: Geotech Drilling

Completion Depth: 211.5 m

Drilling Rig Type: Hydracore

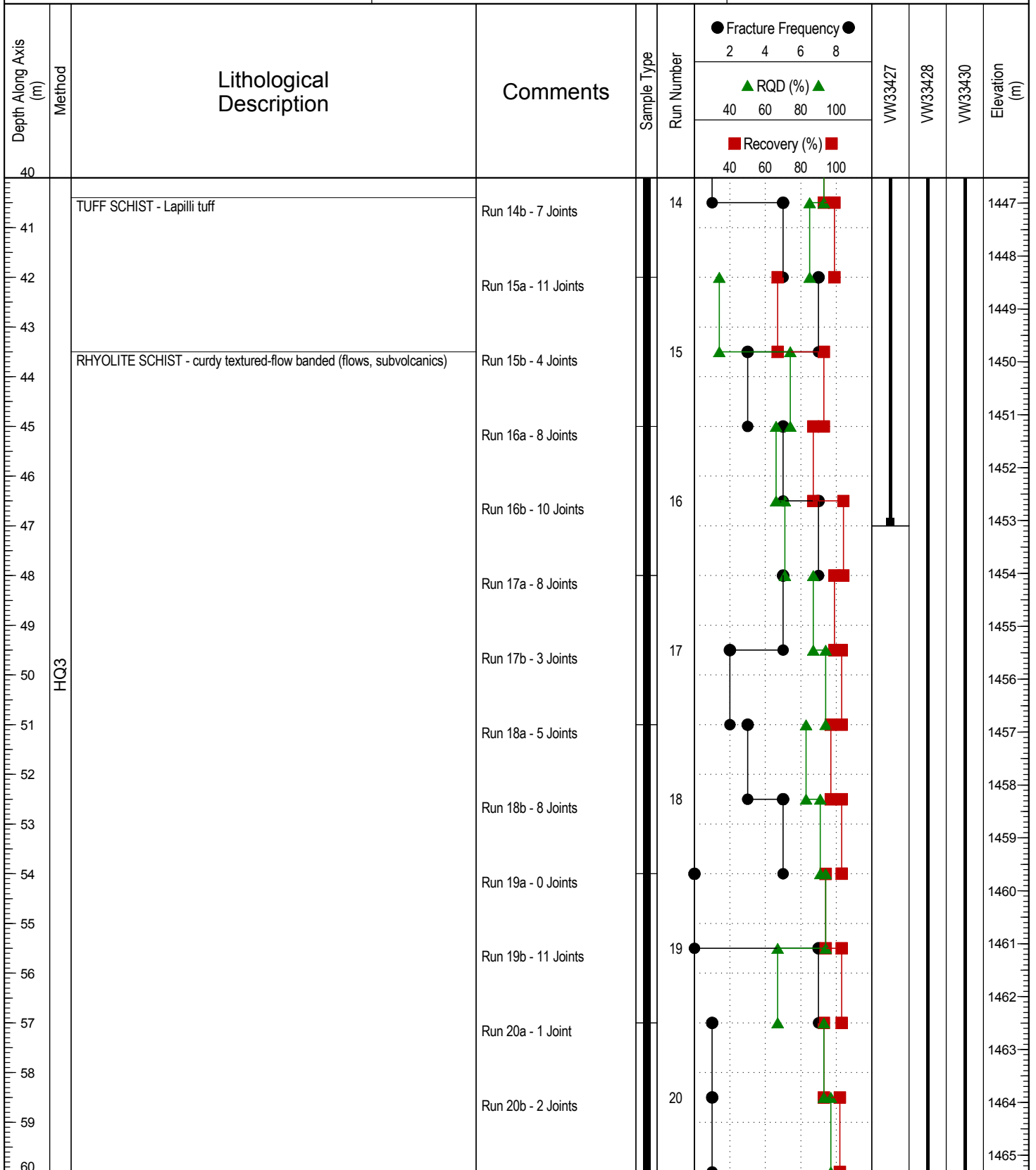
Start Date: 2015 July 30

Logged By: Client

Completion Date: 2015 August 3

Reviewed By: SK

Page 2 of 11



Contractor: Geotech Drilling

Completion Depth: 211.5 m

Drilling Rig Type: Hydracore

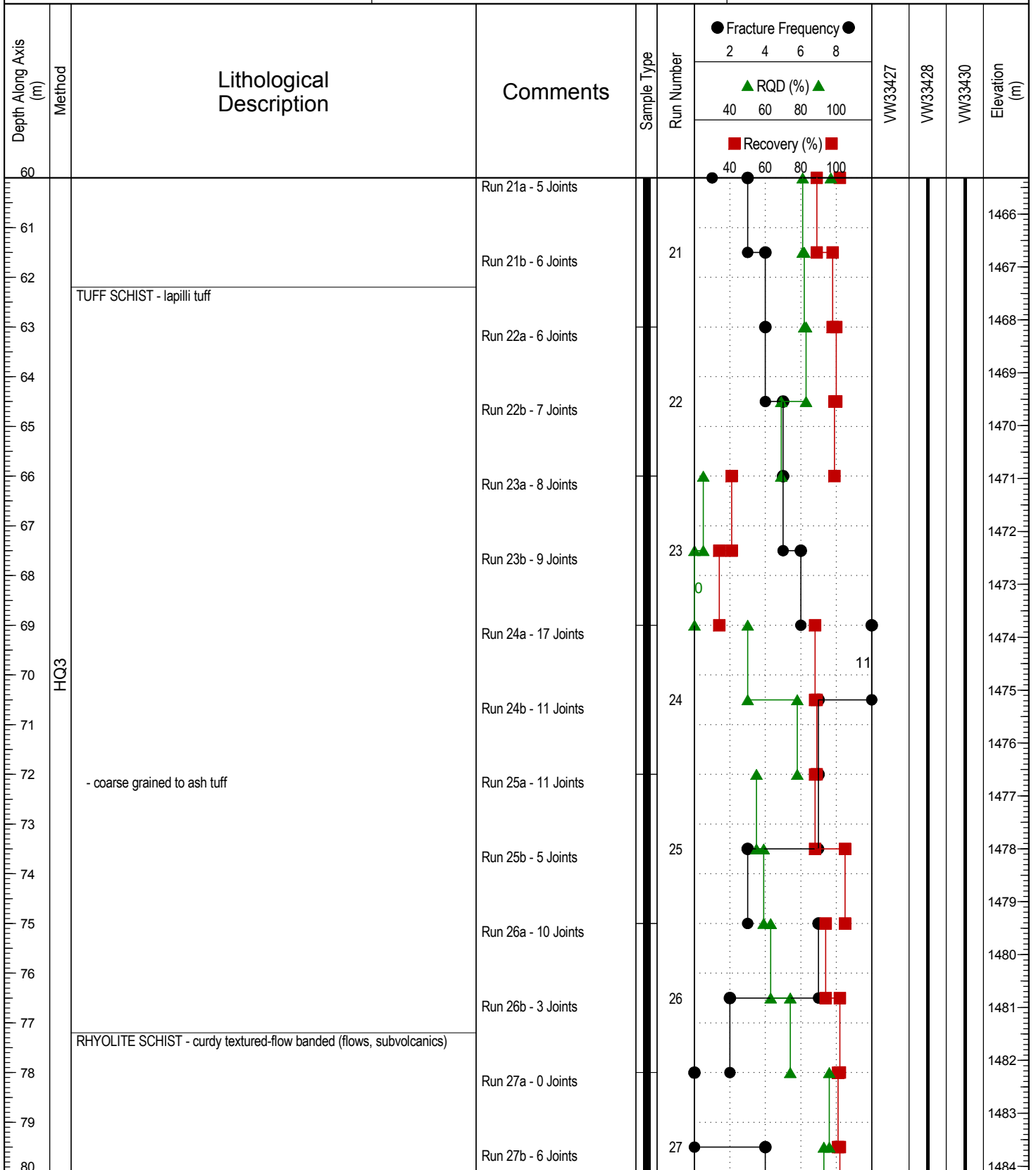
Start Date: 2015 July 30

Logged By: Client

Completion Date: 2015 August 3

Reviewed By: SK

Page 3 of 11



**TETRA TECH EBA**

Contractor: Geotech Drilling

Drilling Rig Type: Hydracore

Logged By: Client

Reviewed By: SK

Completion Depth: 211.5 m

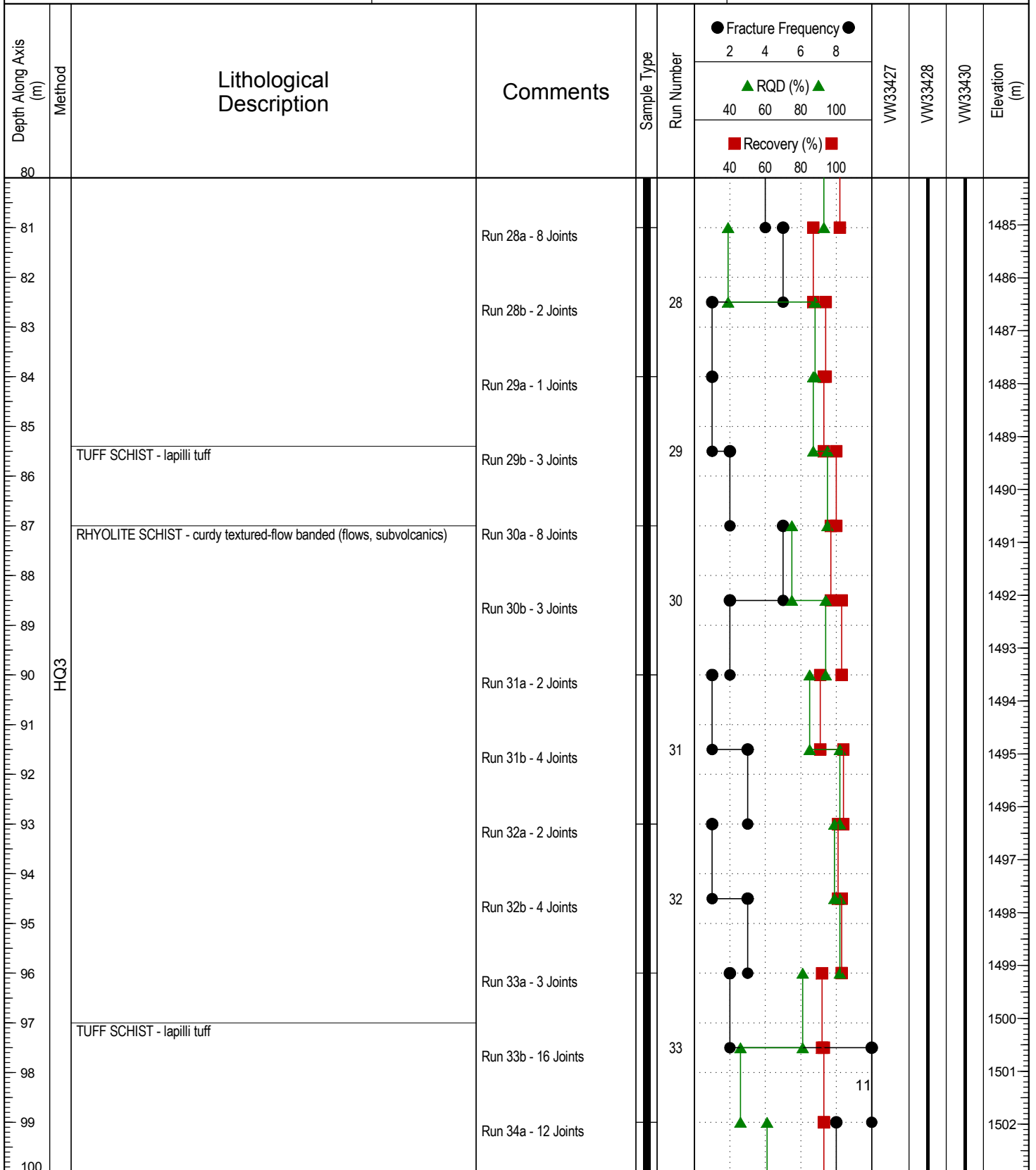
Start Date: 2015 July 30

Completion Date: 2015 August 3

Page 4 of 11

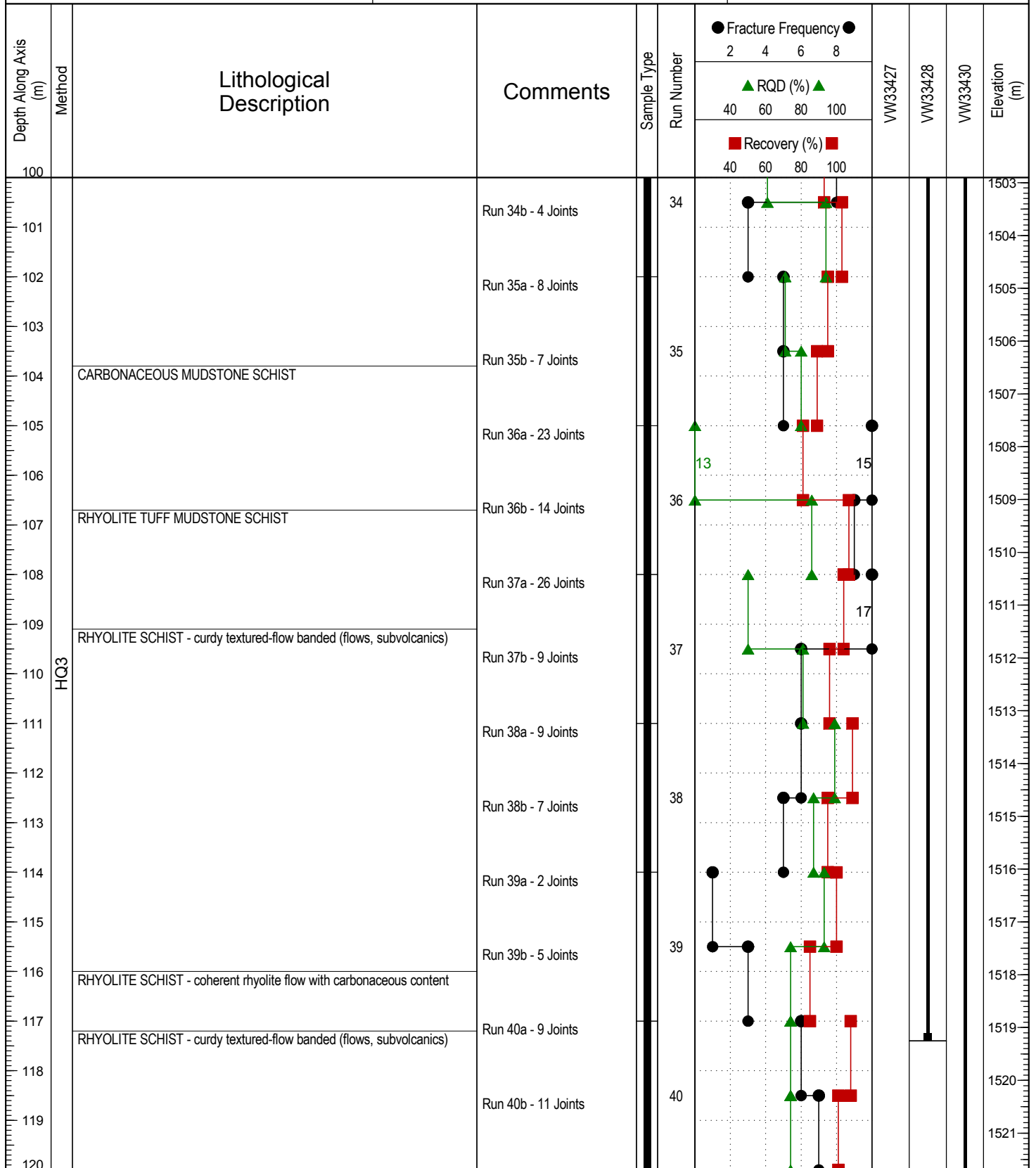
Project: KZK Hydrogeological Assessment  
 Location: Kudz Ze Kayah  
 Yukon

Project No: ENVMIN03071-01  
 Ground Elev: 1408.934 m  
 UTM: 414748.527 E; 6815599.239 N; Z 9 NAD83



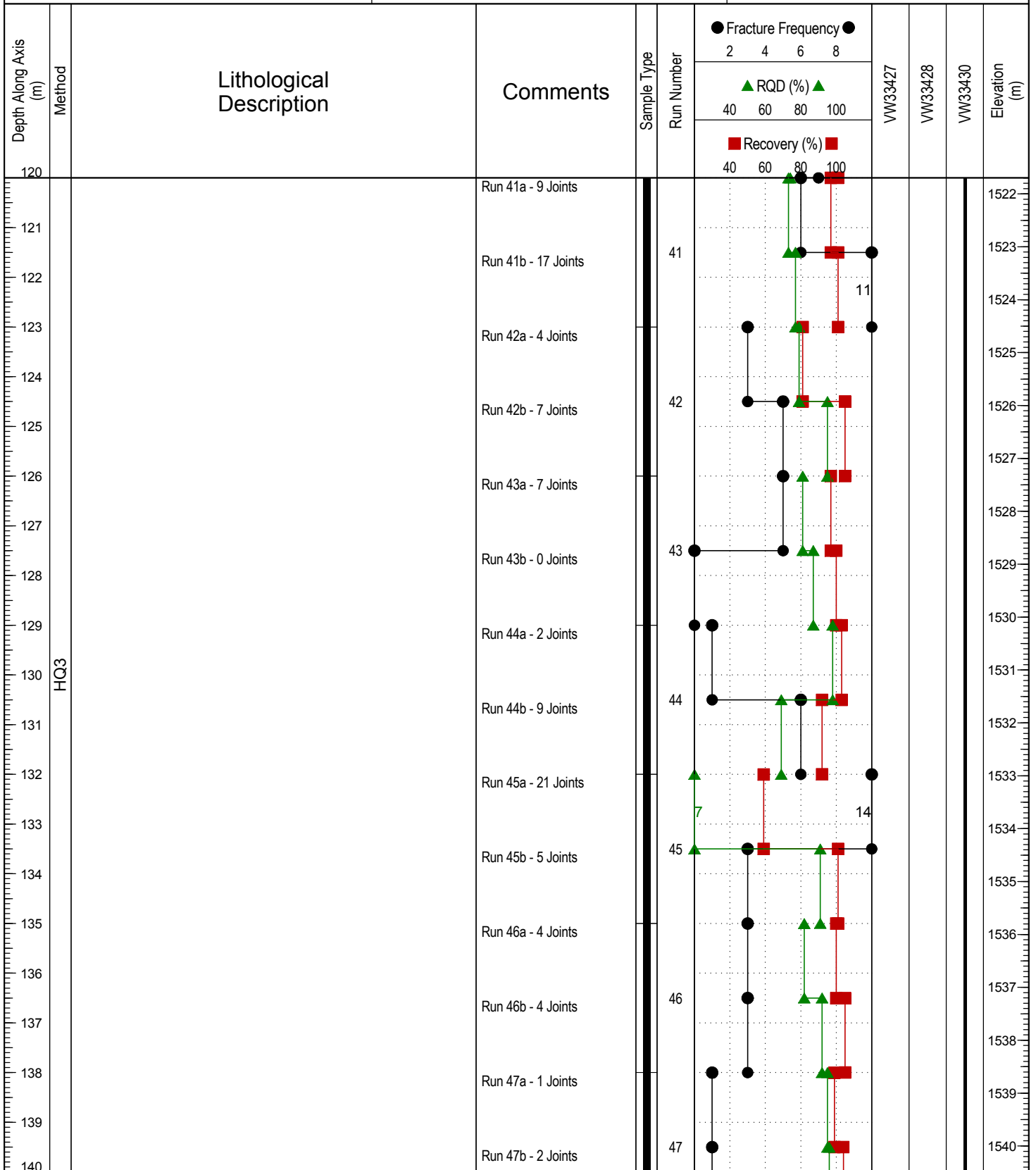
Contractor: Geotech Drilling  
 Drilling Rig Type: Hydracore  
 Logged By: Client  
 Reviewed By: SK

Completion Depth: 211.5 m  
 Start Date: 2015 July 30  
 Completion Date: 2015 August 3  
 Page 5 of 11



Contractor: Geotech Drilling	Completion Depth: 211.5 m
Drilling Rig Type: Hydracore	Start Date: 2015 July 30
Logged By: Client	Completion Date: 2015 August 3
Reviewed By: SK	Page 6 of 11



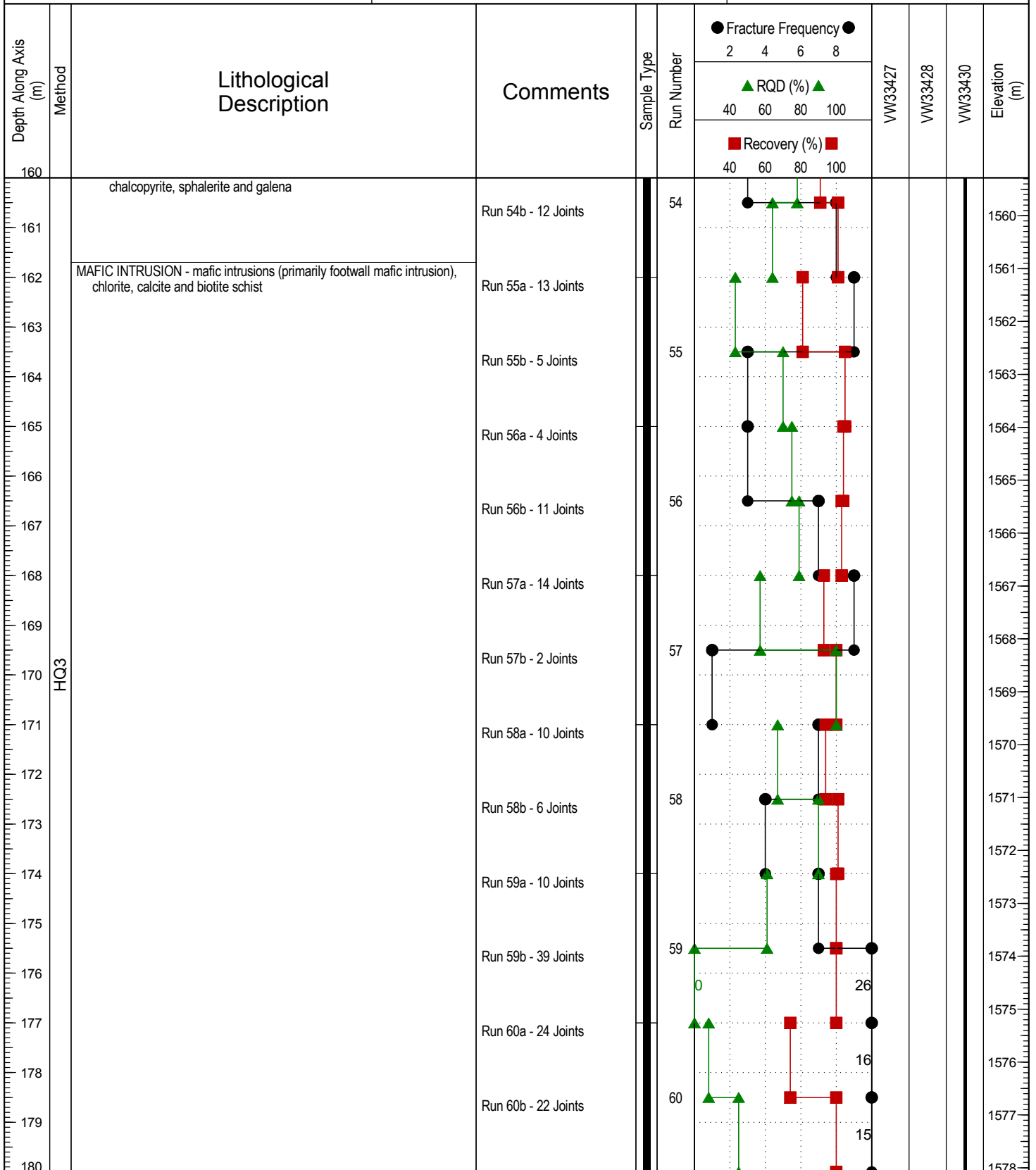


Depth Along Axis (m)	Method	Lithological Description	Comments	Sample Type	Run Number	Fracture Frequency ●			VW33427	VW33428	VW33430	Elevation (m)
						2	4	6				
						RQD (%) ▲						
						40	60	80	100			
						Recovery (%) ■						
						40	60	80	100			
140												
141		RHYOLITE SCHIST WITH DISSEMINATED SULPHIDES - heavily disseminated sulphides in proximal altered rock, strong chlorite and cordierite alteration	Run 48a - 11 Joints									1541
142			Run 48b - 3 Joints		48							1542
143												1543
144		- wispy laminate, fine buckshot textured, non-magnetite bearing sulphides, massive sulphide predominantly pyrite, sphalerite, galena and chalcopyrite	Run 49a - 9 Joints									1544
145			Run 49b - 5 Joints		49							1545
146												1546
147		- brecciated sulphides - magnetite bearing sulphides	Run 50a - 3 Joints									1547
148												1548
149		- chalcopyrite-pyrrhotite net textured sulphides, massive sulphide predominantly magnetite, pyrite and chlorite	Run 50b - 2 Joints		50							1549
150												1550
151	HQ3		Run 51a - 0 Joints									1551
152		- magnetite bearing sulphides, massive, sulphide predominantly pyrite, pyrrhotite, sphalerite, galena and chalcopyrite	Run 51b - 4 Joints		51							1552
153			Run 52a - 3 Joints									1553
154		- wispy laminate, fine buckshot textured, non-magnetite bearing sulphides	Run 52b - 5 Joints		52							1554
155		- magnetite bearing sulphides, massive sulphide predominantly pyrite, sphalerite, galena and chalcopyrite	Run 53a - 3 Joints									1555
156												1556
157		MASSIVE SULPHIDE - chalcopyrite rich sulphides	Run 53b - 7 Joints		53							1557
158		- wispy laminate, fine buckshot textured, non-magnetite bearing sulphides										1558
159		- heavily disseminated sulphides in proximal altered rock, heavily disseminated pyrite, sphalerite, galena and chalcopyrite	Run 54a - 4 Joints									1559
160		TUFF SCHIST - lapilli tuff, intense chlorite alteration with pyrite, porphyrite,										1559



**TETRA TECH EBA**

Contractor: Geotech Drilling	Completion Depth: 211.5 m
Drilling Rig Type: Hydracore	Start Date: 2015 July 30
Logged By: Client	Completion Date: 2015 August 3
Reviewed By: SK	Page 8 of 11



Contractor: Geotech Drilling  
 Drilling Rig Type: Hydracore  
 Logged By: Client  
 Reviewed By: SK

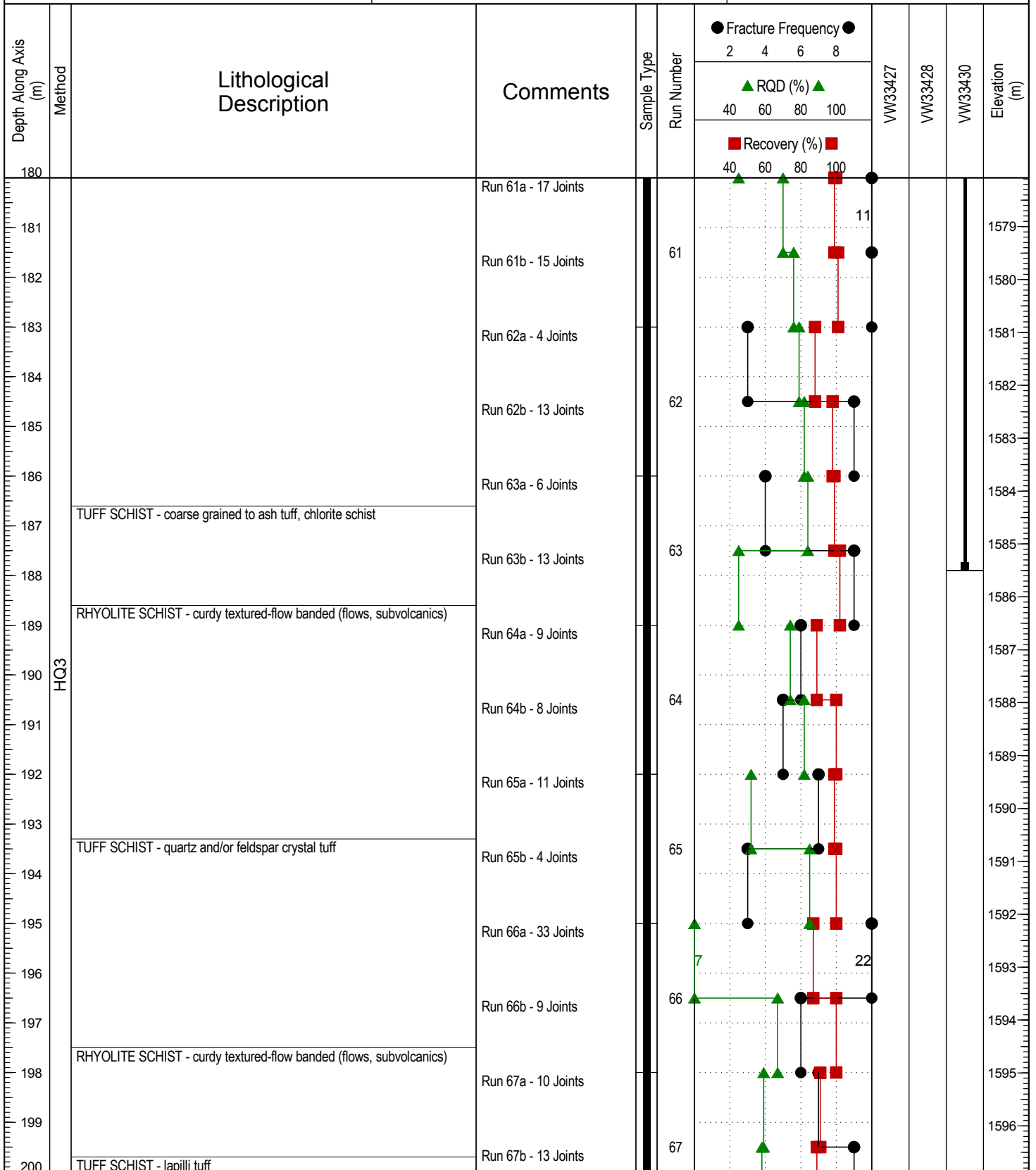
Completion Depth: 211.5 m  
 Start Date: 2015 July 30  
 Completion Date: 2015 August 3  
 Page 9 of 11

# BMC Minerals (No. 1) Ltd.

# Borehole No: K15-200-VWP

Project: KZK Hydrogeological Assessment  
 Location: Kudz Ze Kayah  
 Yukon

Project No: ENVMIN03071-01  
 Ground Elev: 1408.934 m  
 UTM: 414748.527 E; 6815599.239 N; Z 9 NAD83



Contractor: Geotech Drilling  
 Drilling Rig Type: Hydracore  
 Logged By: Client  
 Reviewed By: SK

Completion Depth: 211.5 m  
 Start Date: 2015 July 30  
 Completion Date: 2015 August 3  
 Page 10 of 11

# BMC Minerals (No. 1) Ltd.

# Borehole No: K15-200-VWP

Project: KZK Hydrogeological Assessment

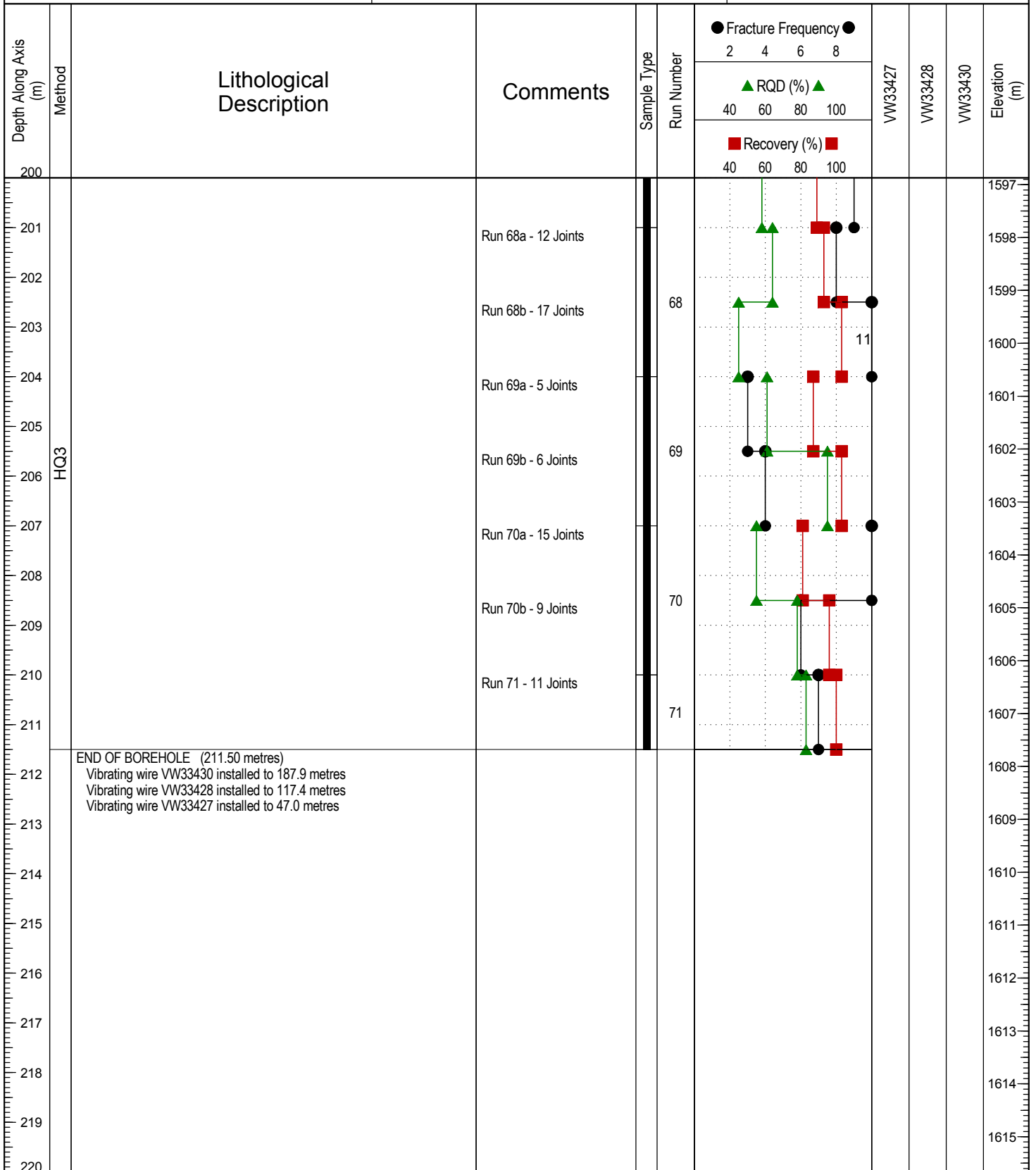
Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1408.934 m

Yukon

UTM: 414748.527 E; 6815599.239 N; Z 9 NAD83



TETRA TECH EBA

Contractor: Geotech Drilling

Completion Depth: 211.5 m

Drilling Rig Type: Hydracore

Start Date: 2015 July 30

Logged By: Client

Completion Date: 2015 August 3

Reviewed By: SK

Page 11 of 11

# BMC Minerals (No. 1) Ltd.

## Borehole No: K15-202

Project: KZK Hydrogeological Assessment

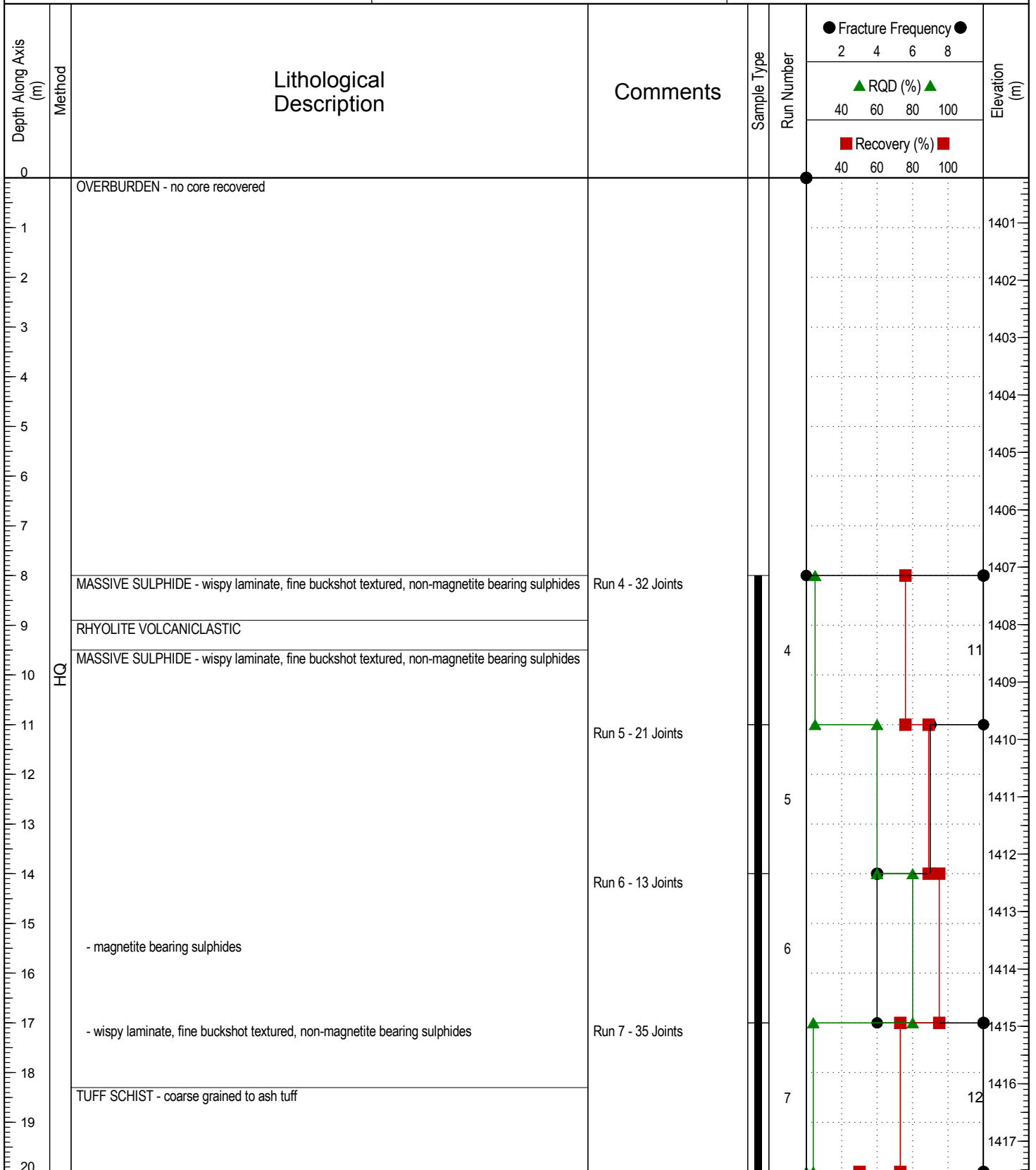
Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1400.217 m

Yukon

UTM: 414795.491 E; 6815365.198 N; Z 9 NAD83



TETRA TECH EBA

Contractor: Geotech Drilling

Completion Depth: 71 m

Drilling Rig Type: Zinex A5

Start Date: 2015 August 5

Logged By: Client

Completion Date: 2015 August 3

Reviewed By: SK

Page 1 of 4

# BMC Minerals (No. 1) Ltd.

# Borehole No: K15-202

Project: KZK Hydrogeological Assessment

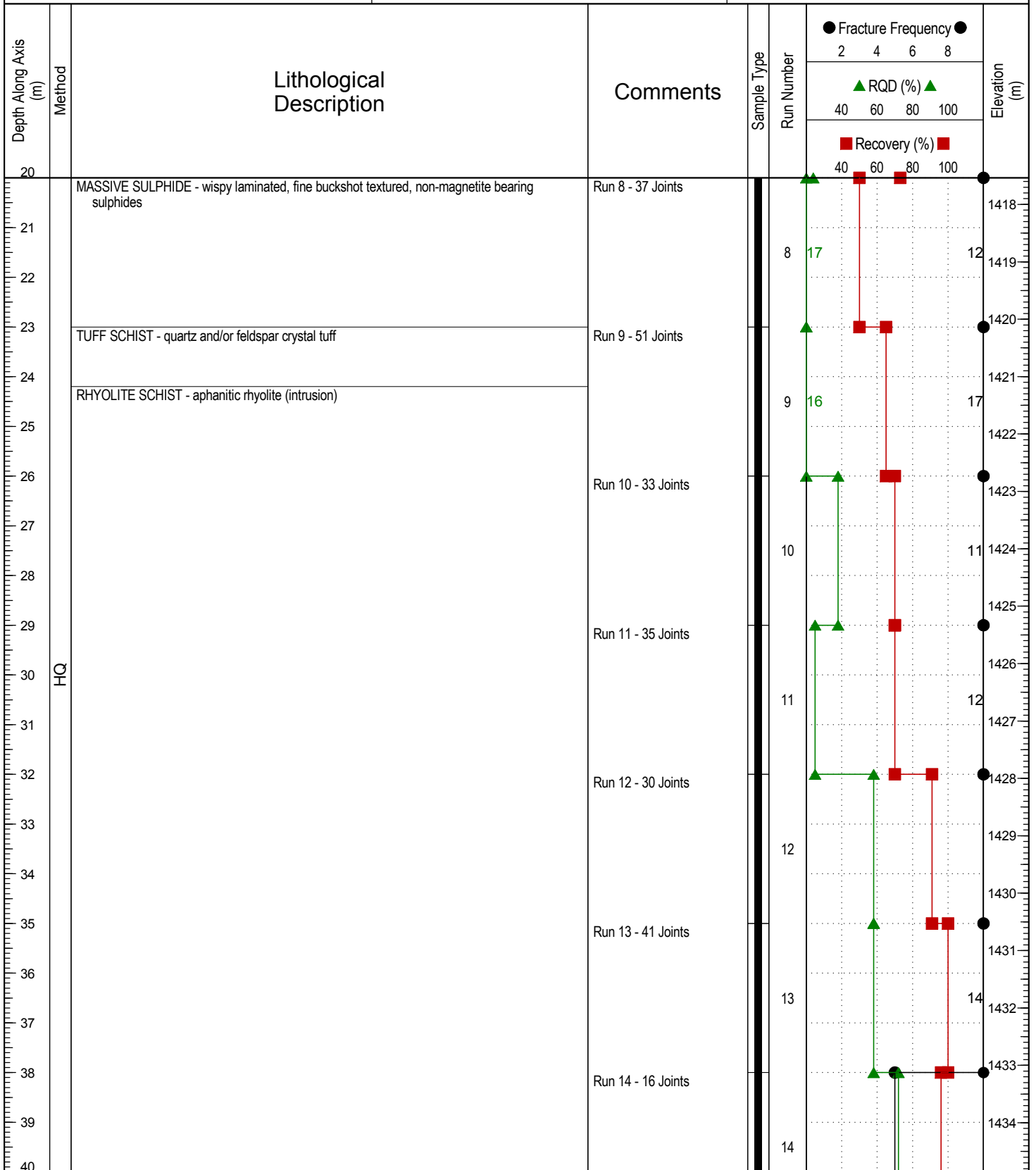
Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1400.217 m

Yukon

UTM: 414795.491 E; 6815365.198 N; Z 9 NAD83



TETRA TECH EBA

Contractor: Geotech Drilling

Completion Depth: 71 m

Drilling Rig Type: Zinex A5

Start Date: 2015 August 5

Logged By: Client

Completion Date: 2015 August 3

Reviewed By: SK

Page 2 of 4

# BMC Minerals (No. 1) Ltd.

## Borehole No: K15-202

Project: KZK Hydrogeological Assessment

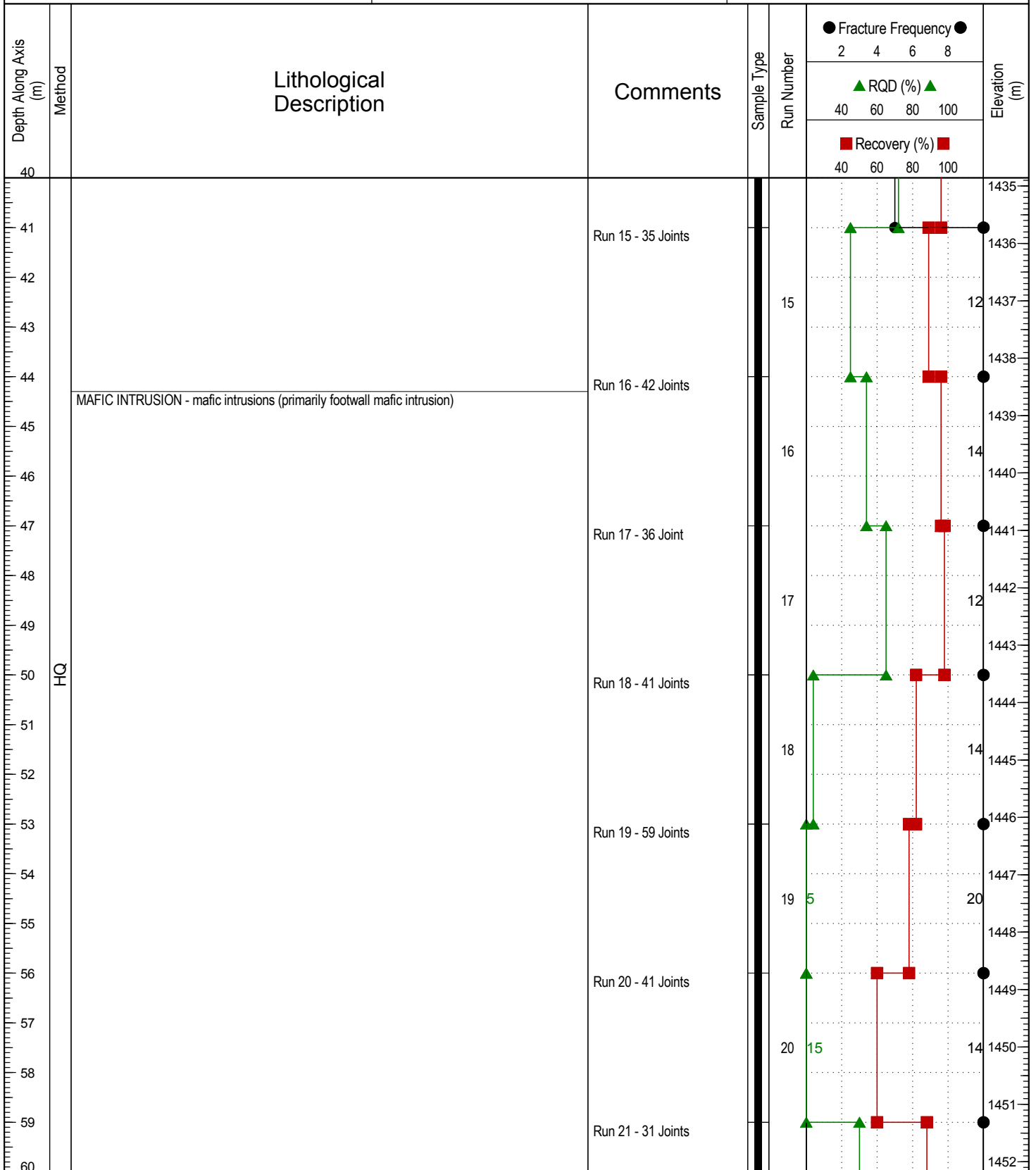
Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1400.217 m

Yukon

UTM: 414795.491 E; 6815365.198 N; Z 9 NAD83



**TETRA TECH EBA**

Contractor: Geotech Drilling

Completion Depth: 71 m

Drilling Rig Type: Zinex A5

Start Date: 2015 August 5

Logged By: Client

Completion Date: 2015 August 3

Reviewed By: SK

Page 3 of 4



# BMC Minerals (No. 1) Ltd.

## Borehole No: K15-202

Project: KZK Hydrogeological Assessment

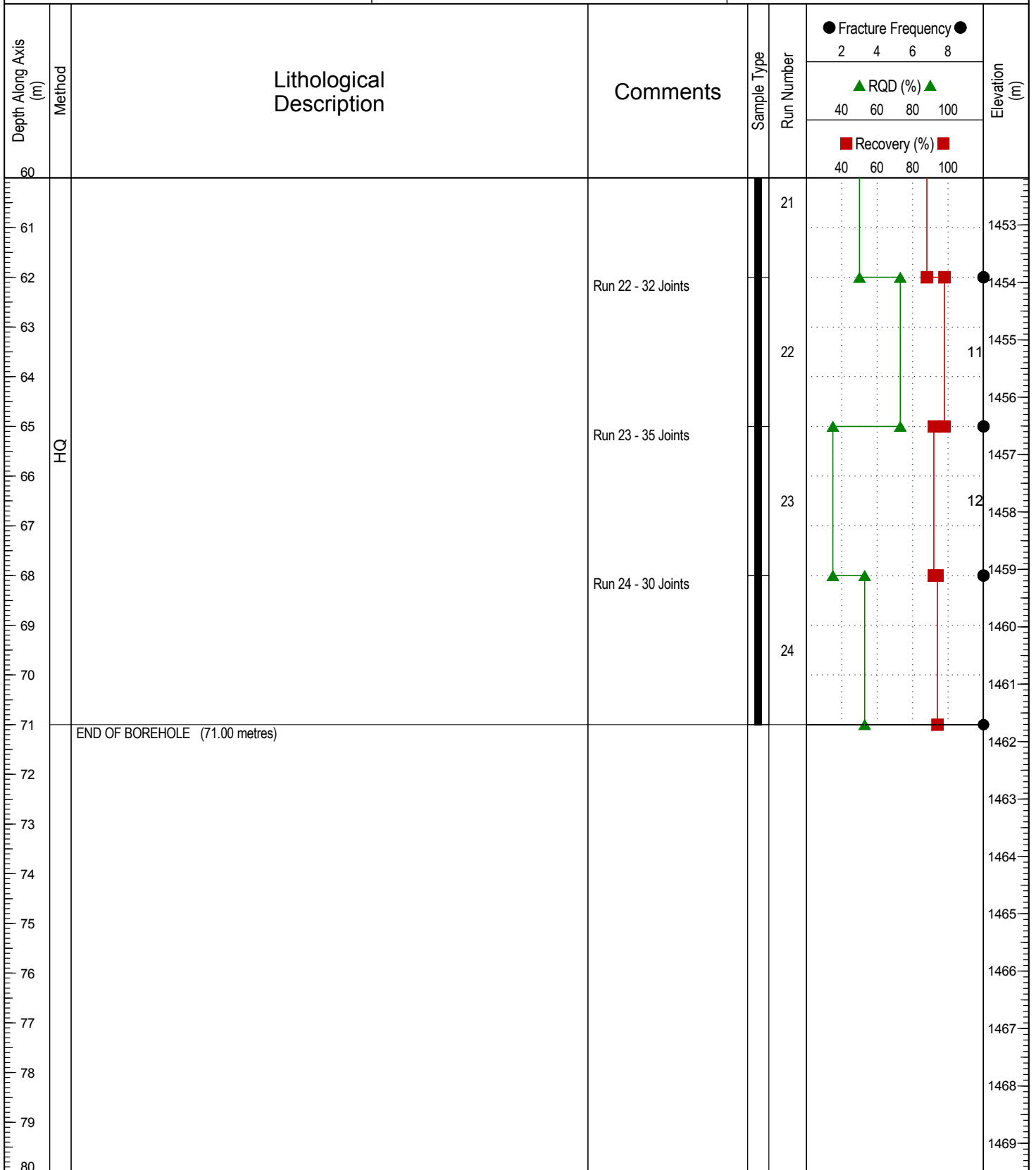
Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1400.217 m

Yukon

UTM: 414795.491 E; 6815365.198 N; Z 9 NAD83



TETRA TECH EBA

Contractor: Geotech Drilling

Completion Depth: 71 m

Drilling Rig Type: Zinex A5

Start Date: 2015 August 5

Logged By: Client

Completion Date: 2015 August 3

Reviewed By: SK

Page 4 of 4

# BMC Minerals (No. 1) Ltd.

## Borehole No: K15-204

Project: KZK Hydrogeological Assessment

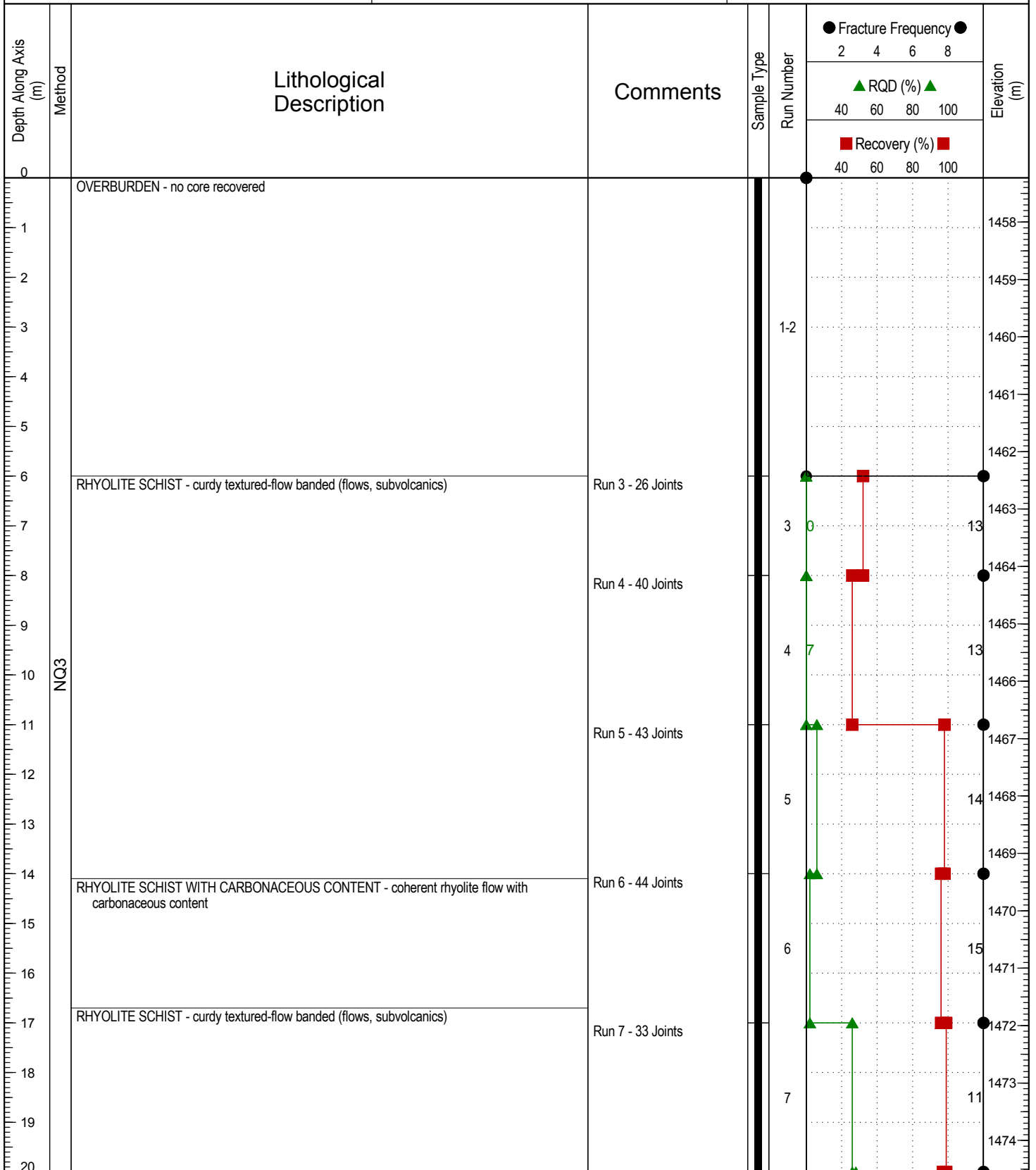
Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1457.23 m

Yukon

UTM: 414549.469 E; 6815464.484 N; Z 9 NAD83



Contractor: Geotech Drilling

Completion Depth: 149 m

Drilling Rig Type: Hydracore

Start Date: 2015 August 8

Logged By: Client

Completion Date: 2015 August 8

Reviewed By: SK

Page 1 of 8

# BMC Minerals (No. 1) Ltd.

# Borehole No: K15-204

Project: KZK Hydrogeological Assessment

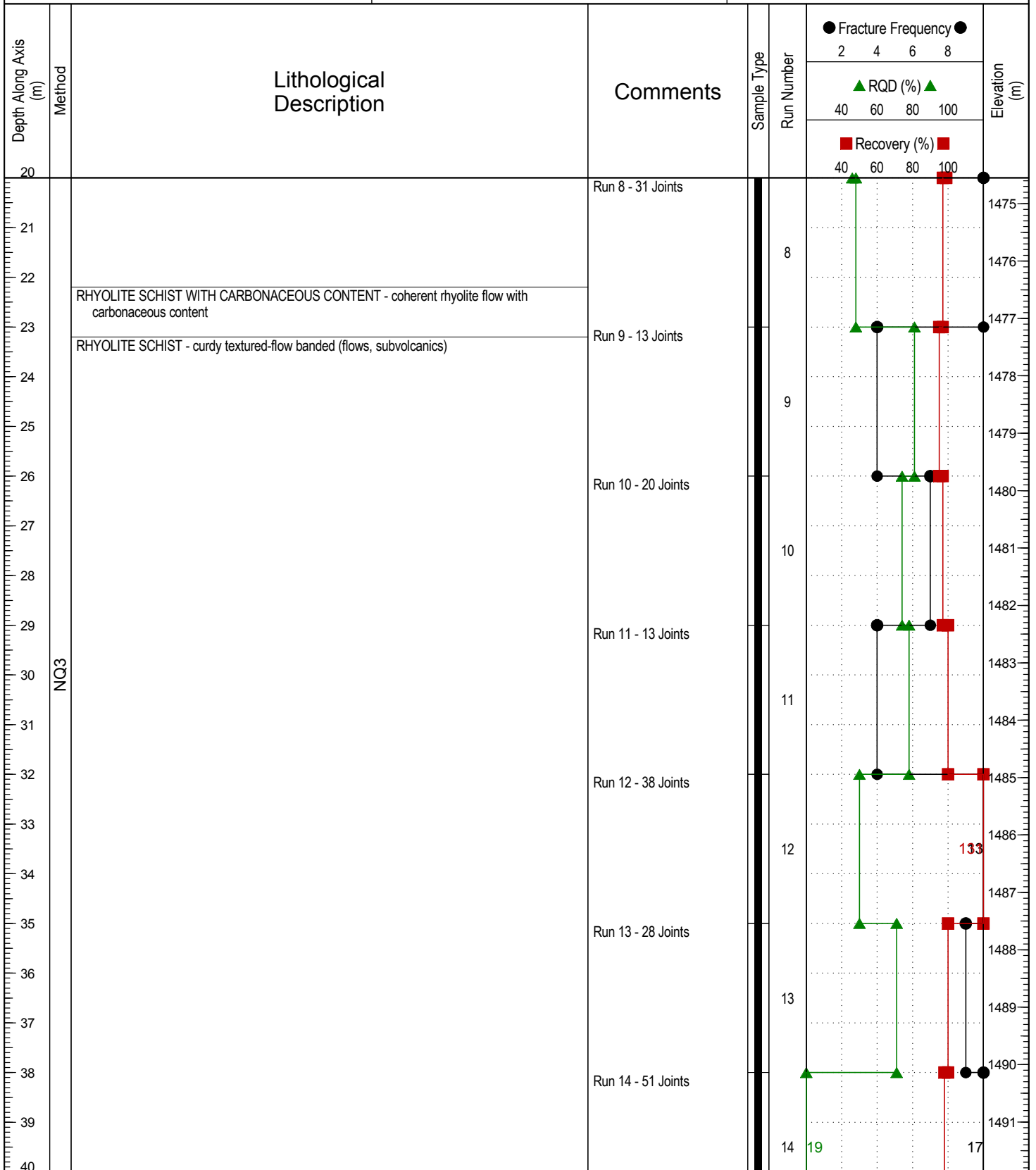
Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1457.23 m

Yukon

UTM: 414549.469 E; 6815464.484 N; Z 9 NAD83



TETRA TECH EBA

Contractor: Geotech Drilling

Completion Depth: 149 m

Drilling Rig Type: Hydracore

Start Date: 2015 August 8

Logged By: Client

Completion Date: 2015 August 8

Reviewed By: SK

Page 2 of 8

# BMC Minerals (No. 1) Ltd.

# Borehole No: K15-204

Project: KZK Hydrogeological Assessment

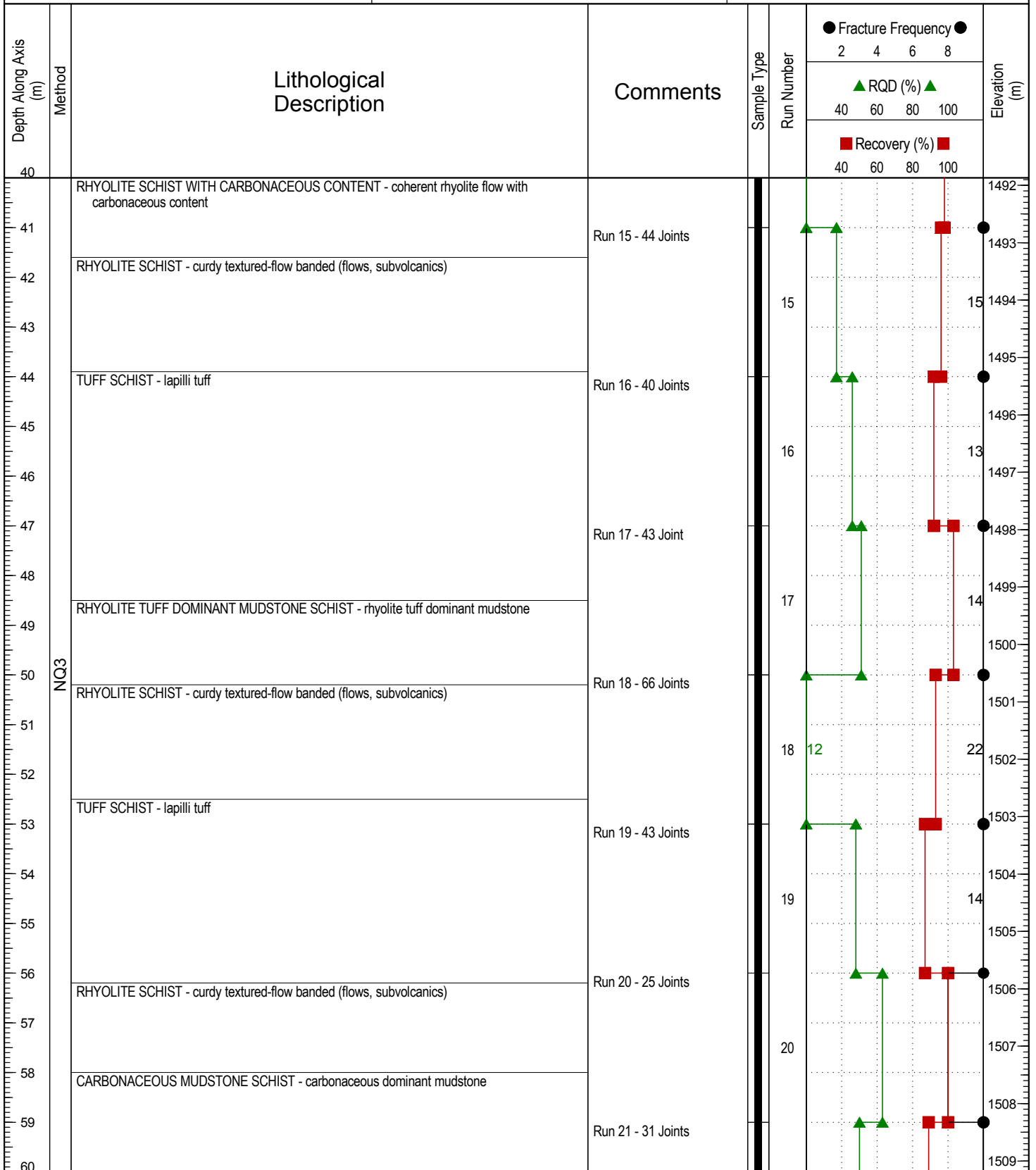
Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1457.23 m

Yukon

UTM: 414549.469 E; 6815464.484 N; Z 9 NAD83



TETRA TECH EBA

Contractor: Geotech Drilling

Completion Depth: 149 m

Drilling Rig Type: Hydracore

Start Date: 2015 August 8

Logged By: Client

Completion Date: 2015 August 8

Reviewed By: SK

Page 3 of 8

# BMC Minerals (No. 1) Ltd.

# Borehole No: K15-204

Project: KZK Hydrogeological Assessment

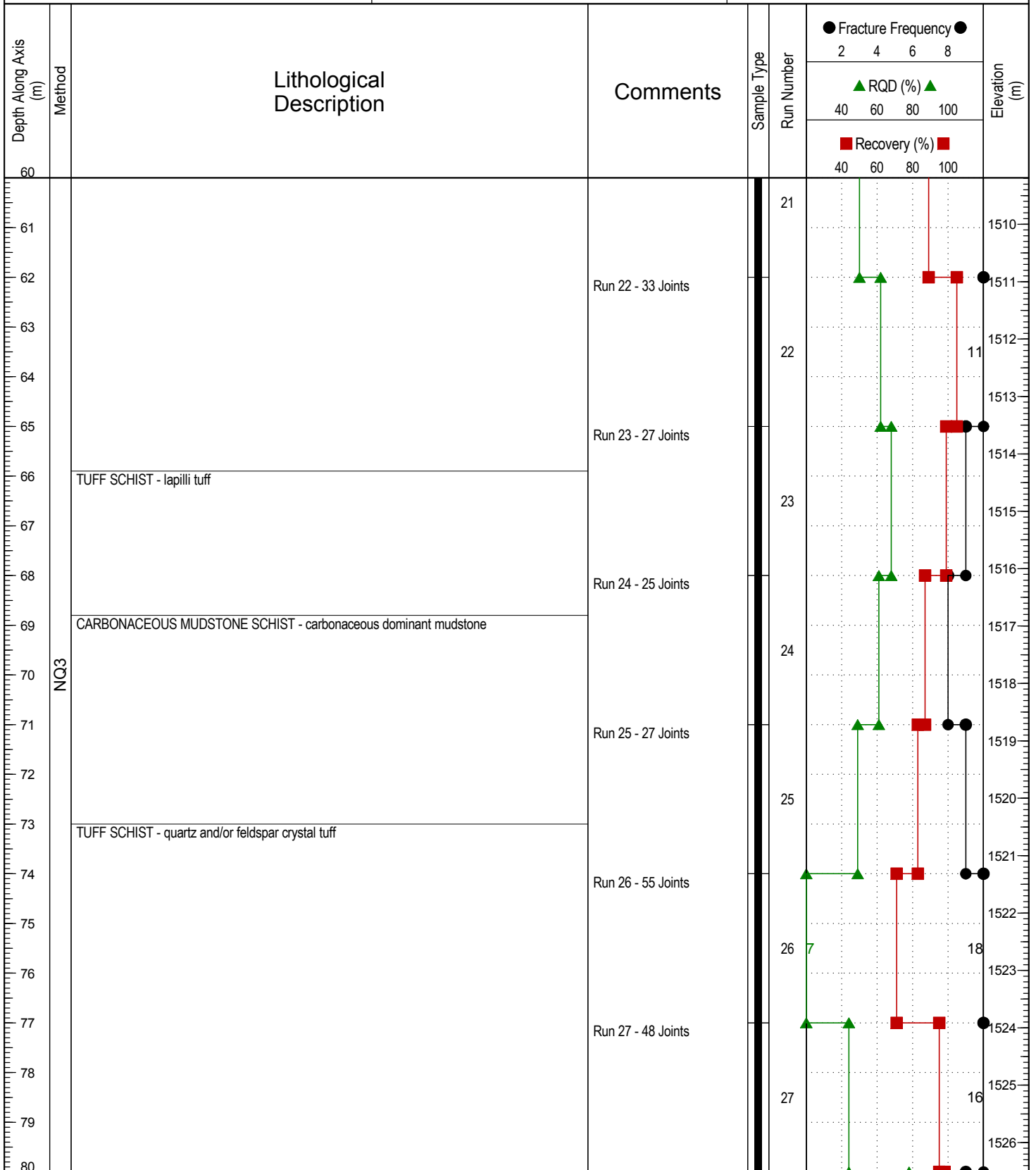
Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1457.23 m

Yukon

UTM: 414549.469 E; 6815464.484 N; Z 9 NAD83



**TETRA TECH EBA**

Contractor: Geotech Drilling

Completion Depth: 149 m

Drilling Rig Type: Hydracore

Start Date: 2015 August 8

Logged By: Client

Completion Date: 2015 August 8

Reviewed By: SK

Page 4 of 8

# BMC Minerals (No. 1) Ltd.

# Borehole No: K15-204

Project: KZK Hydrogeological Assessment

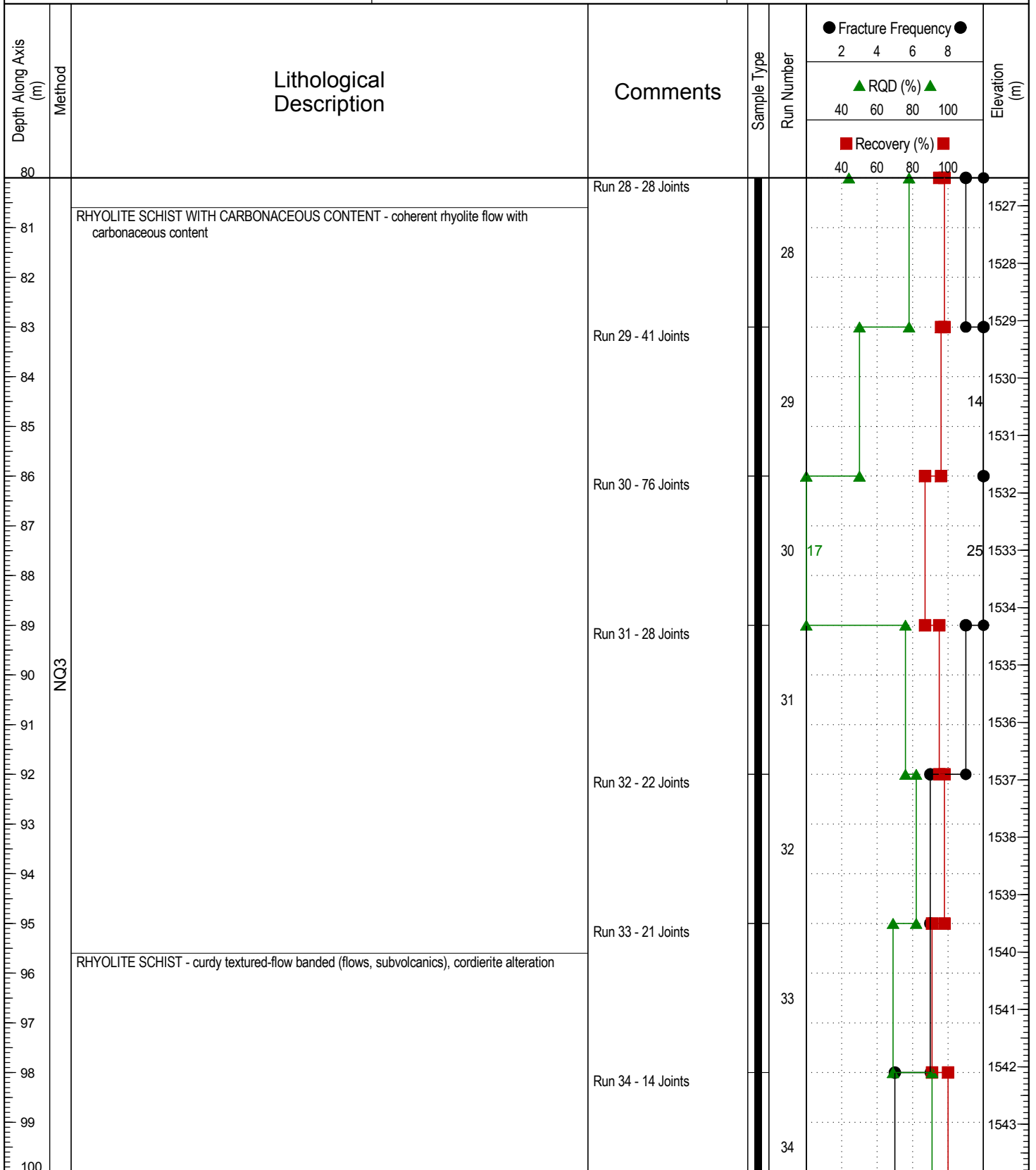
Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1457.23 m

Yukon

UTM: 414549.469 E; 6815464.484 N; Z 9 NAD83



TETRA TECH EBA

Contractor: Geotech Drilling

Completion Depth: 149 m

Drilling Rig Type: Hydracore

Start Date: 2015 August 8

Logged By: Client

Completion Date: 2015 August 8

Reviewed By: SK

Page 5 of 8

# BMC Minerals (No. 1) Ltd.

# Borehole No: K15-204

Project: KZK Hydrogeological Assessment

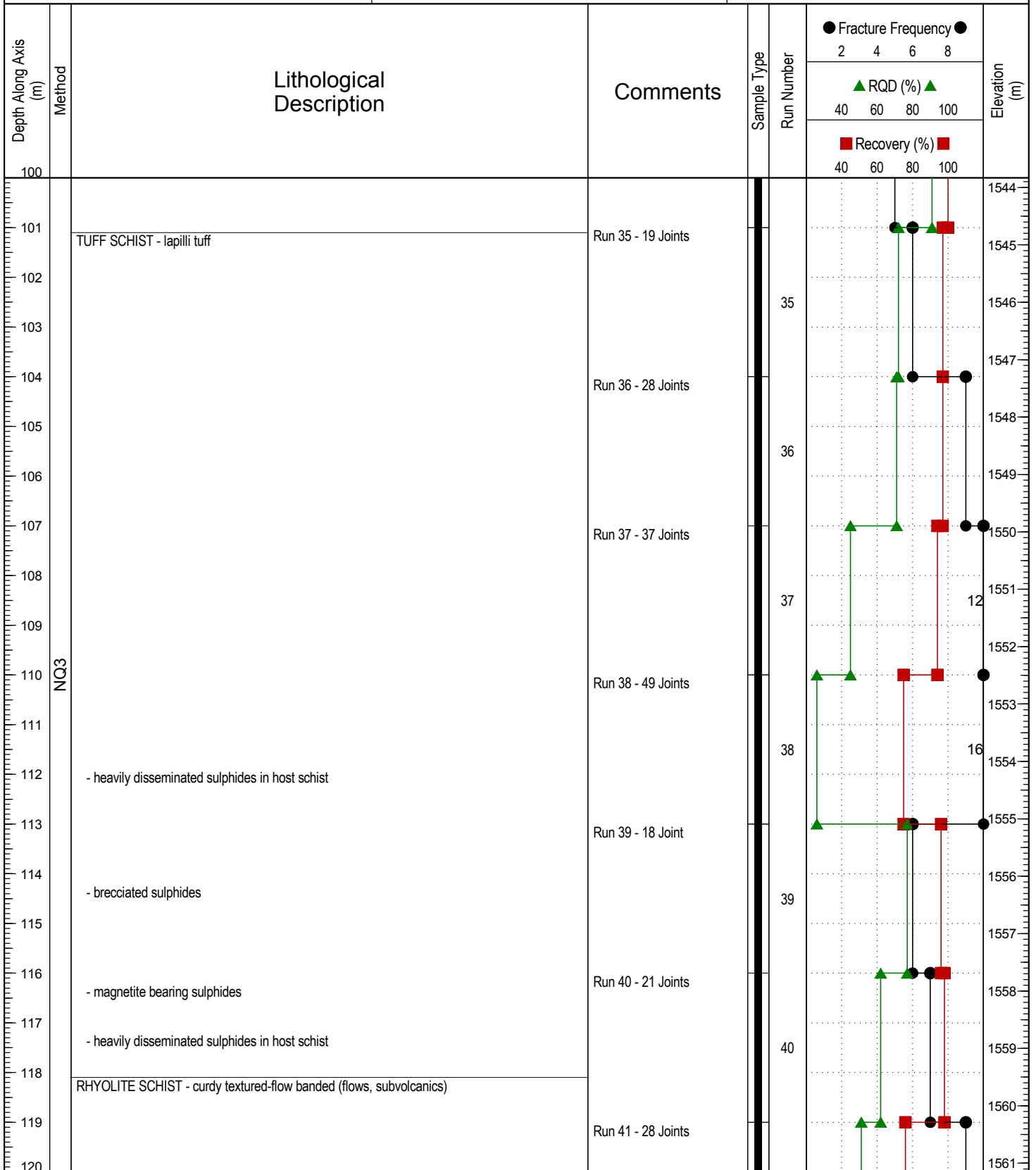
Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1457.23 m

Yukon

UTM: 414549.469 E; 6815464.484 N; Z 9 NAD83



Contractor: Geotech Drilling

Completion Depth: 149 m

Drilling Rig Type: Hydracore

Start Date: 2015 August 8

Logged By: Client

Completion Date: 2015 August 8

Reviewed By: SK

Page 6 of 8

# BMC Minerals (No. 1) Ltd.

## Borehole No: K15-204

Project: KZK Hydrogeological Assessment

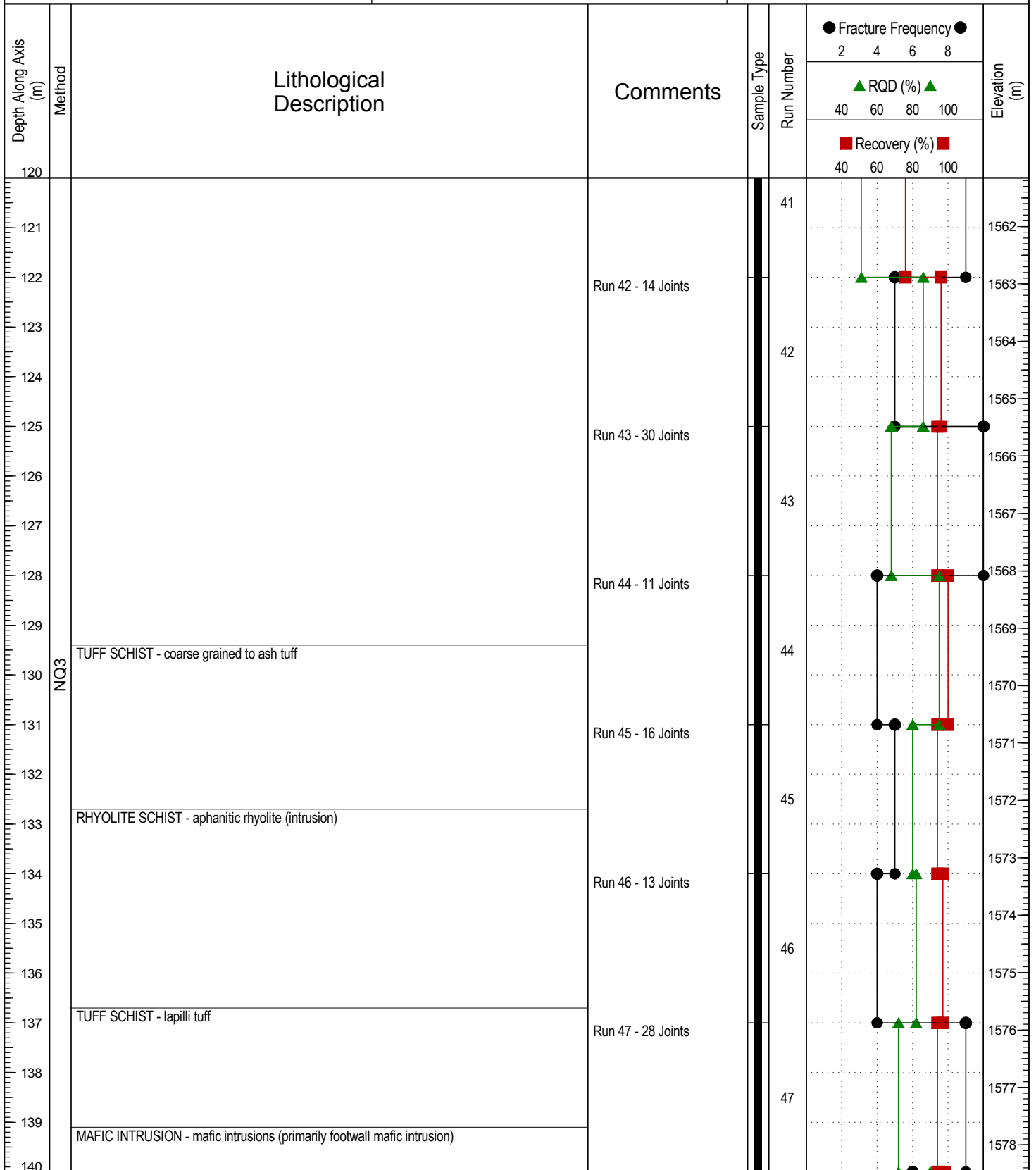
Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1457.23 m

Yukon

UTM: 414549.469 E; 6815464.484 N; Z 9 NAD83



**TETRA TECH EBA**

Contractor: Geotech Drilling

Completion Depth: 149 m

Drilling Rig Type: Hydracore

Start Date: 2015 August 8

Logged By: Client

Completion Date: 2015 August 8

Reviewed By: SK

Page 7 of 8



**BMC Minerals (No. 1) Ltd.**

**Borehole No: K15-204**

Project: KZK Hydrogeological Assessment

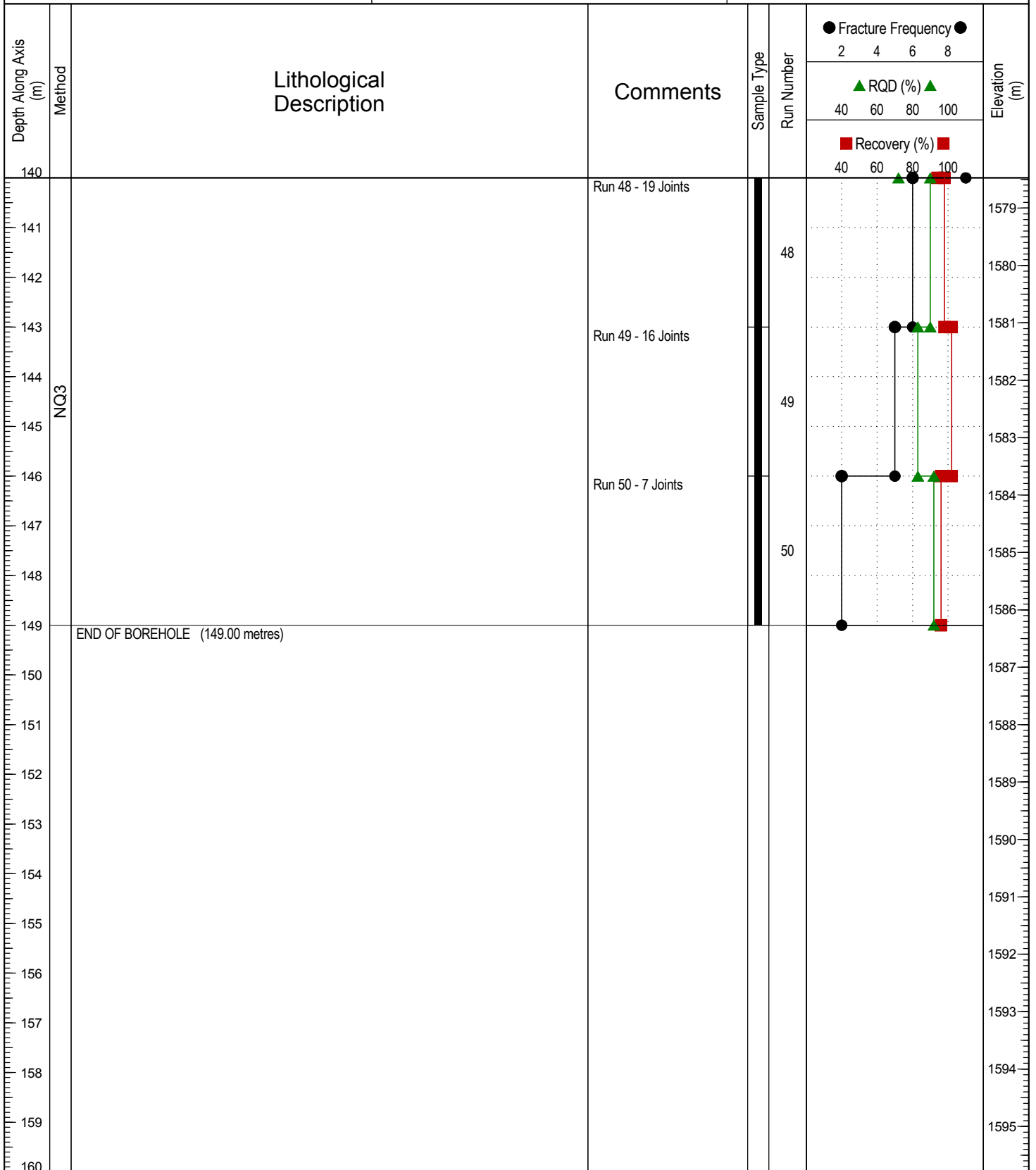
Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1457.23 m

Yukon

UTM: 414549.469 E; 6815464.484 N; Z 9 NAD83



**TETRA TECH EBA**

Contractor: Geotech Drilling

Completion Depth: 149 m

Drilling Rig Type: Hydracore

Start Date: 2015 August 8

Logged By: Client

Completion Date: 2015 August 8

Reviewed By: SK

Page 8 of 8

# BMC Minerals (No. 1) Ltd.

## Borehole No: K15-206

Project: KZK Hydrogeological Assessment

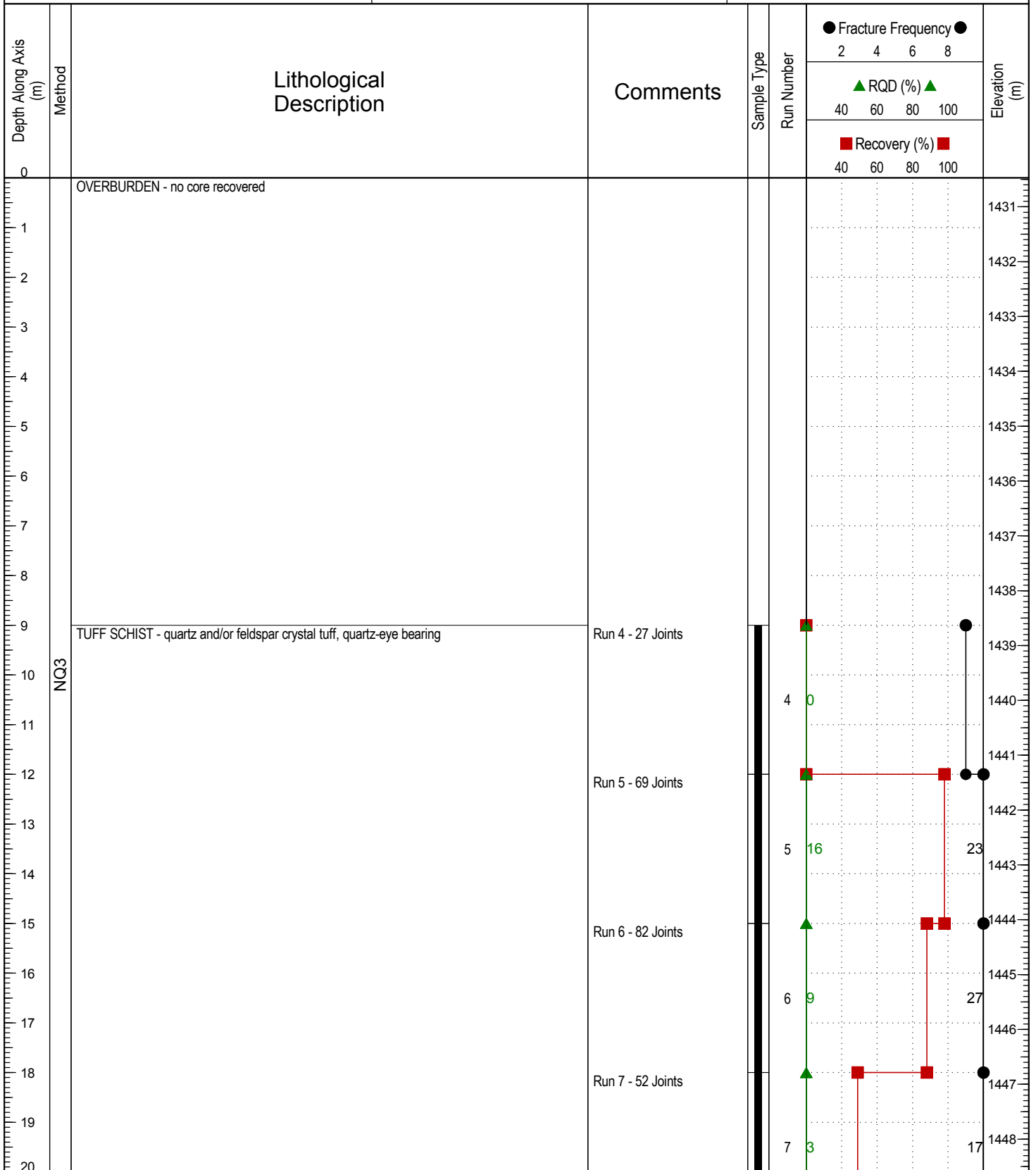
Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1430.473 m

Yukon

UTM: 414651.702 E; 6815747.356 N; Z 9 NAD83



**TETRA TECH EBA**

Contractor: Geotech Drilling

Completion Depth: 237 m

Drilling Rig Type: Zinex A5

Start Date: 2015 September 4

Logged By: Client

Completion Date: 2015 August 10

Reviewed By: SK

Page 1 of 12

# BMC Minerals (No. 1) Ltd.

# Borehole No: K15-206

Project: KZK Hydrogeological Assessment

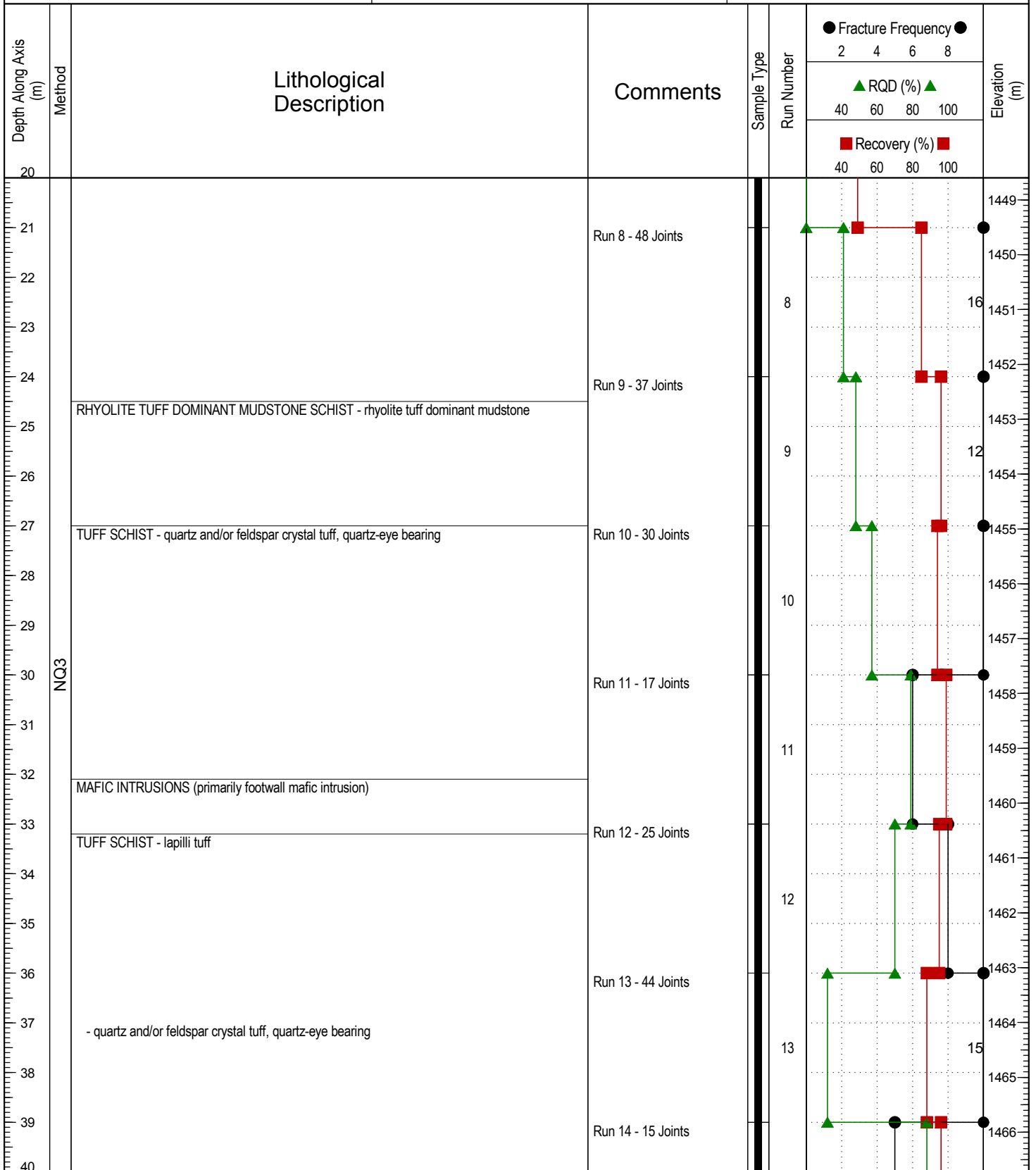
Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1430.473 m

Yukon

UTM: 414651.702 E; 6815747.356 N; Z 9 NAD83



Contractor: Geotech Drilling

Completion Depth: 237 m

Drilling Rig Type: Zinex A5

Start Date: 2015 September 4

Logged By: Client

Completion Date: 2015 August 10

Reviewed By: SK

Page 2 of 12

# BMC Minerals (No. 1) Ltd.

# Borehole No: K15-206

Project: KZK Hydrogeological Assessment

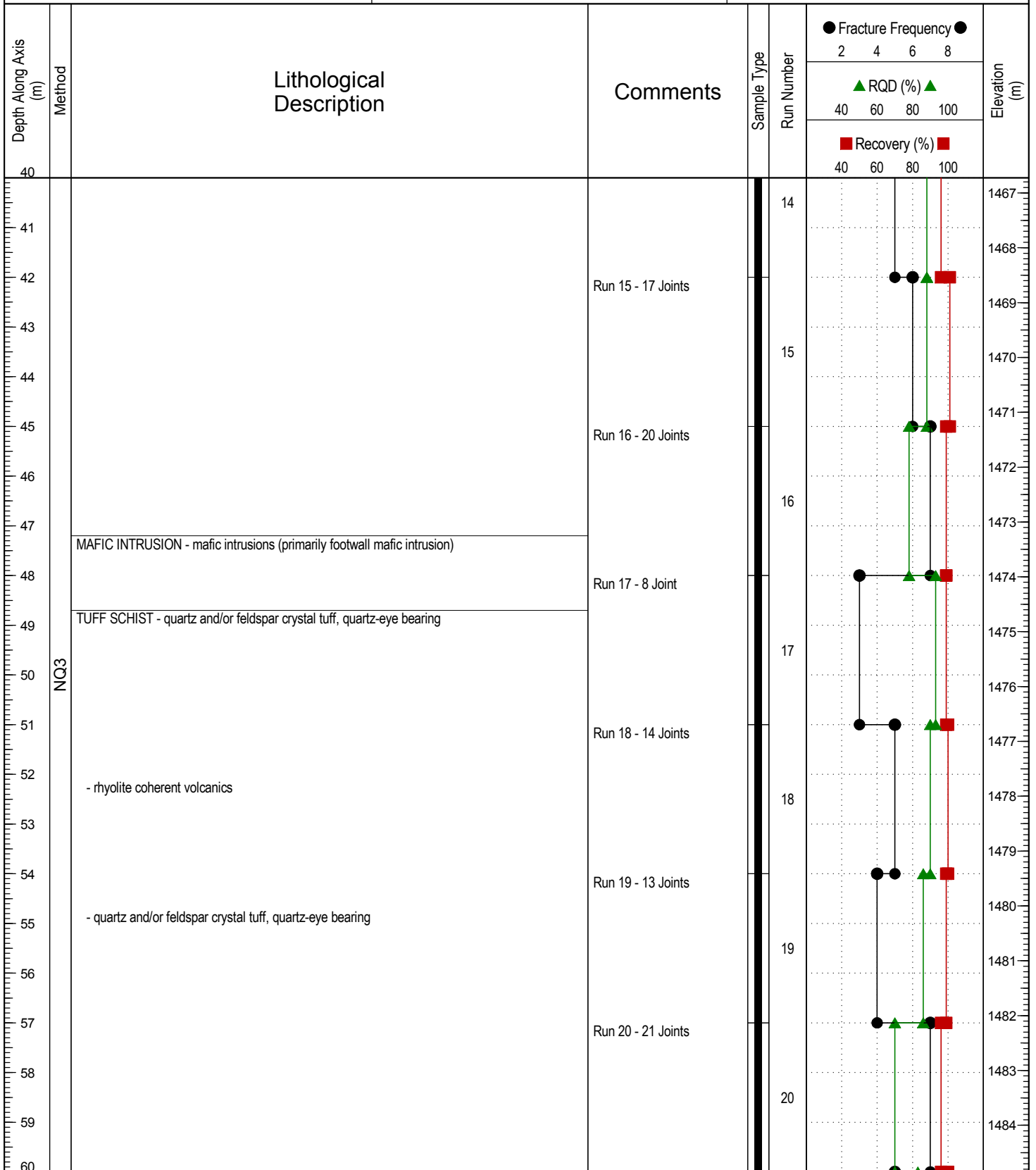
Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1430.473 m

Yukon

UTM: 414651.702 E; 6815747.356 N; Z 9 NAD83



Contractor: Geotech Drilling

Completion Depth: 237 m

Drilling Rig Type: Zinex A5

Start Date: 2015 September 4

Logged By: Client

Completion Date: 2015 August 10

Reviewed By: SK

Page 3 of 12

**BMC Minerals (No. 1) Ltd.**

**Borehole No: K15-206**

Project: KZK Hydrogeological Assessment

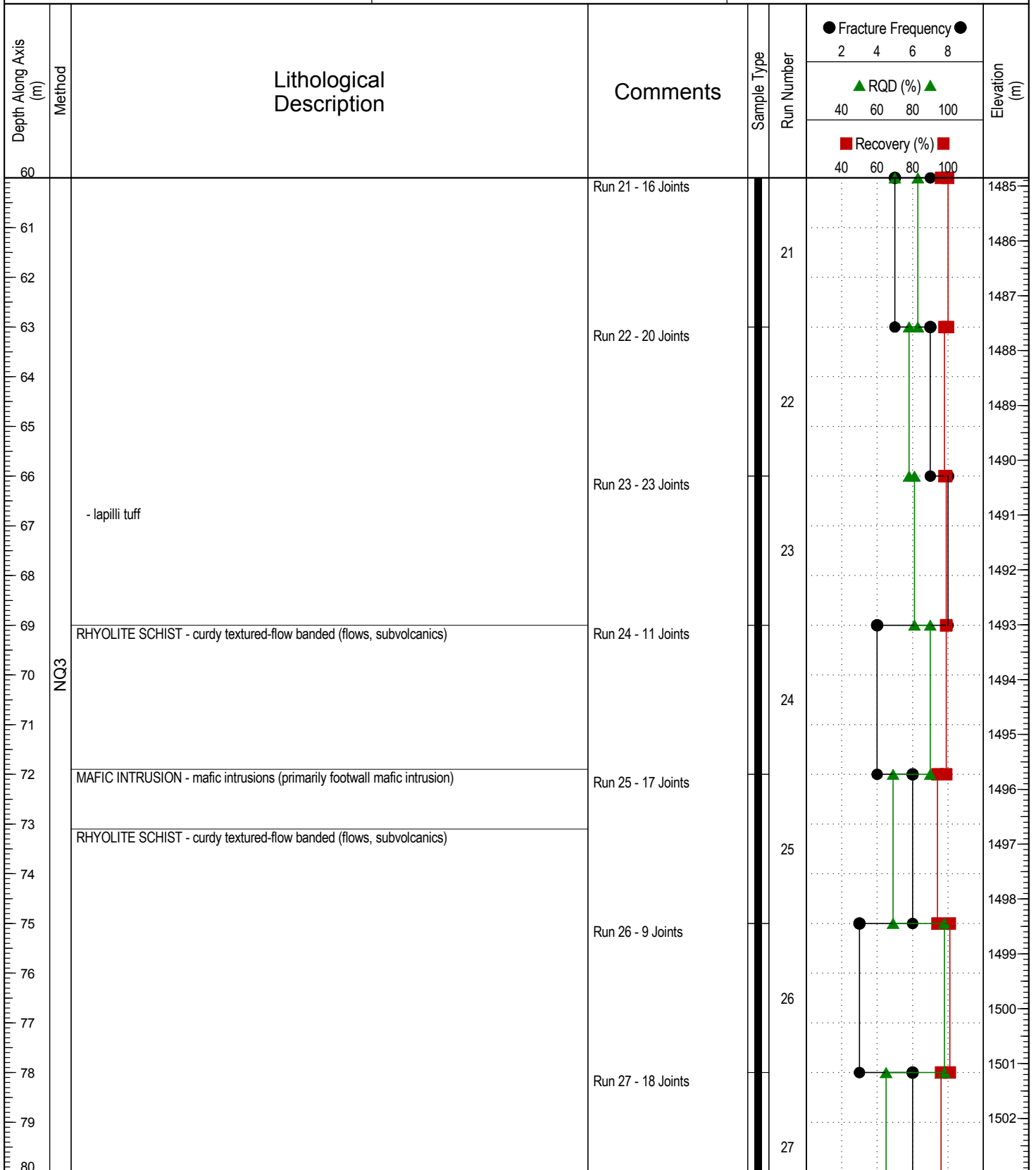
Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1430.473 m

Yukon

UTM: 414651.702 E; 6815747.356 N; Z 9 NAD83



**TETRA TECH EBA**

Contractor: Geotech Drilling

Completion Depth: 237 m

Drilling Rig Type: Zinex A5

Start Date: 2015 September 4

Logged By: Client

Completion Date: 2015 August 10

Reviewed By: SK

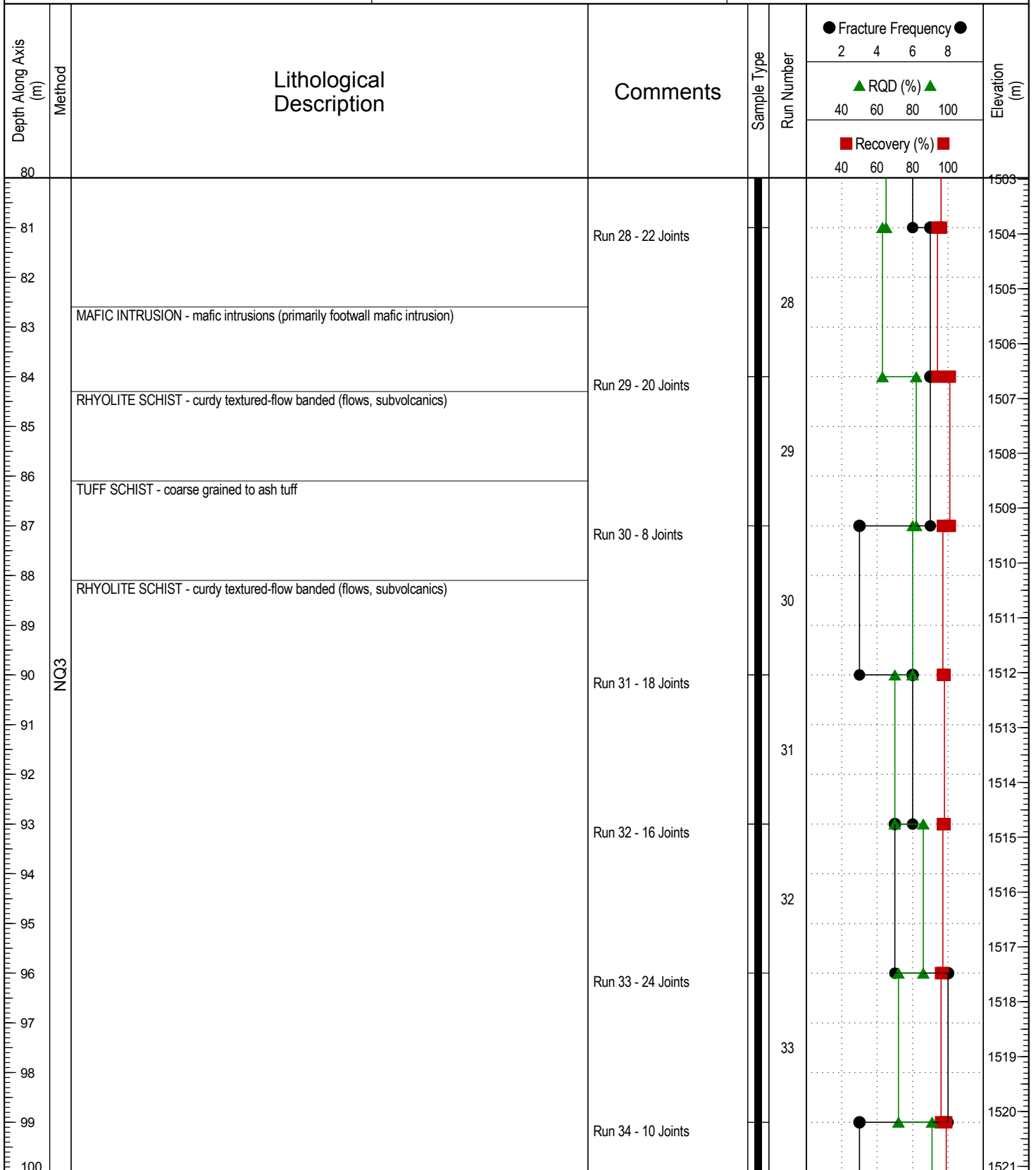
Page 4 of 12

# BMC Minerals (No. 1) Ltd.

# Borehole No: K15-206

Project: KZK Hydrogeological Assessment  
 Location: Kudz Ze Kayah  
 Yukon

Project No: ENVMIN03071-01  
 Ground Elev: 1430.473 m  
 UTM: 414651.702 E; 6815747.356 N; Z 9 NAD83



Contractor: Geotech Drilling  
 Drilling Rig Type: Zinex A5  
 Logged By: Client  
 Reviewed By: SK

Completion Depth: 237 m  
 Start Date: 2015 September 4  
 Completion Date: 2015 August 10  
 Page 5 of 12

# BMC Minerals (No. 1) Ltd.

## Borehole No: K15-206

Project: KZK Hydrogeological Assessment

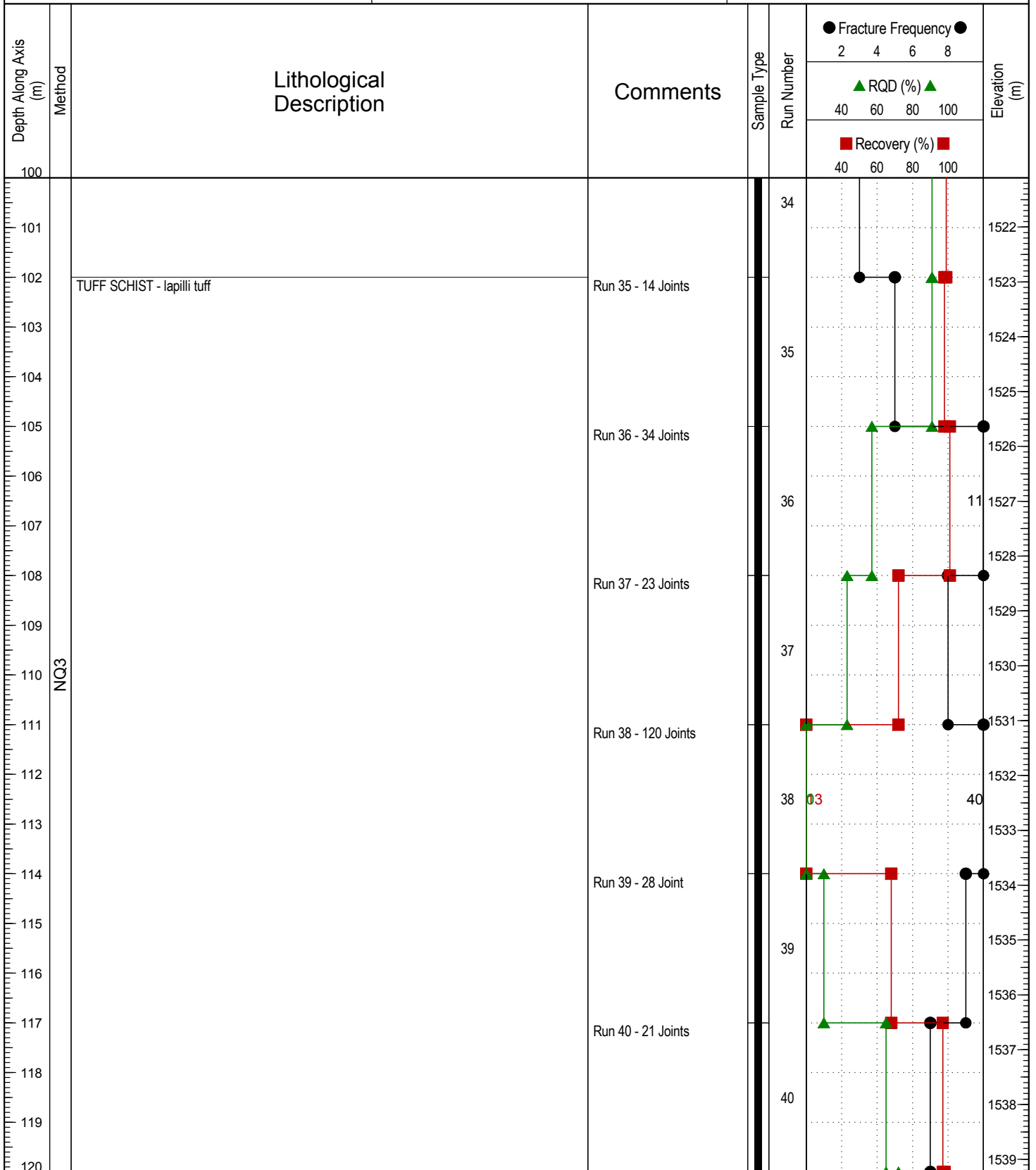
Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1430.473 m

Yukon

UTM: 414651.702 E; 6815747.356 N; Z 9 NAD83



TETRA TECH EBA

Contractor: Geotech Drilling

Completion Depth: 237 m

Drilling Rig Type: Zinex A5

Start Date: 2015 September 4

Logged By: Client

Completion Date: 2015 August 10

Reviewed By: SK

Page 6 of 12

# BMC Minerals (No. 1) Ltd.

# Borehole No: K15-206

Project: KZK Hydrogeological Assessment

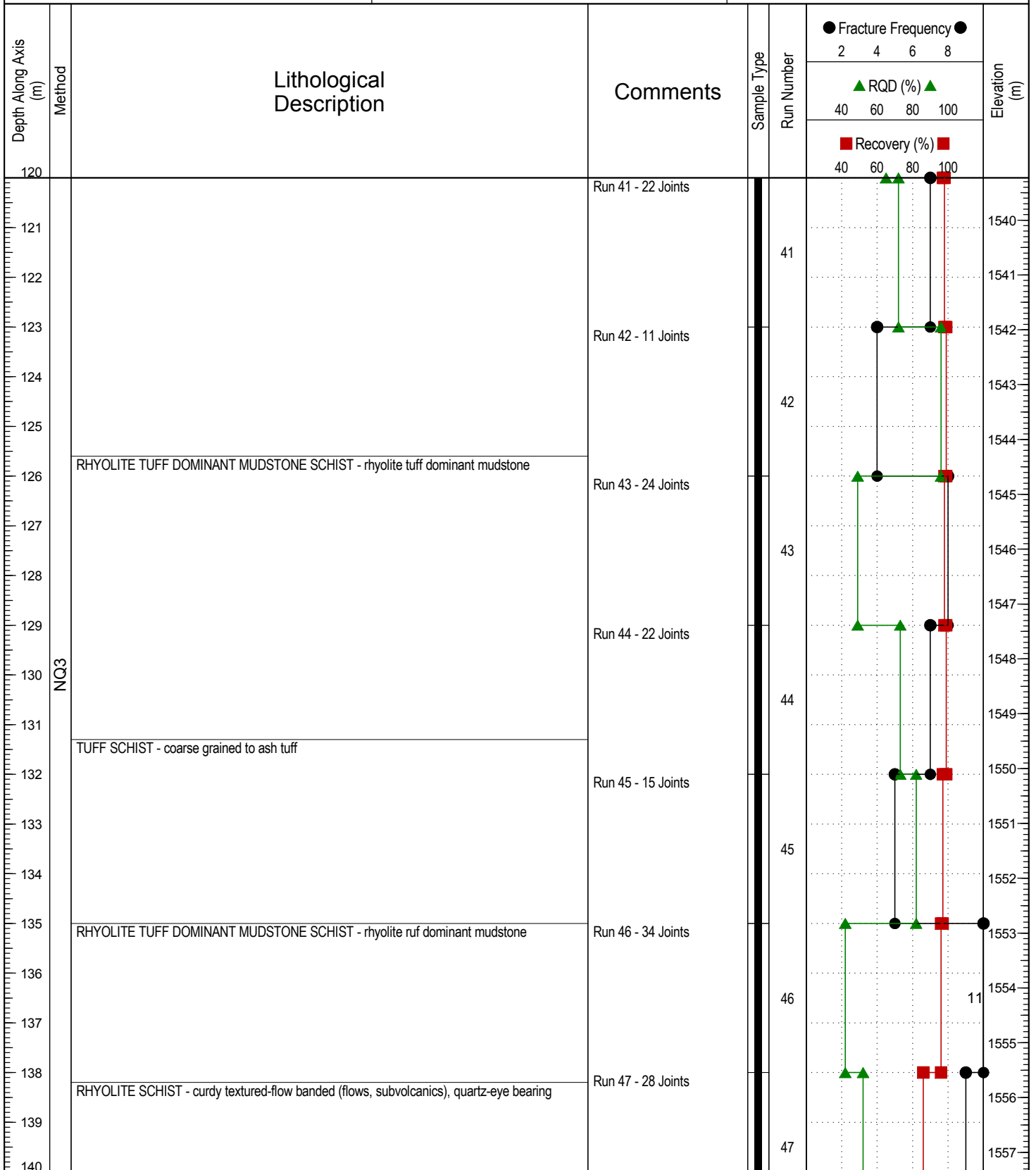
Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1430.473 m

Yukon

UTM: 414651.702 E; 6815747.356 N; Z 9 NAD83



TETRA TECH EBA

Contractor: Geotech Drilling

Completion Depth: 237 m

Drilling Rig Type: Zinex A5

Start Date: 2015 September 4

Logged By: Client

Completion Date: 2015 August 10

Reviewed By: SK

Page 7 of 12



# BMC Minerals (No. 1) Ltd.

## Borehole No: K15-206

Project: KZK Hydrogeological Assessment

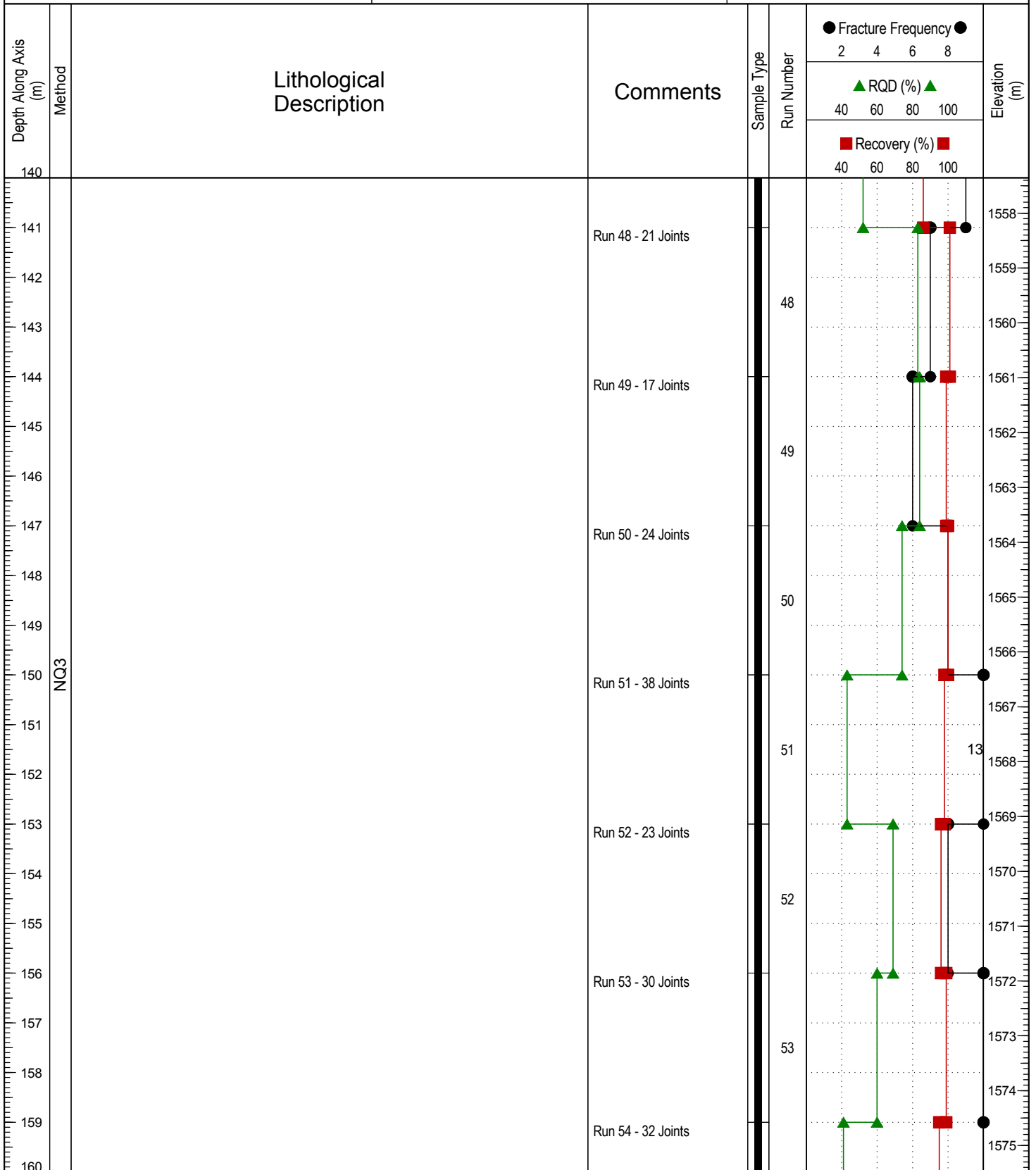
Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1430.473 m

Yukon

UTM: 414651.702 E; 6815747.356 N; Z 9 NAD83



TETRA TECH EBA

Contractor: Geotech Drilling

Completion Depth: 237 m

Drilling Rig Type: Zinex A5

Start Date: 2015 September 4

Logged By: Client

Completion Date: 2015 August 10

Reviewed By: SK

Page 8 of 12

# BMC Minerals (No. 1) Ltd.

# Borehole No: K15-206

Project: KZK Hydrogeological Assessment

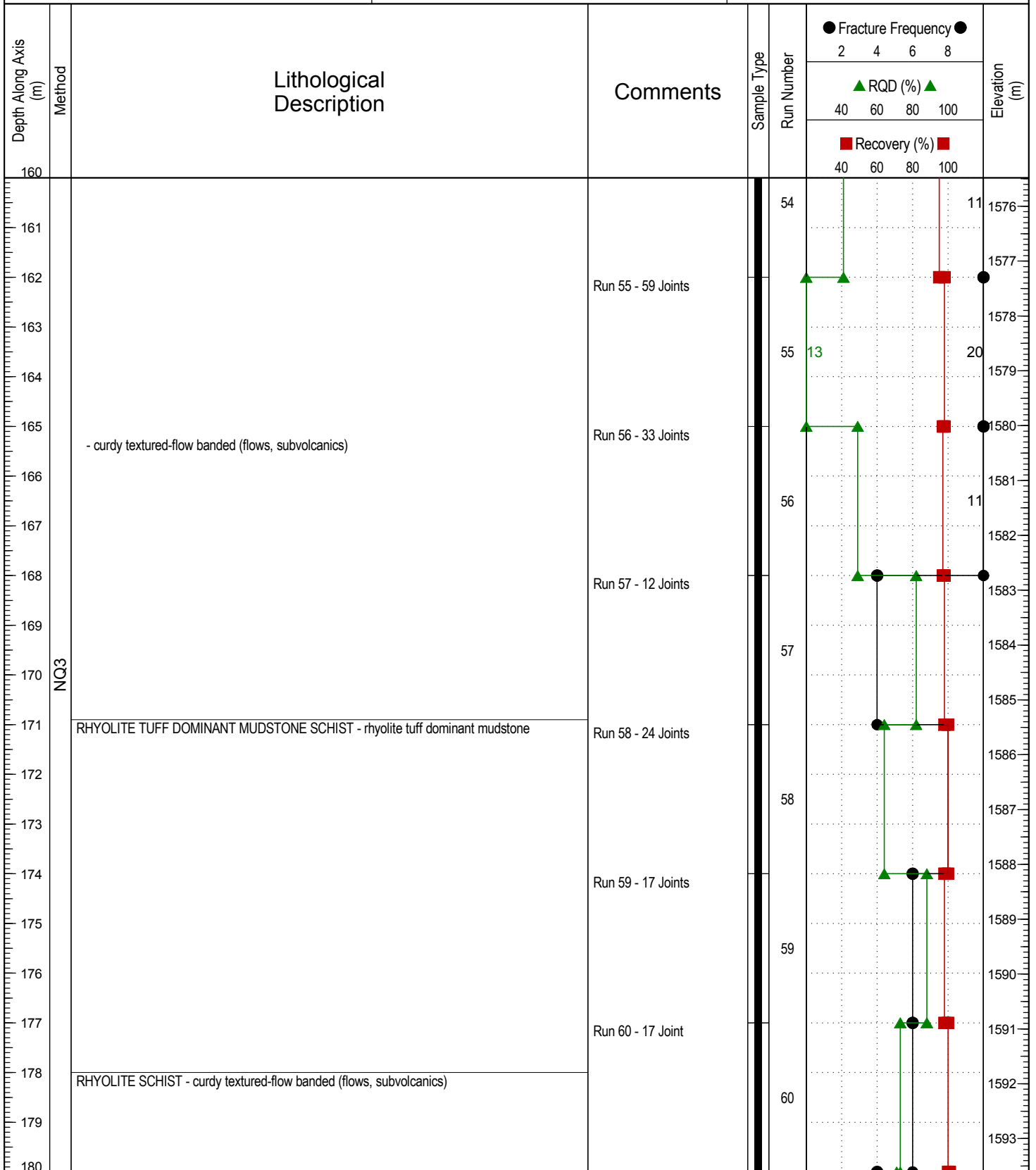
Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1430.473 m

Yukon

UTM: 414651.702 E; 6815747.356 N; Z 9 NAD83



**TETRA TECH EBA**

Contractor: Geotech Drilling

Completion Depth: 237 m

Drilling Rig Type: Zinex A5

Start Date: 2015 September 4

Logged By: Client

Completion Date: 2015 August 10

Reviewed By: SK

Page 9 of 12

# BMC Minerals (No. 1) Ltd.

# Borehole No: K15-206

Project: KZK Hydrogeological Assessment

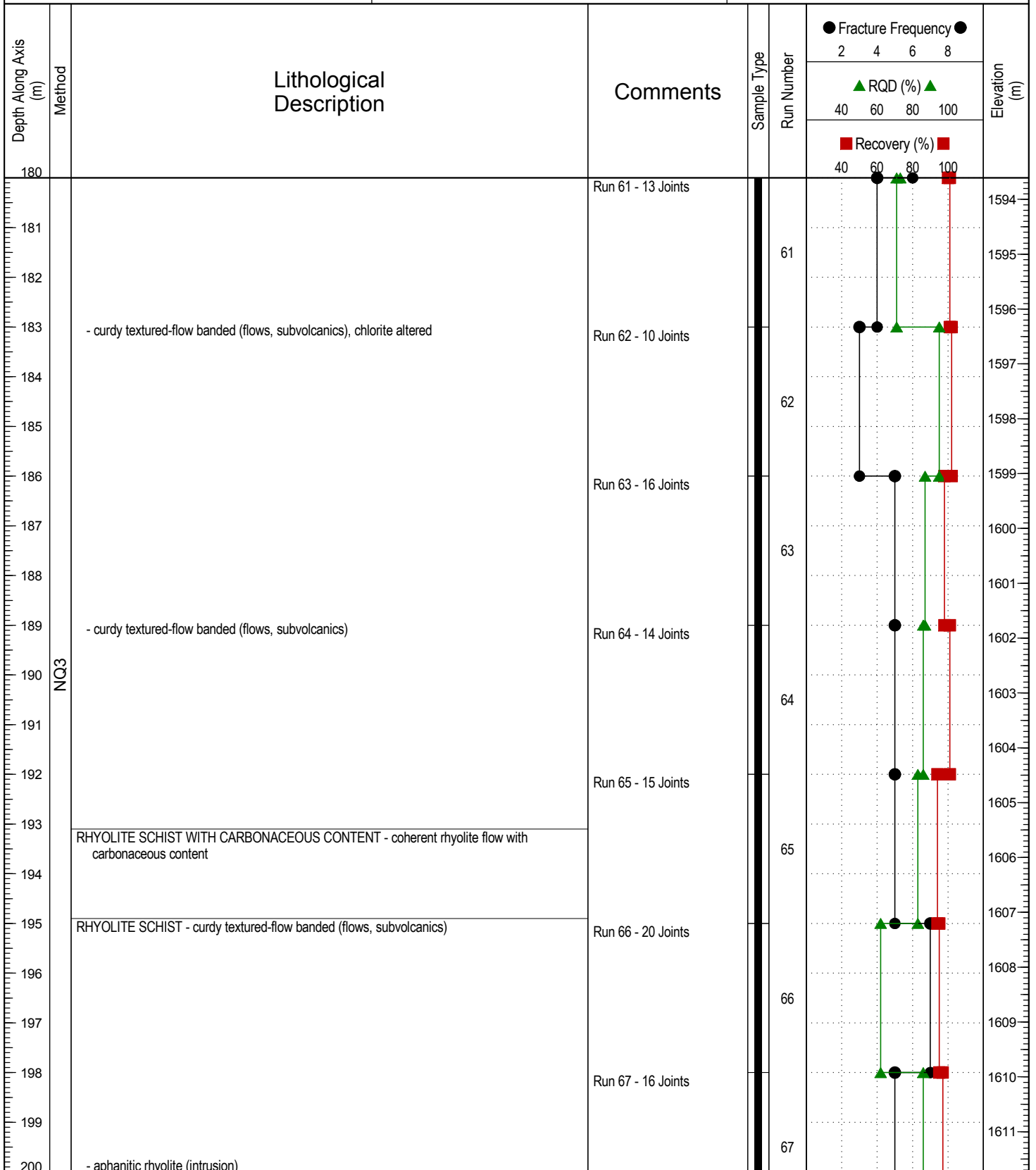
Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1430.473 m

Yukon

UTM: 414651.702 E; 6815747.356 N; Z 9 NAD83



**TETRA TECH EBA**

Contractor: Geotech Drilling

Completion Depth: 237 m

Drilling Rig Type: Zinex A5

Start Date: 2015 September 4

Logged By: Client

Completion Date: 2015 August 10

Reviewed By: SK

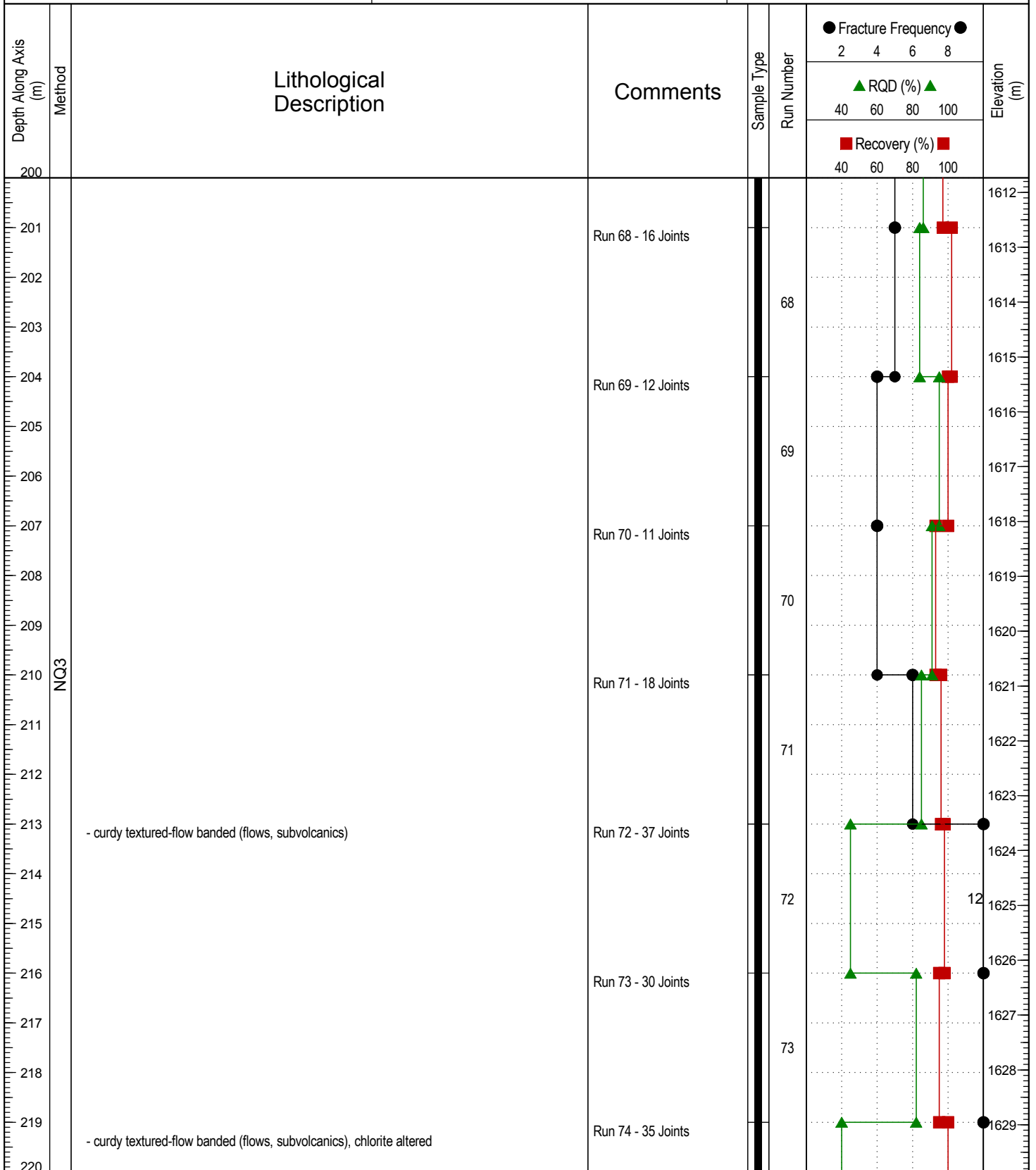
Page 10 of 12

**BMC Minerals (No. 1) Ltd.**

**Borehole No: K15-206**

Project: KZK Hydrogeological Assessment  
 Location: Kudz Ze Kayah  
 Yukon

Project No: ENVMIN03071-01  
 Ground Elev: 1430.473 m  
 UTM: 414651.702 E; 6815747.356 N; Z 9 NAD83



**TETRA TECH EBA**

Contractor: Geotech Drilling  
 Drilling Rig Type: Zinex A5  
 Logged By: Client  
 Reviewed By: SK

Completion Depth: 237 m  
 Start Date: 2015 September 4  
 Completion Date: 2015 August 10  
 Page 11 of 12

# BMC Minerals (No. 1) Ltd.

## Borehole No: K15-206

Project: KZK Hydrogeological Assessment

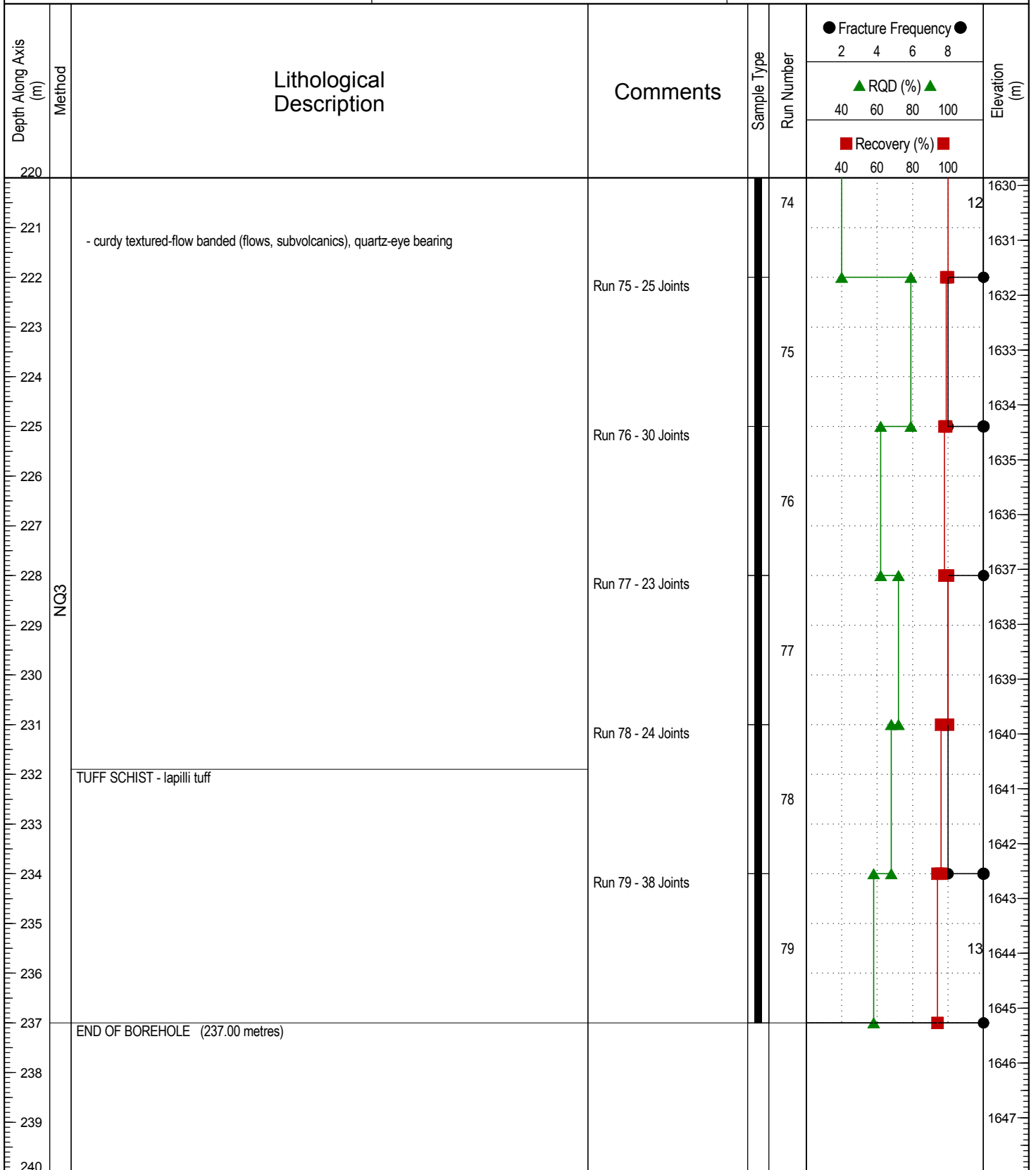
Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1430.473 m

Yukon

UTM: 414651.702 E; 6815747.356 N; Z 9 NAD83



TETRA TECH EBA

Contractor: Geotech Drilling

Completion Depth: 237 m

Drilling Rig Type: Zinex A5

Start Date: 2015 September 4

Logged By: Client

Completion Date: 2015 August 10

Reviewed By: SK

Page 12 of 12

# BMC Minerals (No. 1) Ltd.

## Borehole No: K15-242

Project: KZK Hydrogeological Assessment

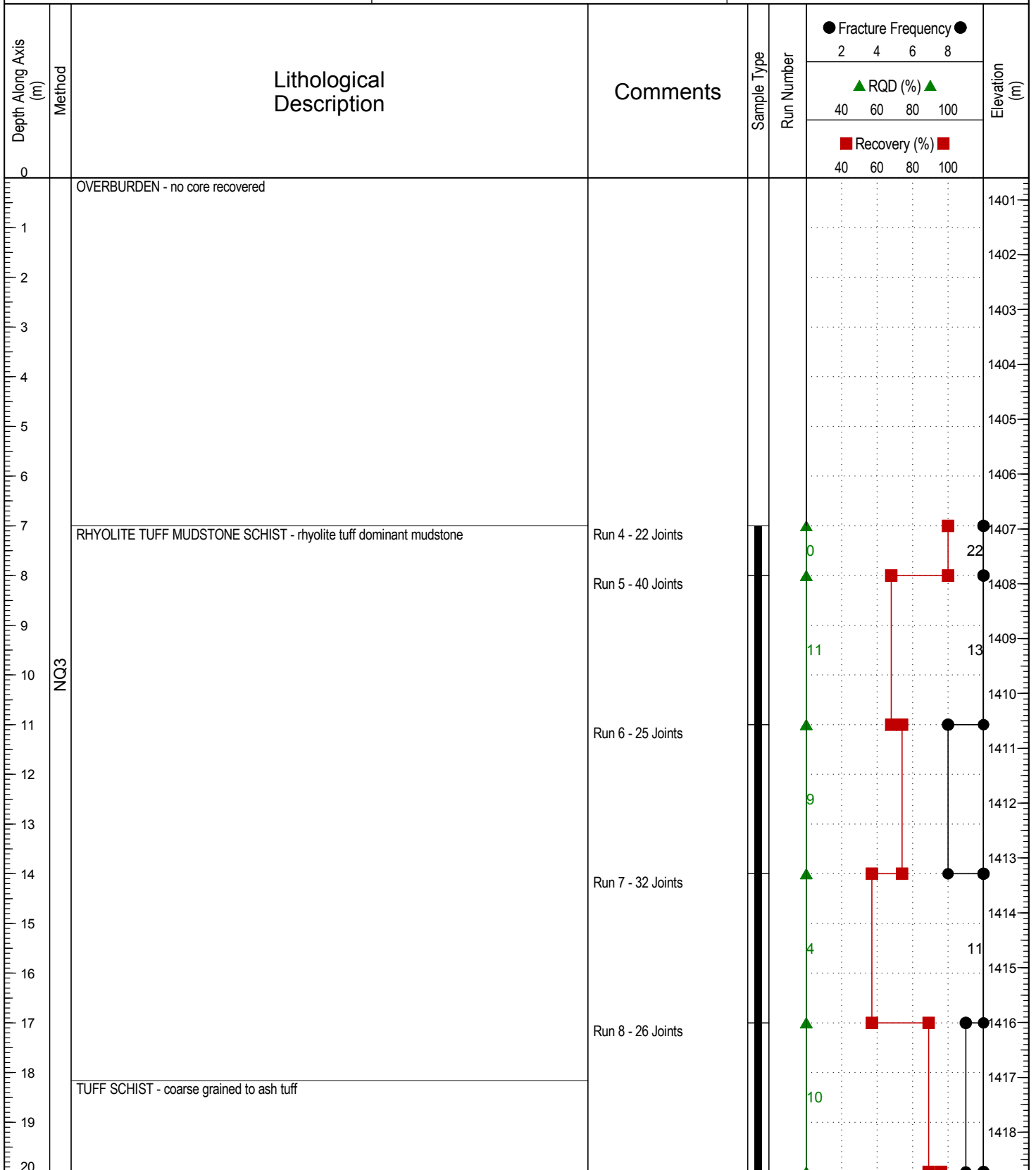
Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1400.599 m

Yukon

UTM: 415134.726 E; 6815439.024 N; Z 9 NAD83



**TETRA TECH EBA**

Contractor: Geotech Drilling

Completion Depth: 161 m

Drilling Rig Type: Hydracore

Start Date: 2015 September 18

Logged By: Client

Completion Date: 2015 September 2

Reviewed By: SK

Page 1 of 9

# BMC Minerals (No. 1) Ltd.

## Borehole No: K15-242

Project: KZK Hydrogeological Assessment

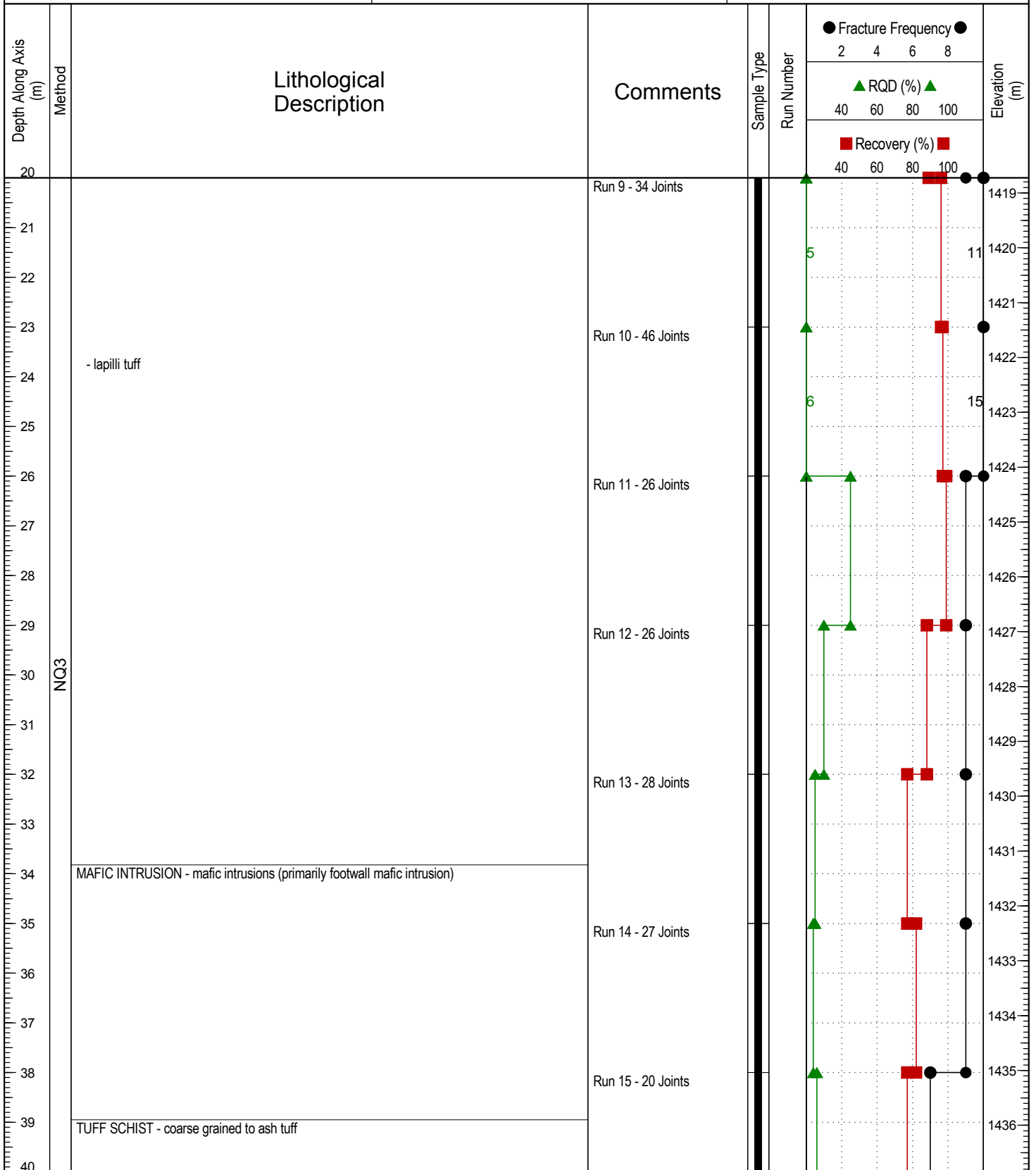
Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1400.599 m

Yukon

UTM: 415134.726 E; 6815439.024 N; Z 9 NAD83



TETRA TECH EBA

Contractor: Geotech Drilling

Completion Depth: 161 m

Drilling Rig Type: Hydracore

Start Date: 2015 September 18

Logged By: Client

Completion Date: 2015 September 2

Reviewed By: SK

Page 2 of 9

# BMC Minerals (No. 1) Ltd.

## Borehole No: K15-242

Project: KZK Hydrogeological Assessment

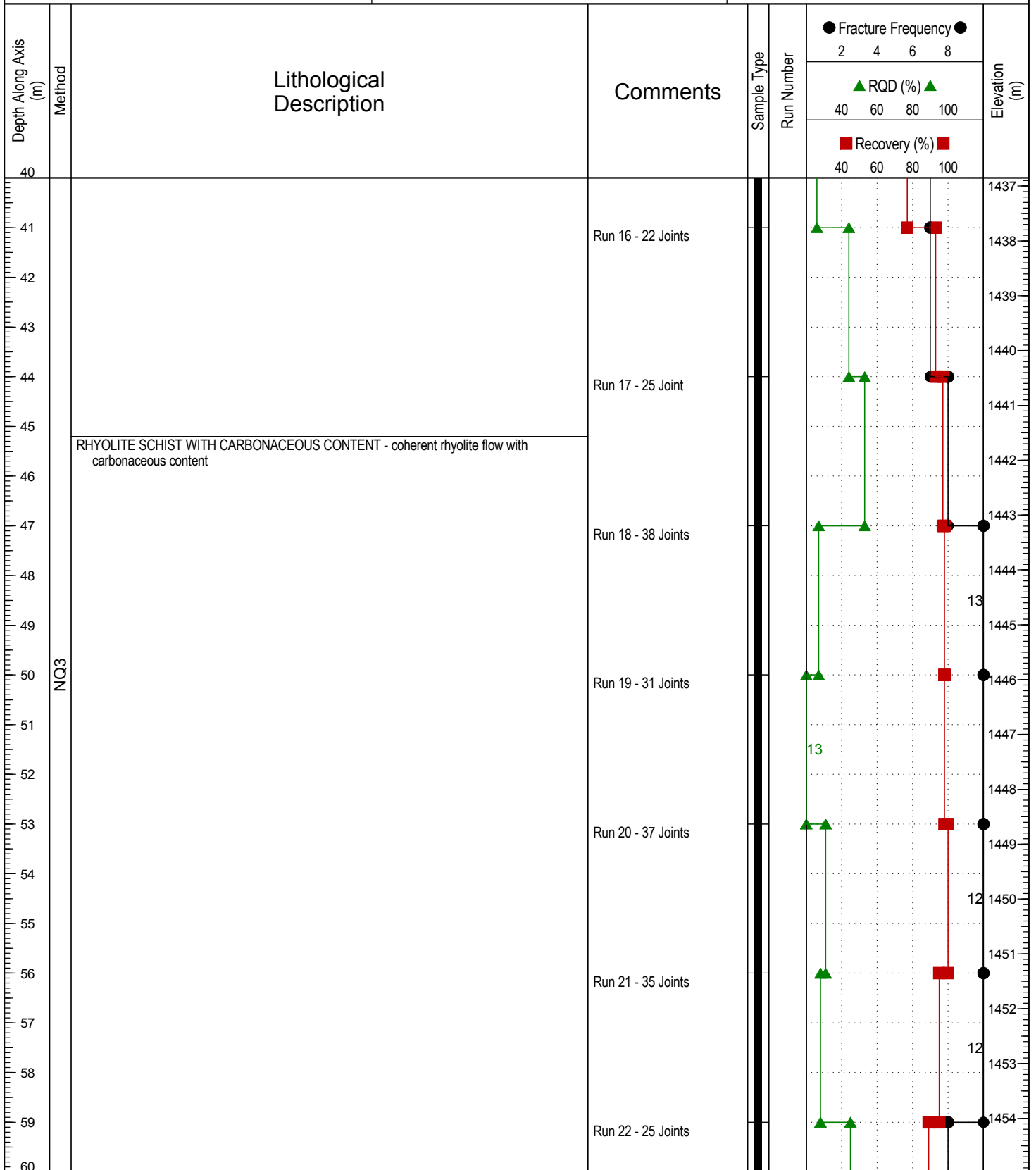
Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1400.599 m

Yukon

UTM: 415134.726 E; 6815439.024 N; Z 9 NAD83



TETRA TECH EBA

Contractor: Geotech Drilling

Completion Depth: 161 m

Drilling Rig Type: Hydracore

Start Date: 2015 September 18

Logged By: Client

Completion Date: 2015 September 2

Reviewed By: SK

Page 3 of 9

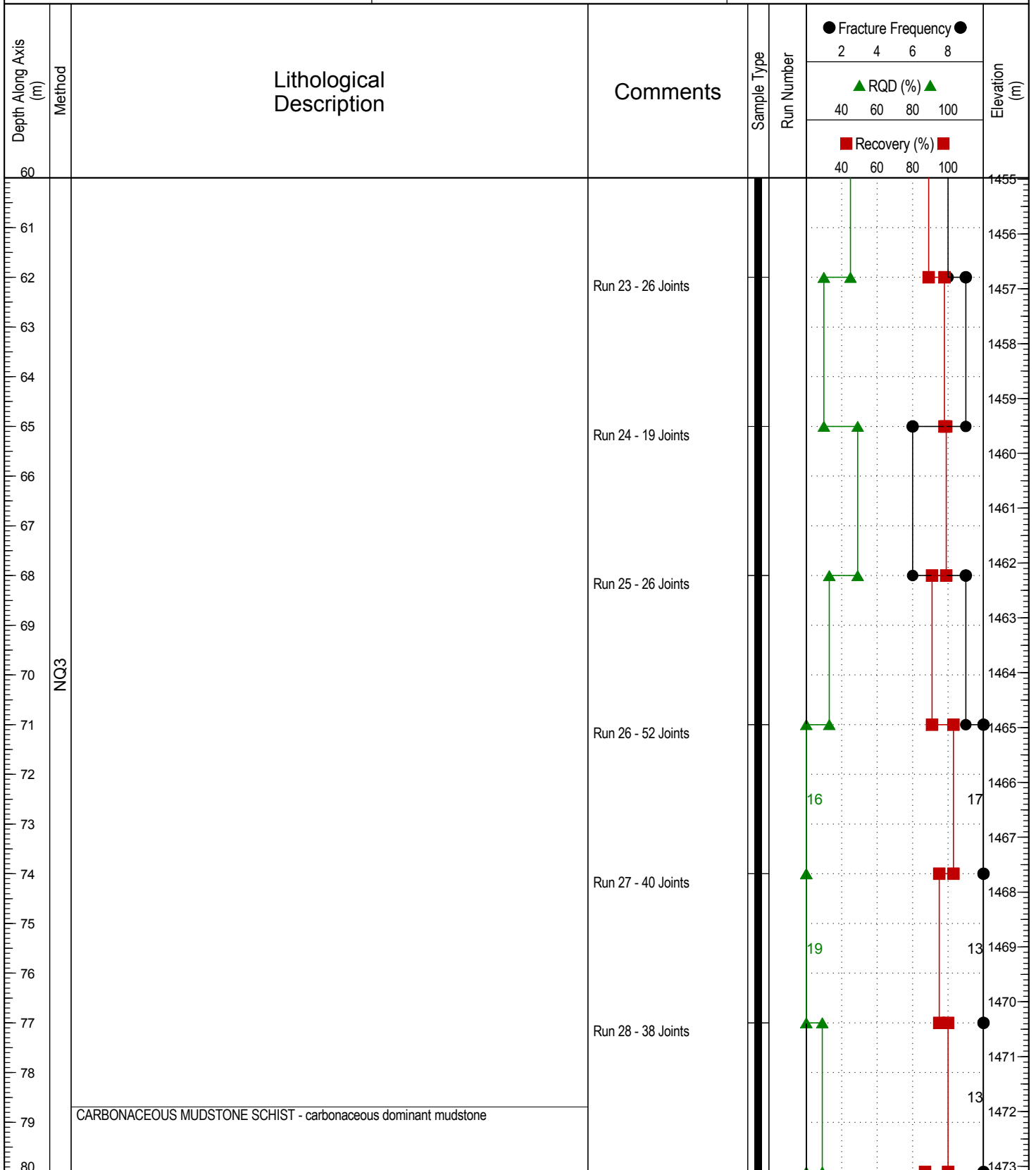


**BMC Minerals (No. 1) Ltd.**

**Borehole No: K15-242**

Project: KZK Hydrogeological Assessment  
 Location: Kudz Ze Kayah  
 Yukon

Project No: ENVMIN03071-01  
 Ground Elev: 1400.599 m  
 UTM: 415134.726 E; 6815439.024 N; Z 9 NAD83



Contractor: Geotech Drilling  
 Drilling Rig Type: Hydracore  
 Logged By: Client  
 Reviewed By: SK

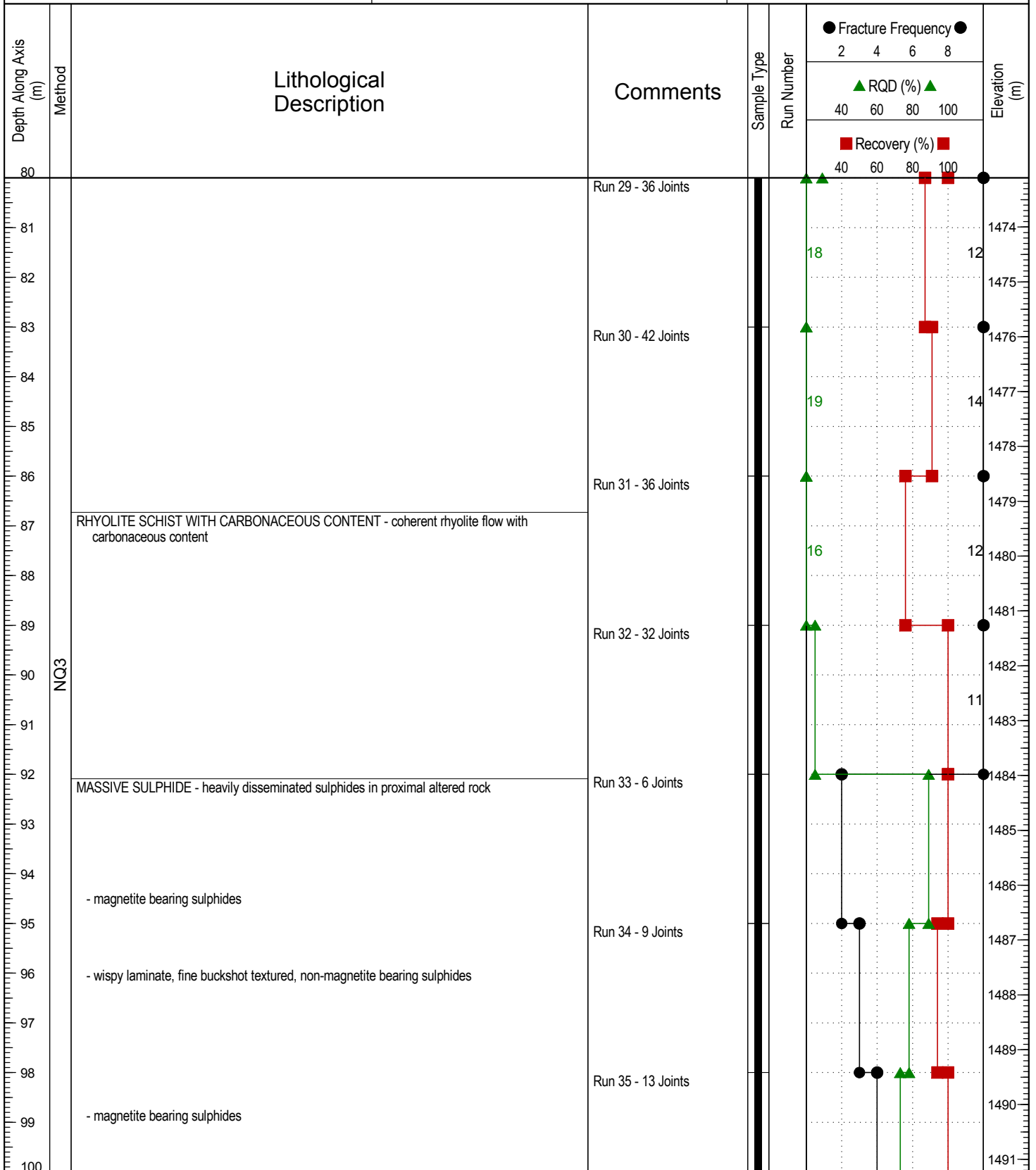
Completion Depth: 161 m  
 Start Date: 2015 September 18  
 Completion Date: 2015 September 2  
 Page 4 of 9

# BMC Minerals (No. 1) Ltd.

# Borehole No: K15-242

Project: KZK Hydrogeological Assessment  
 Location: Kudz Ze Kayah  
 Yukon

Project No: ENVMIN03071-01  
 Ground Elev: 1400.599 m  
 UTM: 415134.726 E; 6815439.024 N; Z 9 NAD83



TETRA TECH EBA

Contractor: Geotech Drilling  
 Drilling Rig Type: Hydracore  
 Logged By: Client  
 Reviewed By: SK

Completion Depth: 161 m  
 Start Date: 2015 September 18  
 Completion Date: 2015 September 2  
 Page 5 of 9

**BMC Minerals (No. 1) Ltd.**

**Borehole No: K15-242**

Project: KZK Hydrogeological Assessment

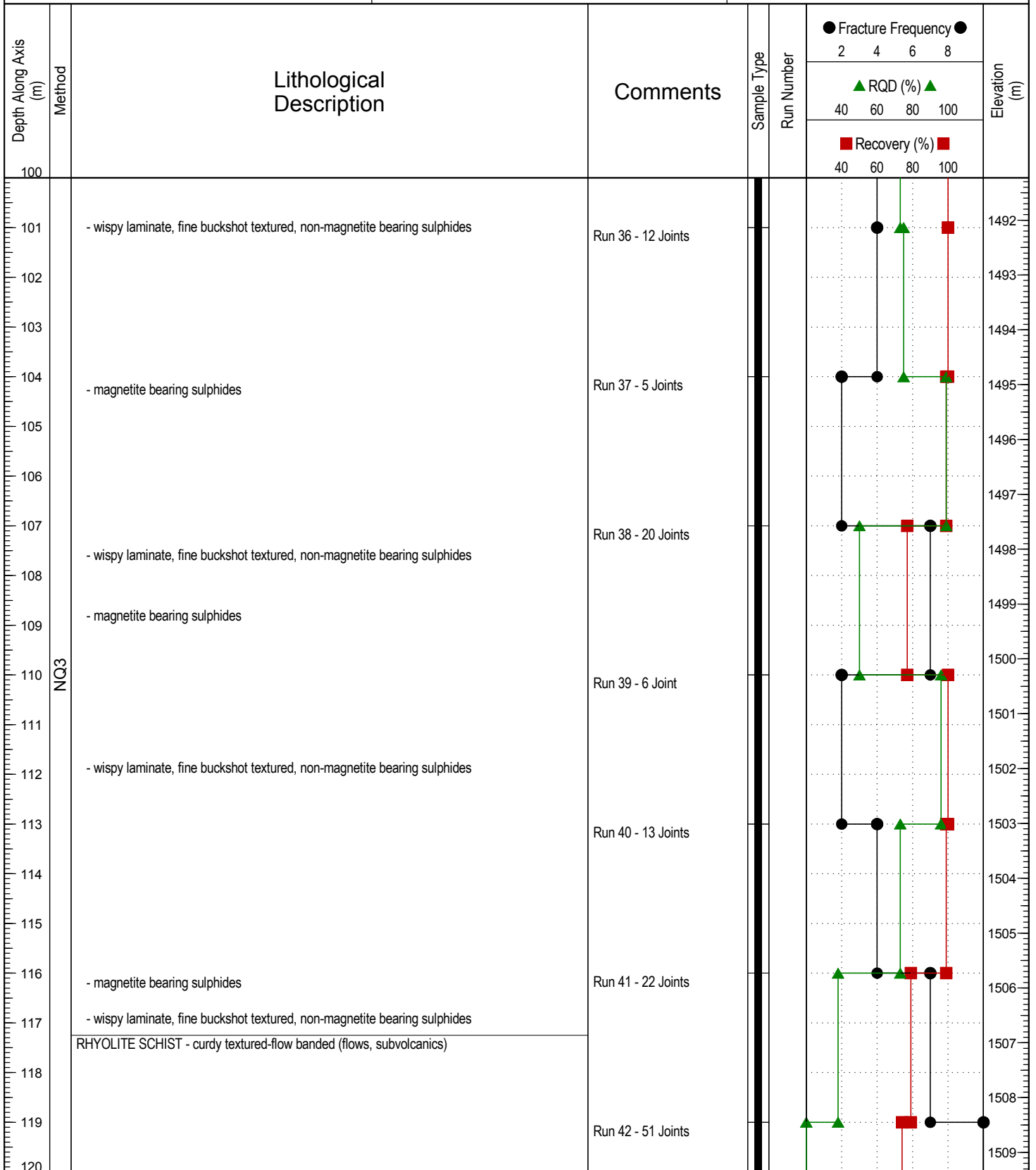
Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1400.599 m

Yukon

UTM: 415134.726 E; 6815439.024 N; Z 9 NAD83



**TETRA TECH EBA**

Contractor: Geotech Drilling

Completion Depth: 161 m

Drilling Rig Type: Hydracore

Start Date: 2015 September 18

Logged By: Client

Completion Date: 2015 September 2

Reviewed By: SK

Page 6 of 9

# BMC Minerals (No. 1) Ltd.

## Borehole No: K15-242

Project: KZK Hydrogeological Assessment

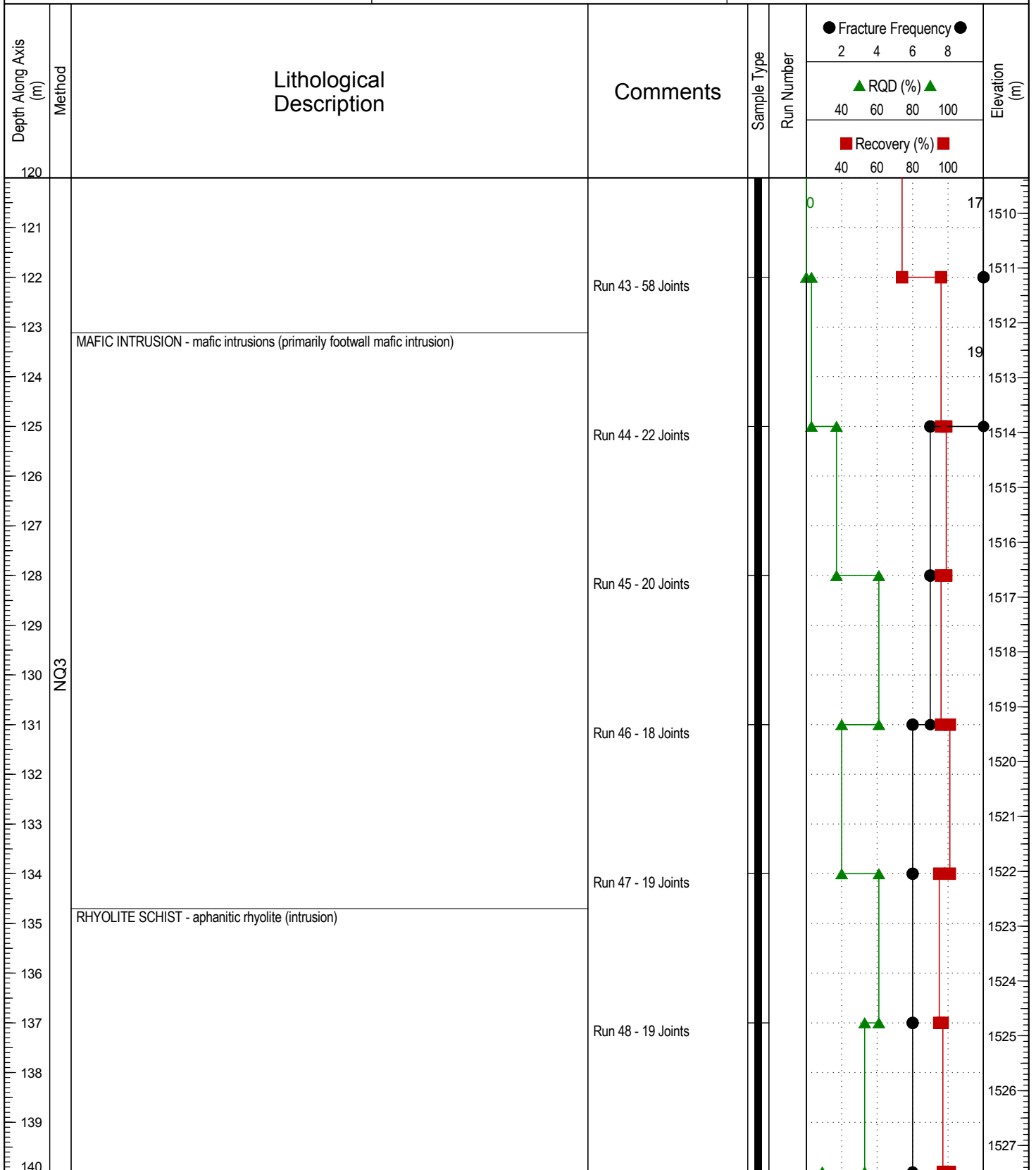
Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1400.599 m

Yukon

UTM: 415134.726 E; 6815439.024 N; Z 9 NAD83



TETRA TECH EBA

Contractor: Geotech Drilling

Completion Depth: 161 m

Drilling Rig Type: Hydracore

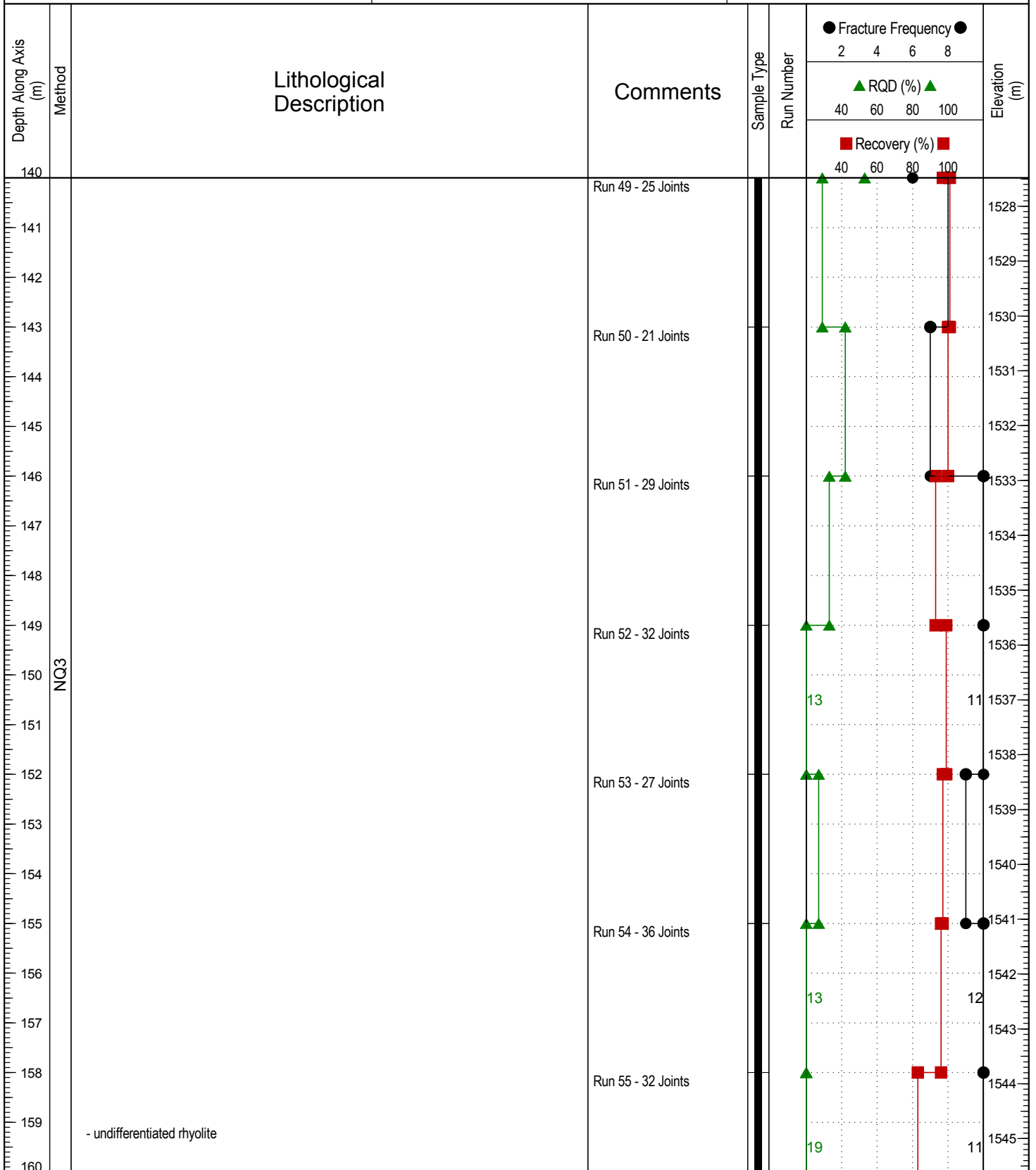
Start Date: 2015 September 18

Logged By: Client

Completion Date: 2015 September 2

Reviewed By: SK

Page 7 of 9



**BMC Minerals (No. 1) Ltd.**

**Borehole No: K15-242**

Project: KZK Hydrogeological Assessment

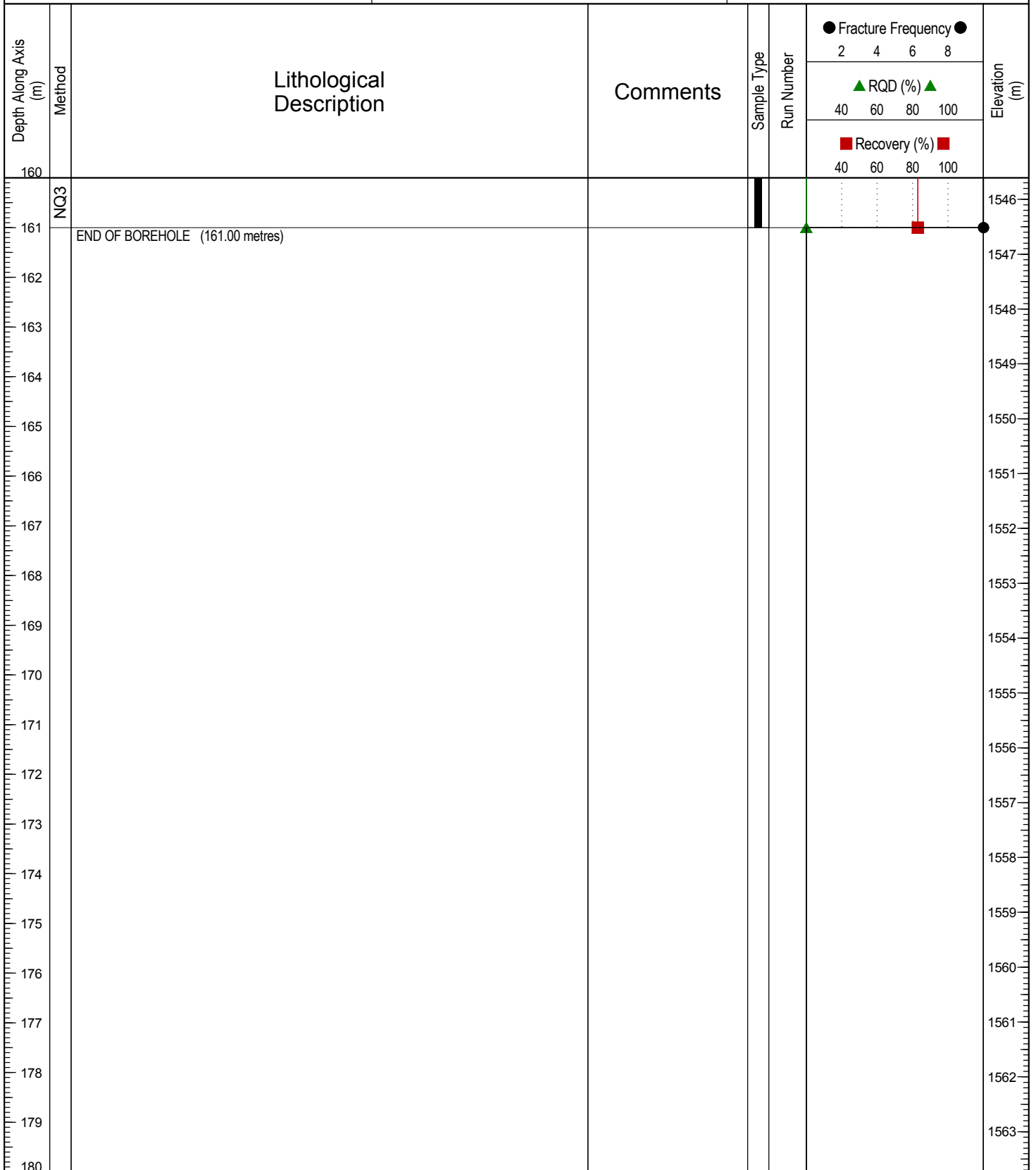
Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1400.599 m

Yukon

UTM: 415134.726 E; 6815439.024 N; Z 9 NAD83



**TETRA TECH EBA**

Contractor: Geotech Drilling

Completion Depth: 161 m

Drilling Rig Type: Hydracore

Start Date: 2015 September 18

Logged By: Client

Completion Date: 2015 September 2

Reviewed By: SK

Page 9 of 9

**BMC Minerals (No. 1) Ltd.**

**Borehole No: K15-248-VWP**

Project: KZK Hydrogeological Assessment

Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1424.375 m

Yukon

UTM: 415203.339 E; 6815282.948 N; Z 9 NAD83

Depth Along Axis (m)	Method	Lithological Description	Comments	Sample Type	Run Number	Fracture Frequency ●				VW33426	VW33429	VW33431	Elevation (m)
						2	4	6	8				
						▲ RQD (%) ▲							
						■ Recovery (%) ■							
						40	60	80	100				
						40	60	80	100				
0	HQ3	OVERBURDEN - no core recovered											1425
1													1426
2													1427
3													1428
4													1429
5													1430
6													1431
7													1432
8													1433
9													1434
10													1435
11													1436
12													1437
13													1438
14													1439
15													1440
16													1441
17													1442
18													1443
19													
20													



**TETRA TECH EBA**

Contractor: Geotech Drilling

Completion Depth: 278.5 m

Drilling Rig Type: Hydracore

Start Date: 2015 August 1

Logged By: Client

Completion Date: 2015 September 10

Reviewed By: SK

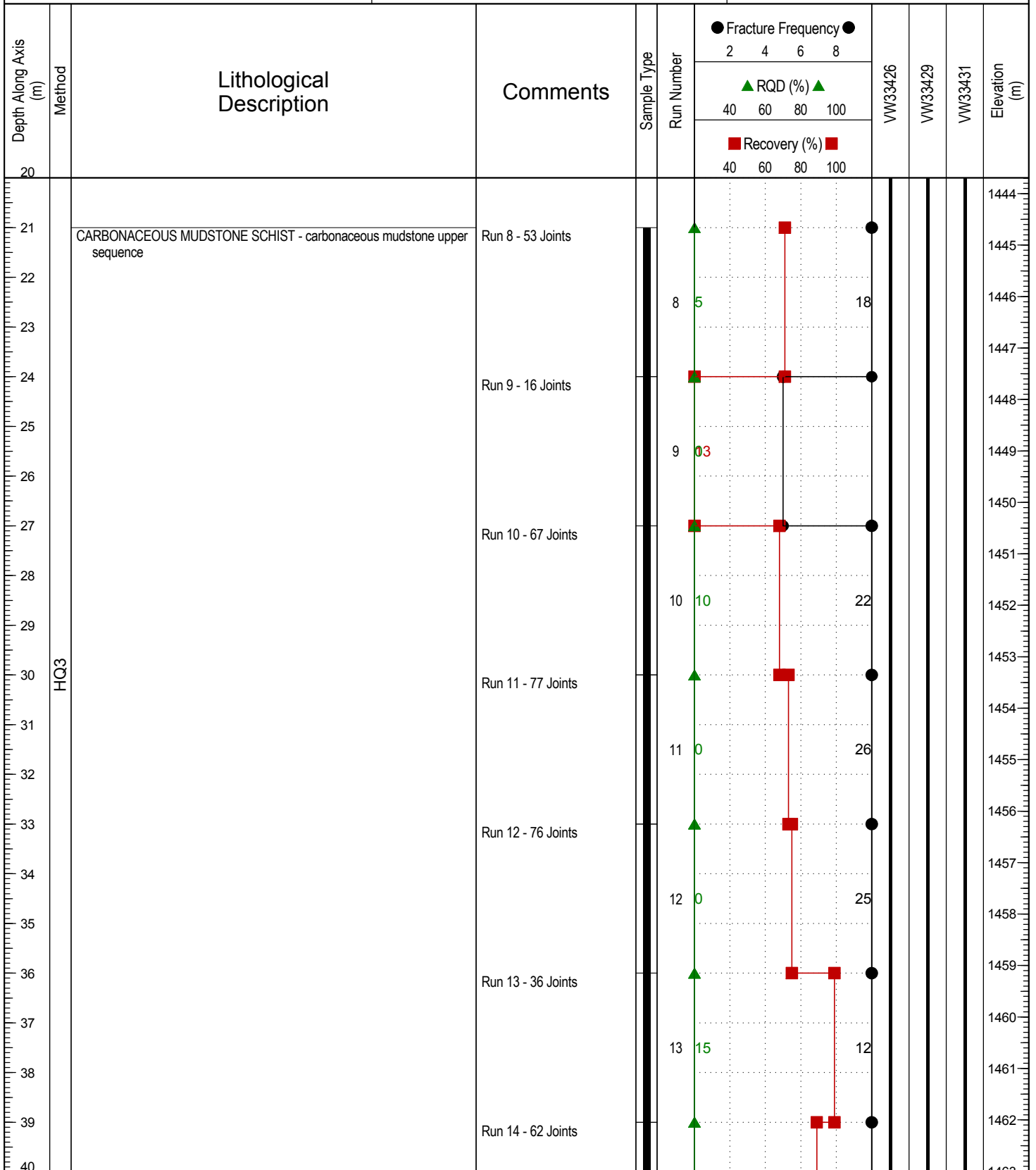
Page 1 of 14

# BMC Minerals (No. 1) Ltd.

# Borehole No: K15-248-VWP

Project: KZK Hydrogeological Assessment  
 Location: Kudz Ze Kayah  
 Yukon

Project No: ENVMIN03071-01  
 Ground Elev: 1424.375 m  
 UTM: 415203.339 E; 6815282.948 N; Z 9 NAD83



Contractor: Geotech Drilling  
 Drilling Rig Type: Hydracore  
 Logged By: Client  
 Reviewed By: SK

Completion Depth: 278.5 m  
 Start Date: 2015 August 1  
 Completion Date: 2015 September 10  
 Page 2 of 14

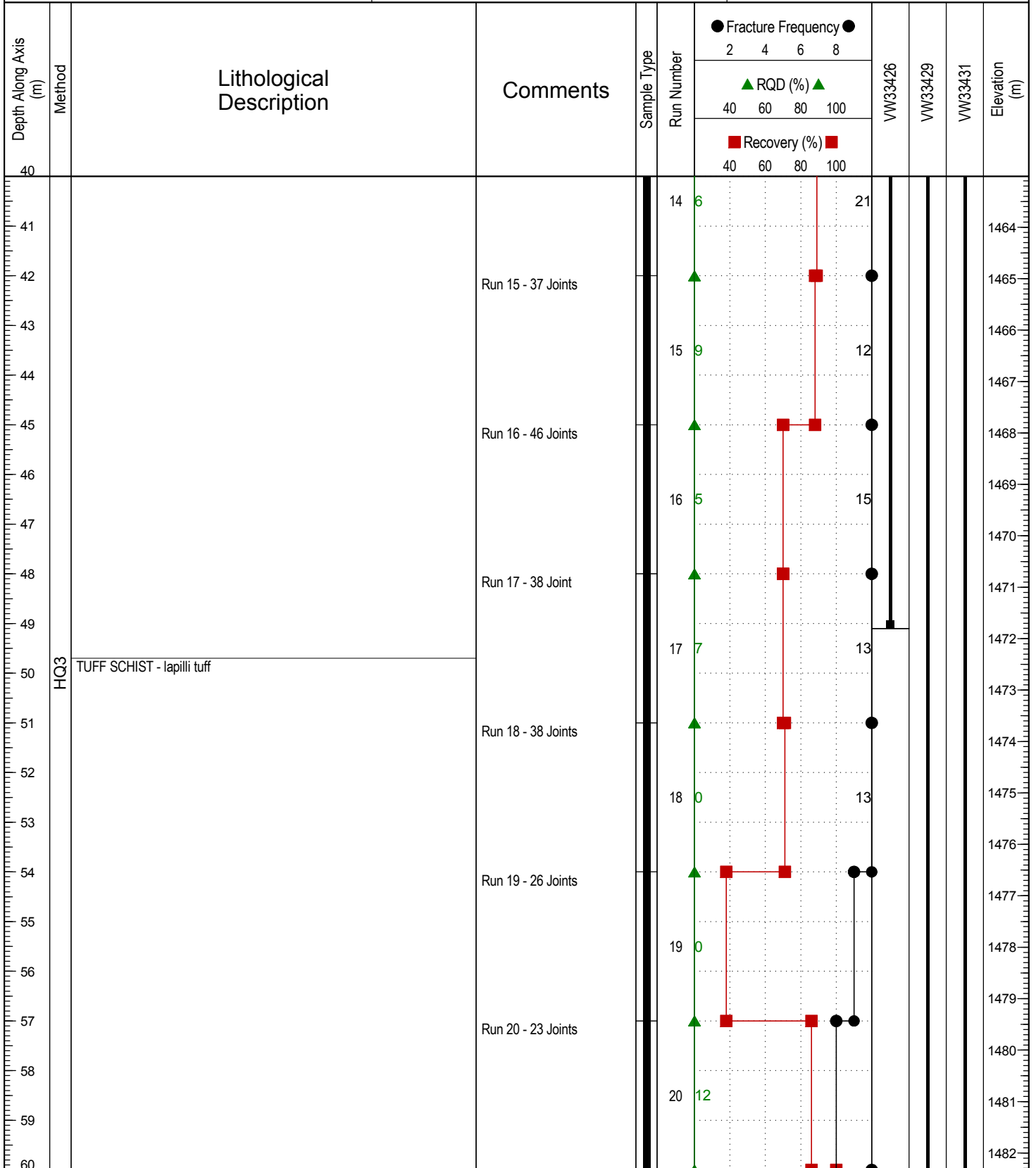


# BMC Minerals (No. 1) Ltd.

# Borehole No: K15-248-VWP

Project: KZK Hydrogeological Assessment  
 Location: Kudz Ze Kayah  
 Yukon

Project No: ENVMIN03071-01  
 Ground Elev: 1424.375 m  
 UTM: 415203.339 E; 6815282.948 N; Z 9 NAD83



Contractor: Geotech Drilling  
 Drilling Rig Type: Hydracore  
 Logged By: Client  
 Reviewed By: SK

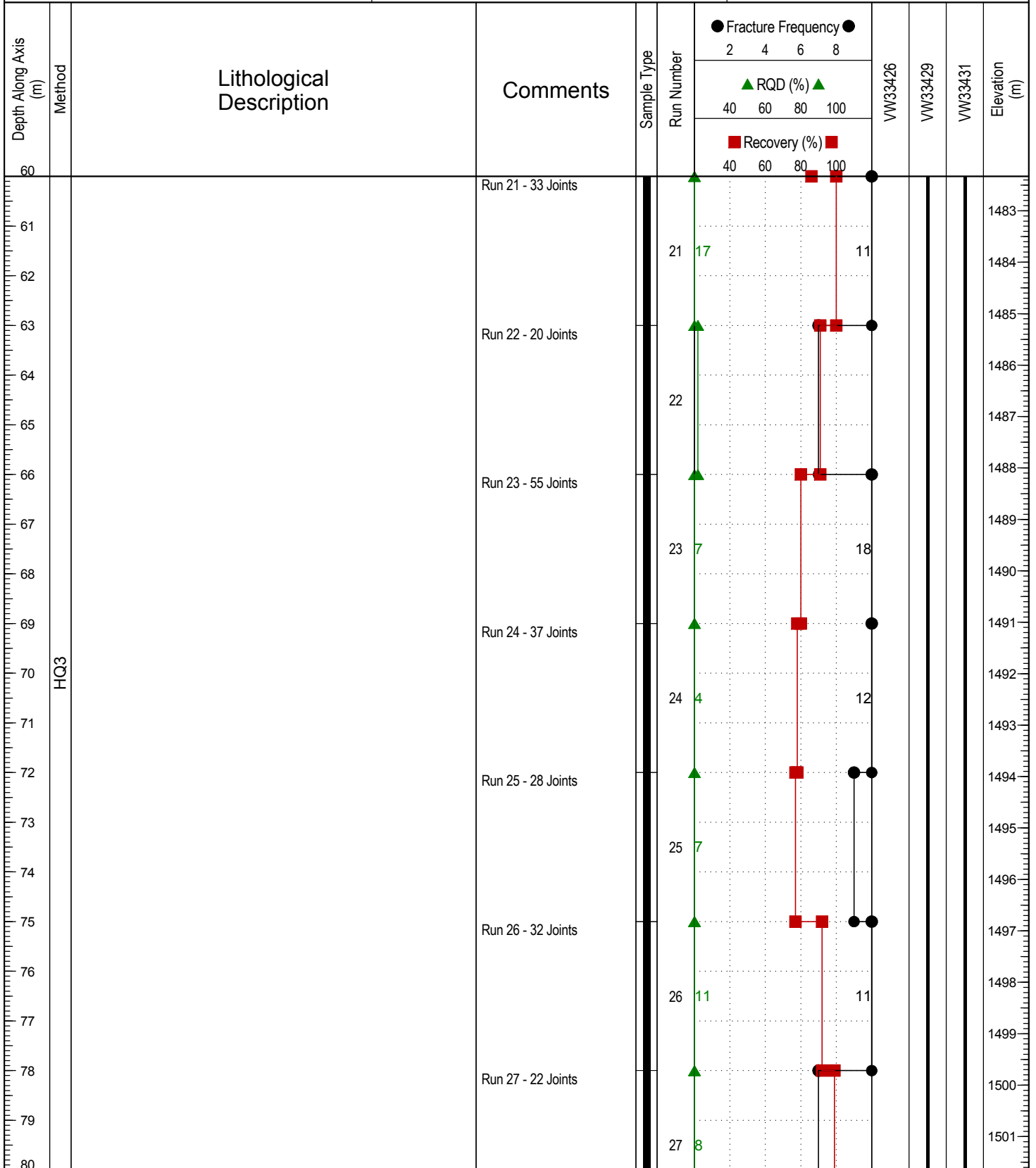
Completion Depth: 278.5 m  
 Start Date: 2015 August 1  
 Completion Date: 2015 September 10  
 Page 3 of 14

**BMC Minerals (No. 1) Ltd.**

**Borehole No: K15-248-VWP**

Project: KZK Hydrogeological Assessment  
 Location: Kudz Ze Kayah  
 Yukon

Project No: ENVMIN03071-01  
 Ground Elev: 1424.375 m  
 UTM: 415203.339 E; 6815282.948 N; Z 9 NAD83



Contractor: Geotech Drilling  
 Drilling Rig Type: Hydracore  
 Logged By: Client  
 Reviewed By: SK

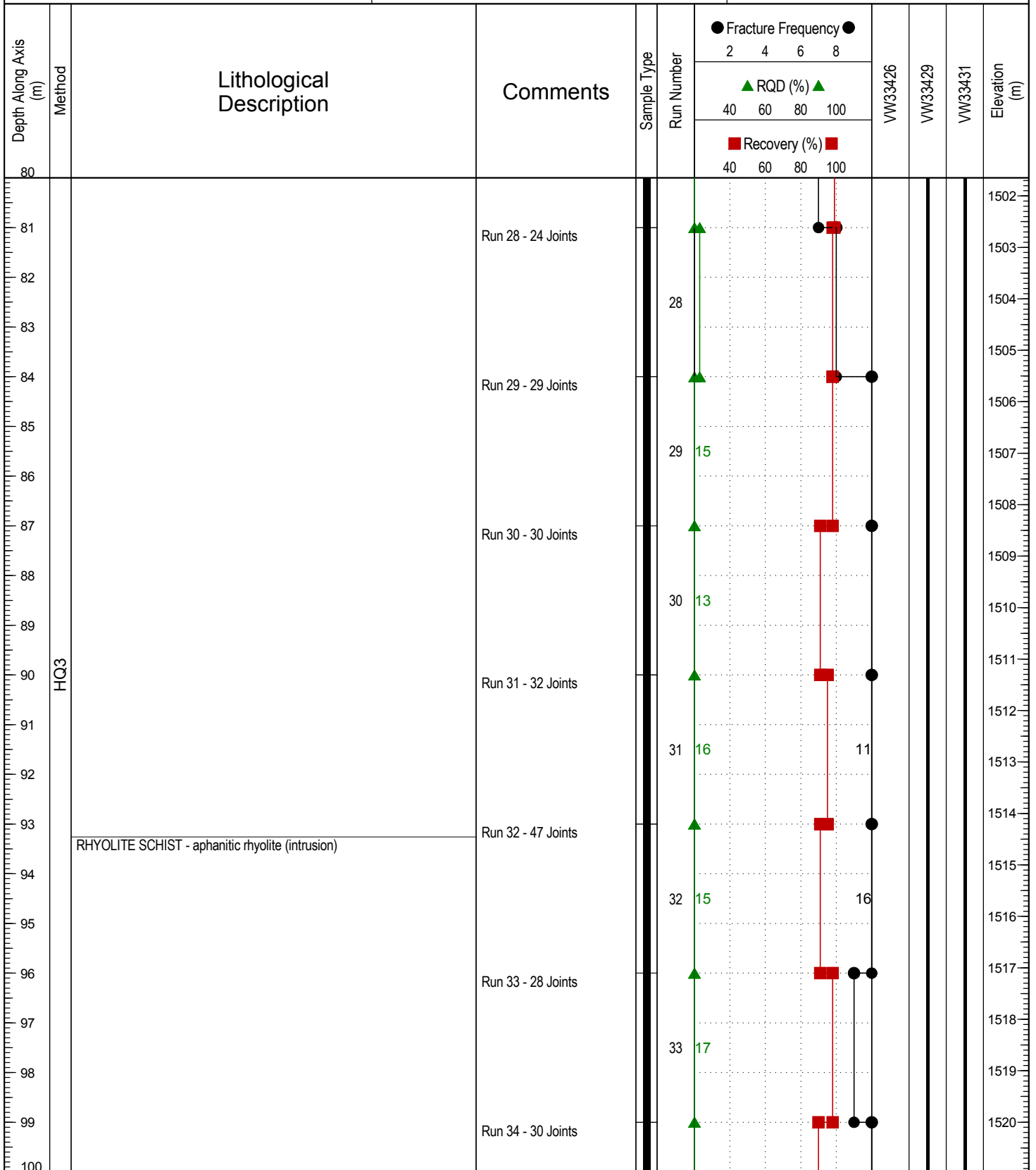
Completion Depth: 278.5 m  
 Start Date: 2015 August 1  
 Completion Date: 2015 September 10  
 Page 4 of 14

# BMC Minerals (No. 1) Ltd.

# Borehole No: K15-248-VWP

Project: KZK Hydrogeological Assessment  
 Location: Kudz Ze Kayah  
 Yukon

Project No: ENVMIN03071-01  
 Ground Elev: 1424.375 m  
 UTM: 415203.339 E; 6815282.948 N; Z 9 NAD83



Contractor: Geotech Drilling  
 Drilling Rig Type: Hydracore  
 Logged By: Client  
 Reviewed By: SK

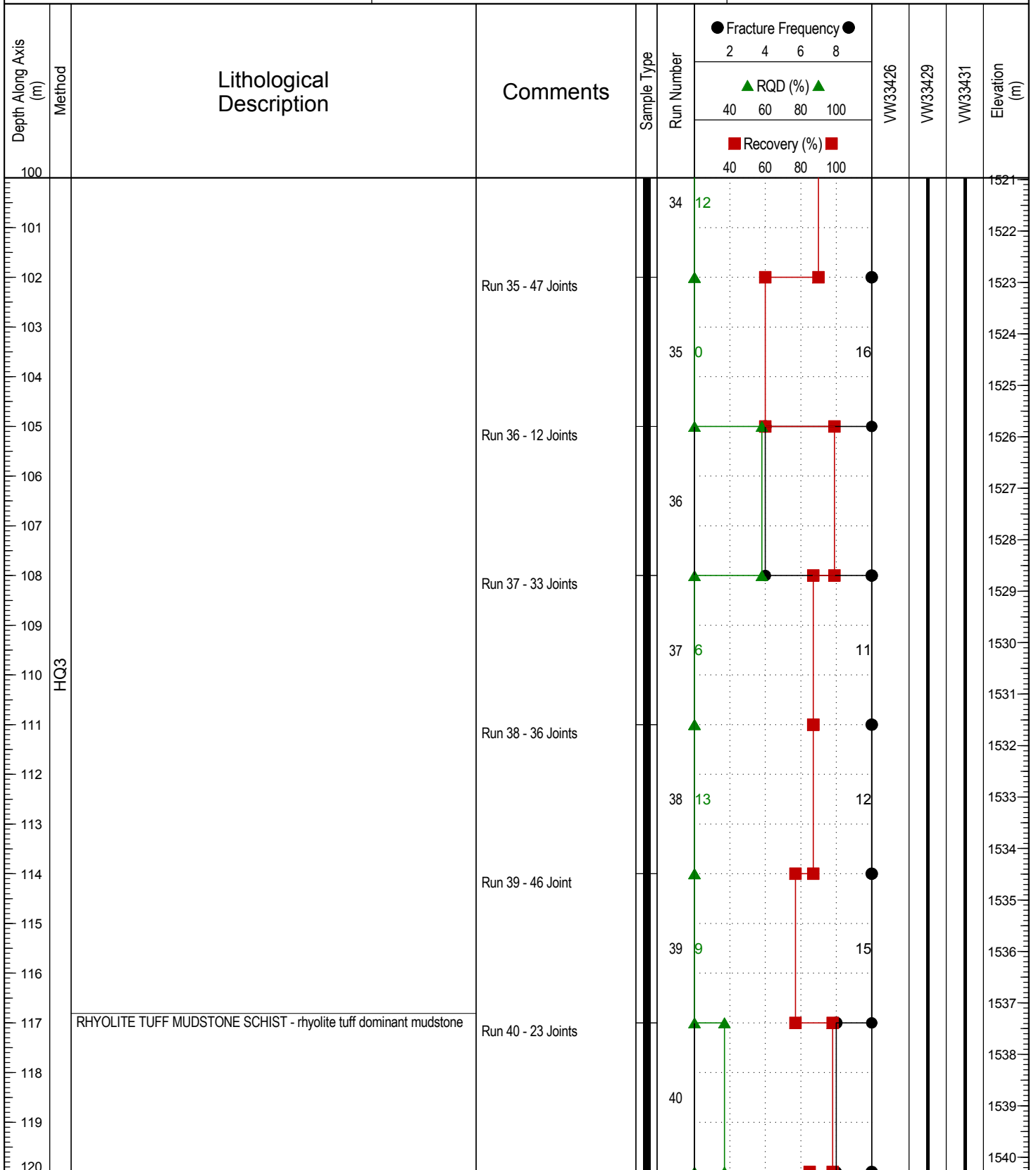
Completion Depth: 278.5 m  
 Start Date: 2015 August 1  
 Completion Date: 2015 September 10  
 Page 5 of 14

**BMC Minerals (No. 1) Ltd.**

**Borehole No: K15-248-VWP**

Project: KZK Hydrogeological Assessment  
 Location: Kudz Ze Kayah  
 Yukon

Project No: ENVMIN03071-01  
 Ground Elev: 1424.375 m  
 UTM: 415203.339 E; 6815282.948 N; Z 9 NAD83



Contractor: Geotech Drilling  
 Drilling Rig Type: Hydracore  
 Logged By: Client  
 Reviewed By: SK

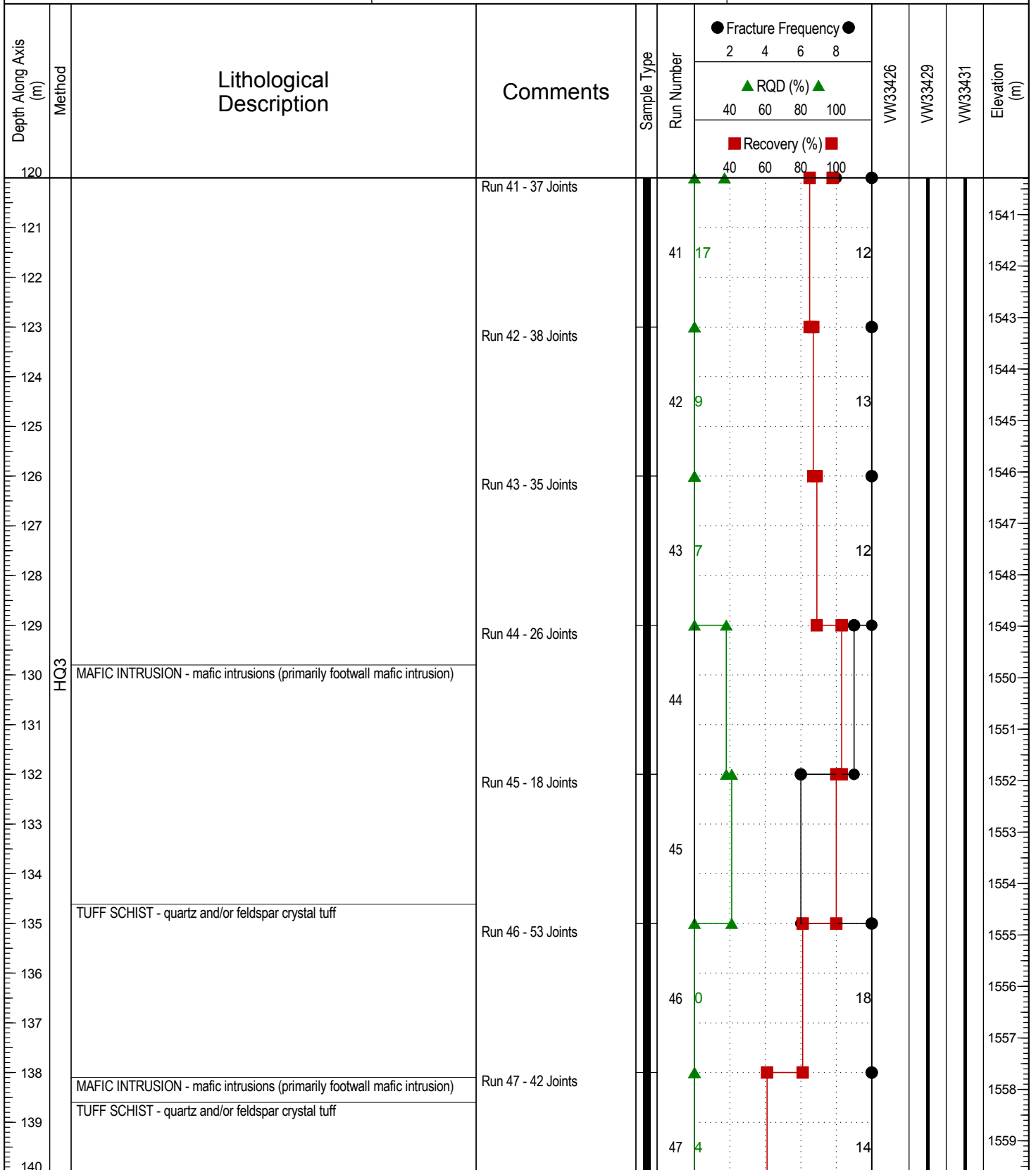
Completion Depth: 278.5 m  
 Start Date: 2015 August 1  
 Completion Date: 2015 September 10  
 Page 6 of 14

# BMC Minerals (No. 1) Ltd.

# Borehole No: K15-248-VWP

Project: KZK Hydrogeological Assessment  
 Location: Kudz Ze Kayah  
 Yukon

Project No: ENVMIN03071-01  
 Ground Elev: 1424.375 m  
 UTM: 415203.339 E; 6815282.948 N; Z 9 NAD83



Contractor: Geotech Drilling  
 Drilling Rig Type: Hydracore  
 Logged By: Client  
 Reviewed By: SK

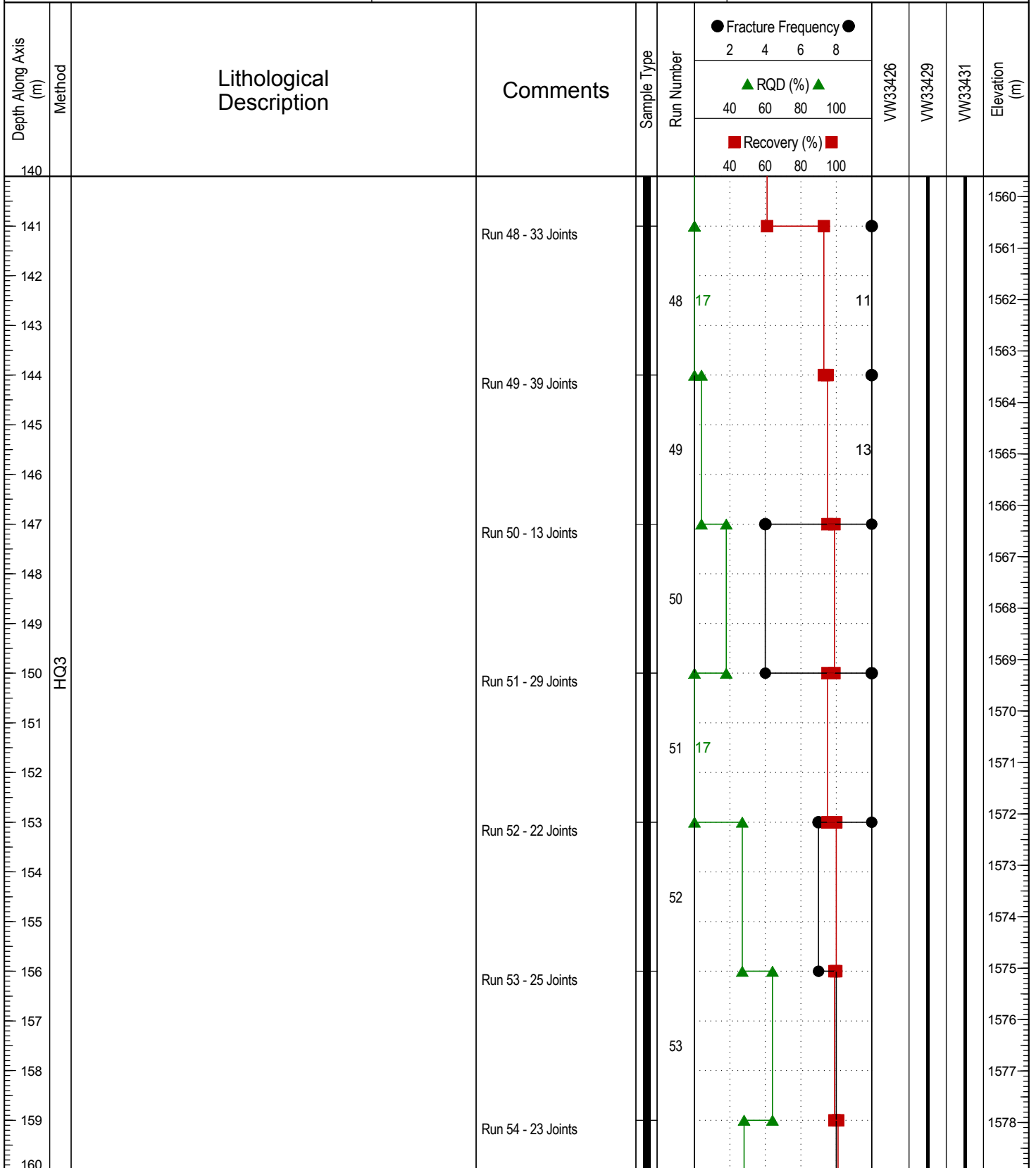
Completion Depth: 278.5 m  
 Start Date: 2015 August 1  
 Completion Date: 2015 September 10  
 Page 7 of 14

# BMC Minerals (No. 1) Ltd.

# Borehole No: K15-248-VWP

Project: KZK Hydrogeological Assessment  
 Location: Kudz Ze Kayah  
 Yukon

Project No: ENVMIN03071-01  
 Ground Elev: 1424.375 m  
 UTM: 415203.339 E; 6815282.948 N; Z 9 NAD83



Contractor: Geotech Drilling  
 Drilling Rig Type: Hydracore  
 Logged By: Client  
 Reviewed By: SK

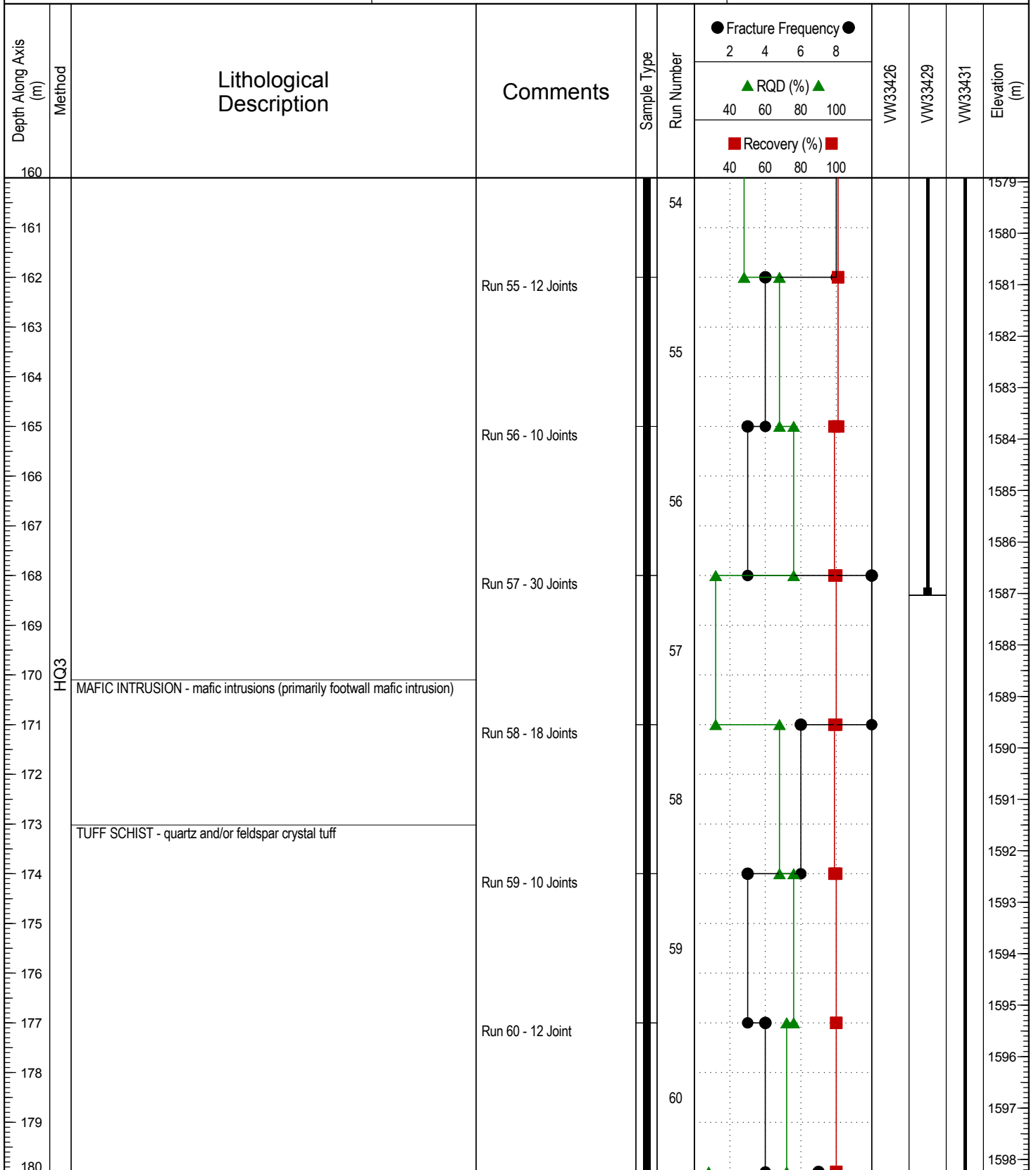
Completion Depth: 278.5 m  
 Start Date: 2015 August 1  
 Completion Date: 2015 September 10  
 Page 8 of 14

**BMC Minerals (No. 1) Ltd.**

**Borehole No: K15-248-VWP**

Project: KZK Hydrogeological Assessment  
 Location: Kudz Ze Kayah  
 Yukon

Project No: ENVMIN03071-01  
 Ground Elev: 1424.375 m  
 UTM: 415203.339 E; 6815282.948 N; Z 9 NAD83



Contractor: Geotech Drilling  
 Drilling Rig Type: Hydracore  
 Logged By: Client  
 Reviewed By: SK

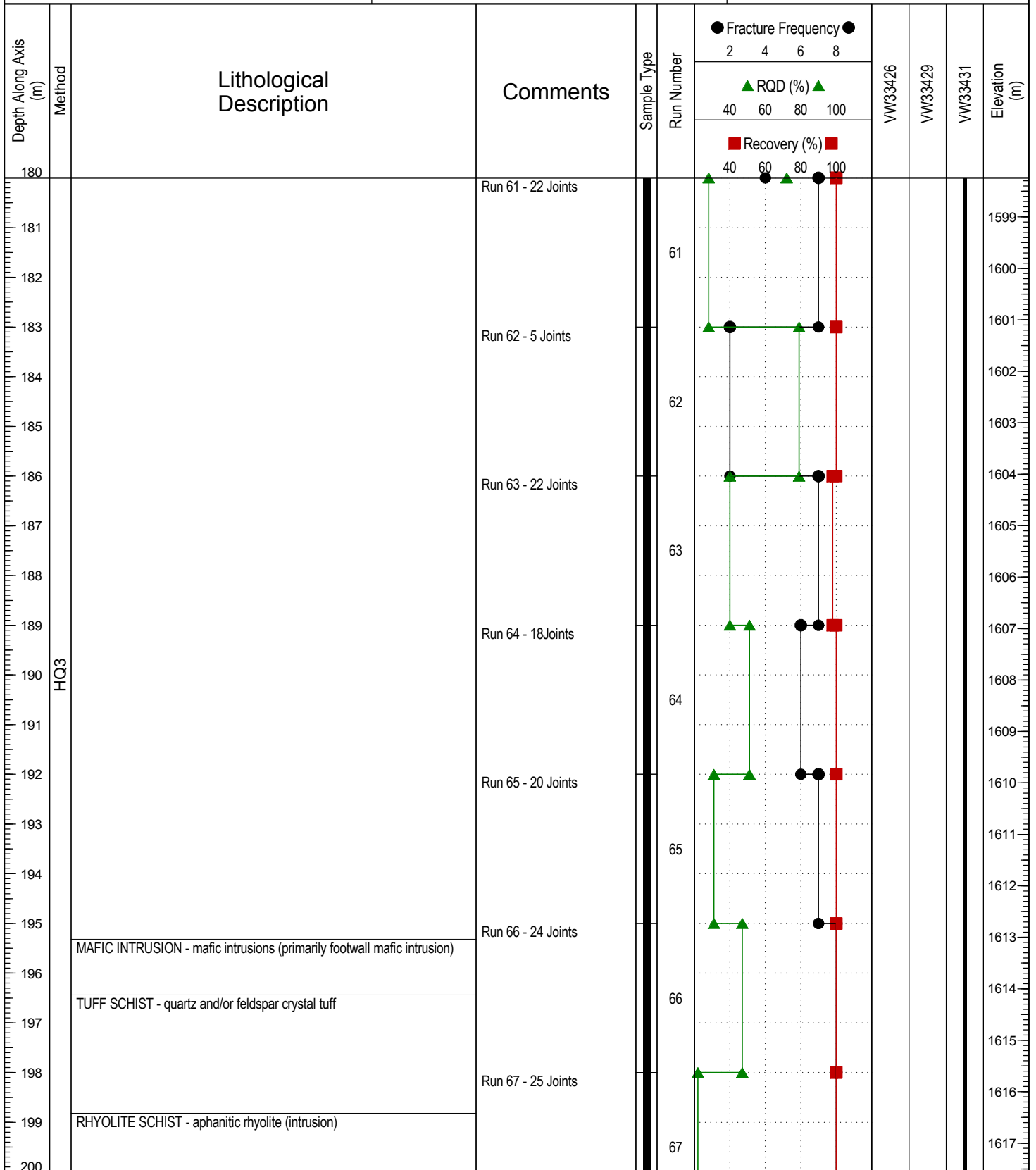
Completion Depth: 278.5 m  
 Start Date: 2015 August 1  
 Completion Date: 2015 September 10  
 Page 9 of 14

**BMC Minerals (No. 1) Ltd.**

**Borehole No: K15-248-VWP**

Project: KZK Hydrogeological Assessment  
 Location: Kudz Ze Kayah  
 Yukon

Project No: ENVMIN03071-01  
 Ground Elev: 1424.375 m  
 UTM: 415203.339 E; 6815282.948 N; Z 9 NAD83



Contractor: Geotech Drilling  
 Drilling Rig Type: Hydracore  
 Logged By: Client  
 Reviewed By: SK

Completion Depth: 278.5 m  
 Start Date: 2015 August 1  
 Completion Date: 2015 September 10  
 Page 10 of 14

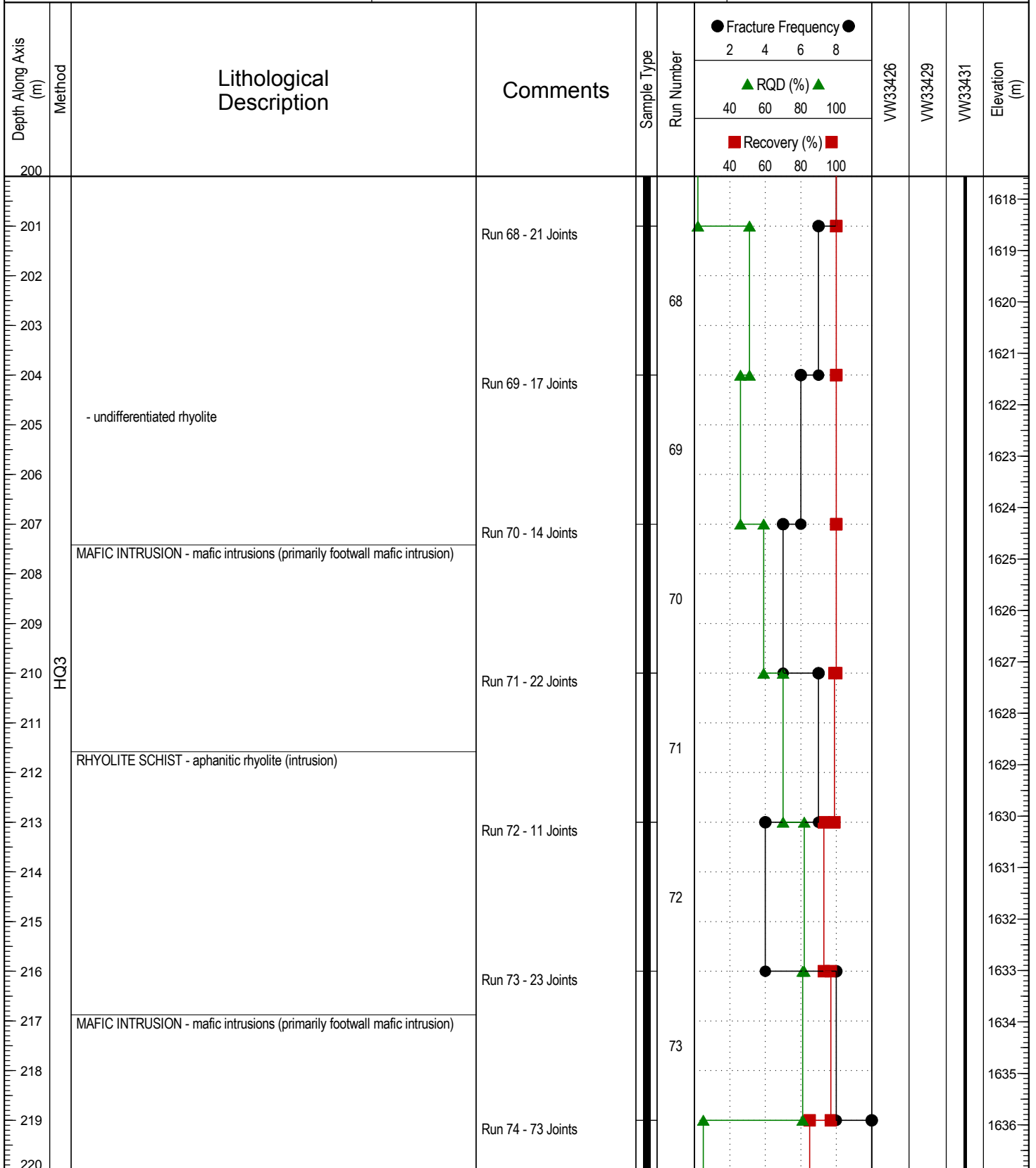


**BMC Minerals (No. 1) Ltd.**

**Borehole No: K15-248-VWP**

Project: KZK Hydrogeological Assessment  
 Location: Kudz Ze Kayah  
 Yukon

Project No: ENVMIN03071-01  
 Ground Elev: 1424.375 m  
 UTM: 415203.339 E; 6815282.948 N; Z 9 NAD83



**TETRA TECH EBA**

Contractor: Geotech Drilling  
 Drilling Rig Type: Hydracore  
 Logged By: Client  
 Reviewed By: SK

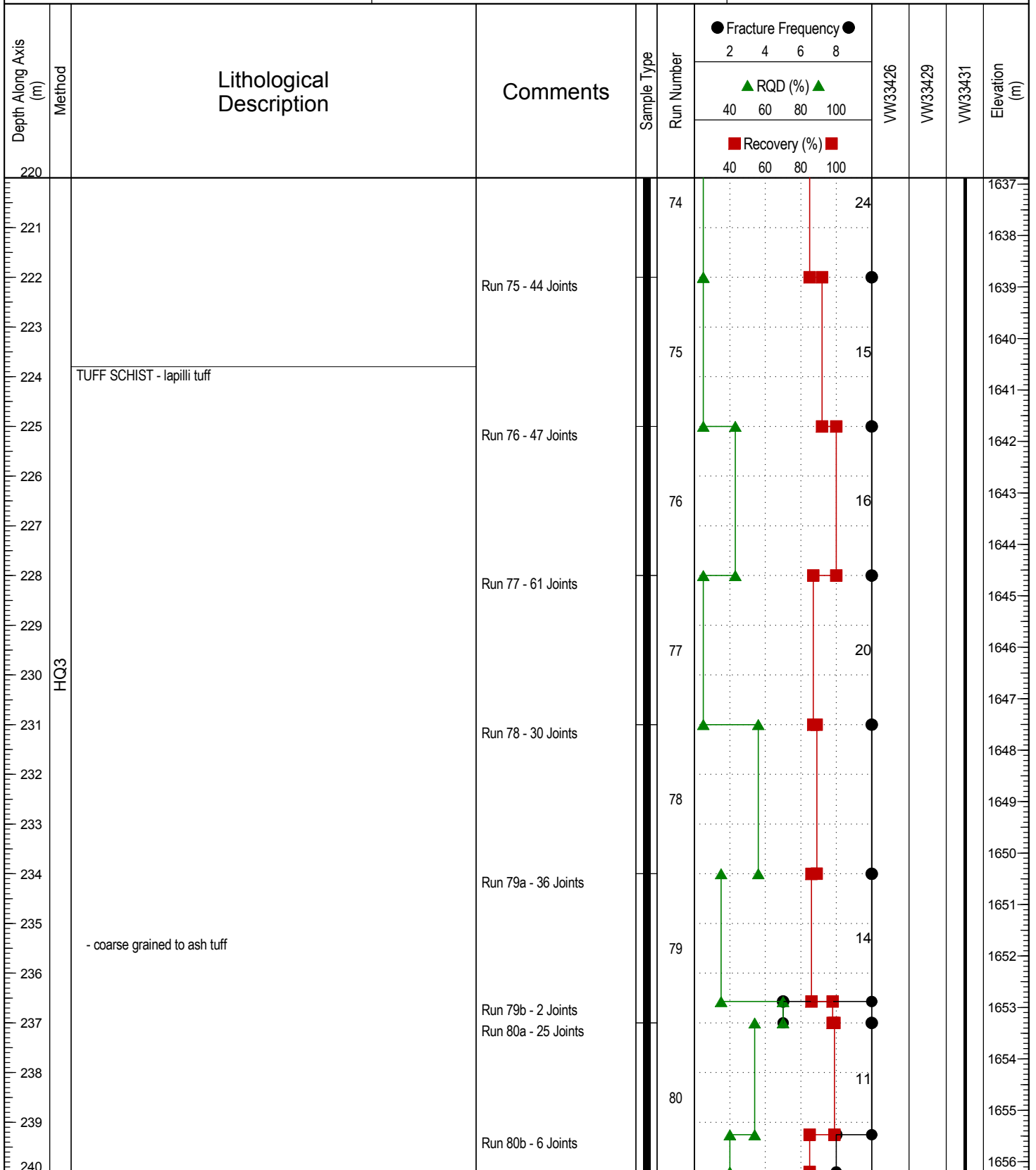
Completion Depth: 278.5 m  
 Start Date: 2015 August 1  
 Completion Date: 2015 September 10  
 Page 11 of 14

**BMC Minerals (No. 1) Ltd.**

**Borehole No: K15-248-VWP**

Project: KZK Hydrogeological Assessment  
 Location: Kudz Ze Kayah  
 Yukon

Project No: ENVMIN03071-01  
 Ground Elev: 1424.375 m  
 UTM: 415203.339 E; 6815282.948 N; Z 9 NAD83

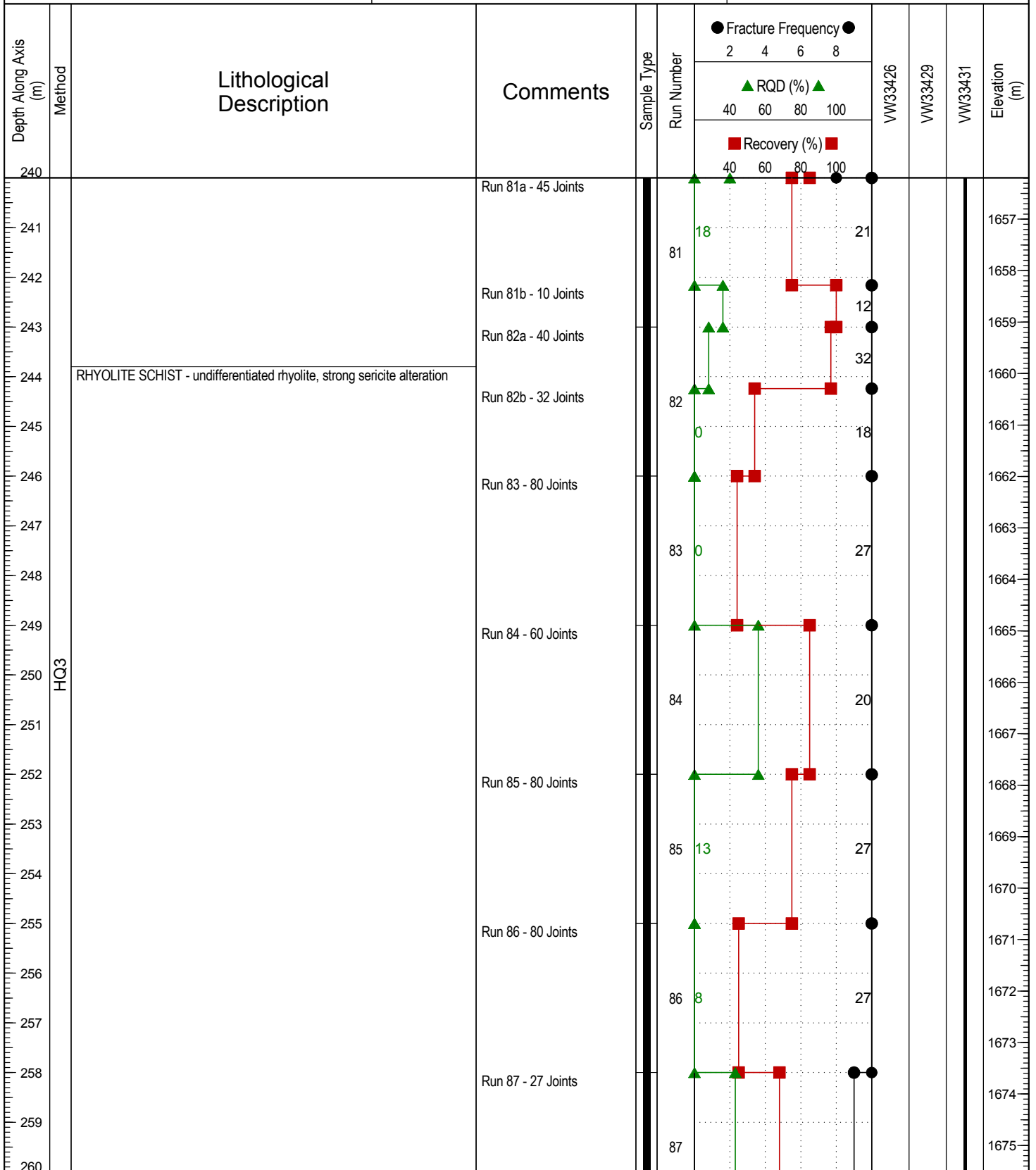


Contractor: Geotech Drilling  
 Drilling Rig Type: Hydracore  
 Logged By: Client  
 Reviewed By: SK

Completion Depth: 278.5 m  
 Start Date: 2015 August 1  
 Completion Date: 2015 September 10  
 Page 12 of 14

Project: KZK Hydrogeological Assessment  
 Location: Kudz Ze Kayah  
 Yukon

Project No: ENVMIN03071-01  
 Ground Elev: 1424.375 m  
 UTM: 415203.339 E; 6815282.948 N; Z 9 NAD83



**TETRA TECH EBA**

Contractor: Geotech Drilling

Drilling Rig Type: Hydracore

Logged By: Client

Reviewed By: SK

Completion Depth: 278.5 m

Start Date: 2015 August 1

Completion Date: 2015 September 10

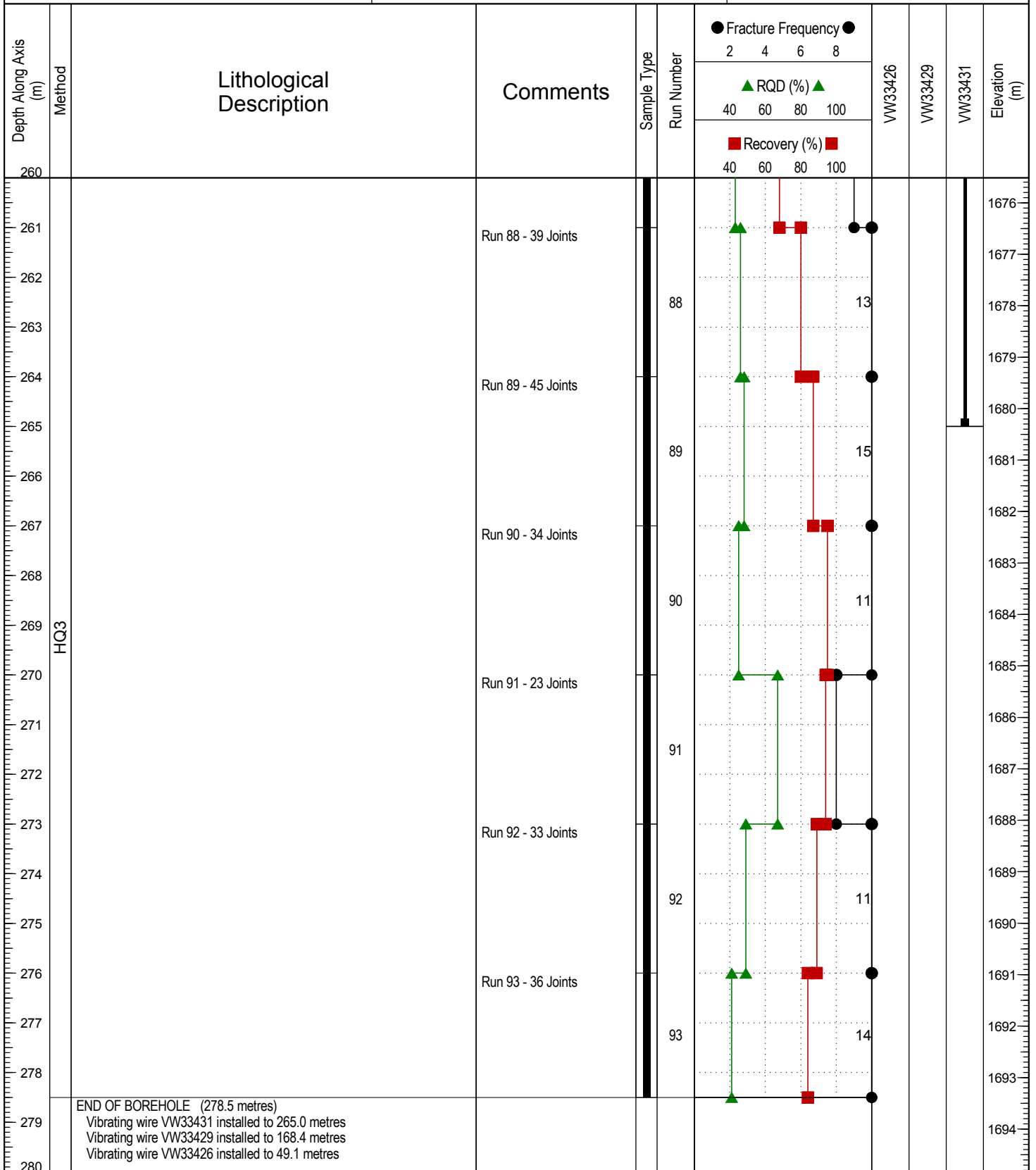
Page 13 of 14

**BMC Minerals (No. 1) Ltd.**

**Borehole No: K15-248-VWP**

Project: KZK Hydrogeological Assessment  
 Location: Kudz Ze Kayah  
 Yukon

Project No: ENVMIN03071-01  
 Ground Elev: 1424.375 m  
 UTM: 415203.339 E; 6815282.948 N; Z 9 NAD83



Contractor: Geotech Drilling	Completion Depth: 278.5 m
Drilling Rig Type: Hydracore	Start Date: 2015 August 1
Logged By: Client	Completion Date: 2015 September 10
Reviewed By: SK	Page 14 of 14

**BMC Minerals (No. 1) Ltd.**

**Borehole No: K15-265**

Project: KZK Hydrogeological Assessment

Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1423.992 m

Yukon

UTM: 415206.697 E; 6815594.549 N; Z 9 NAD83

Depth Along Axis (m)	Method	Lithological Description	Comments	Sample Type	Run Number	Fracture Frequency ●				Elevation (m)	
						2	4	6	8		
						▲ RQD (%) ▲					
						40	60	80	100		
						■ Recovery (%) ■					
						40	60	80	100		
0		OVERBURDEN - no core recovered								1424	
1										1425	
2										1426	
3										1427	
4										1428	
5										1429	
6										1430	
7										1431	
8										1432	
9										1433	
10	NQ3									1434	
11										1435	
12										1436	
13										1437	
14										1438	
15										1439	
16										1440	
17											
18											
19		TUFF SCHIST - lapilli tuff									
20											



**TETRA TECH EBA**

Contractor: Geotech Drilling

Completion Depth: 285 m

Drilling Rig Type: Hydracore

Start Date: 2015 August 30

Logged By: Client

Completion Date: 2015 September 21

Reviewed By: SK

Page 1 of 15

# BMC Minerals (No. 1) Ltd.

## Borehole No: K15-265

Project: KZK Hydrogeological Assessment

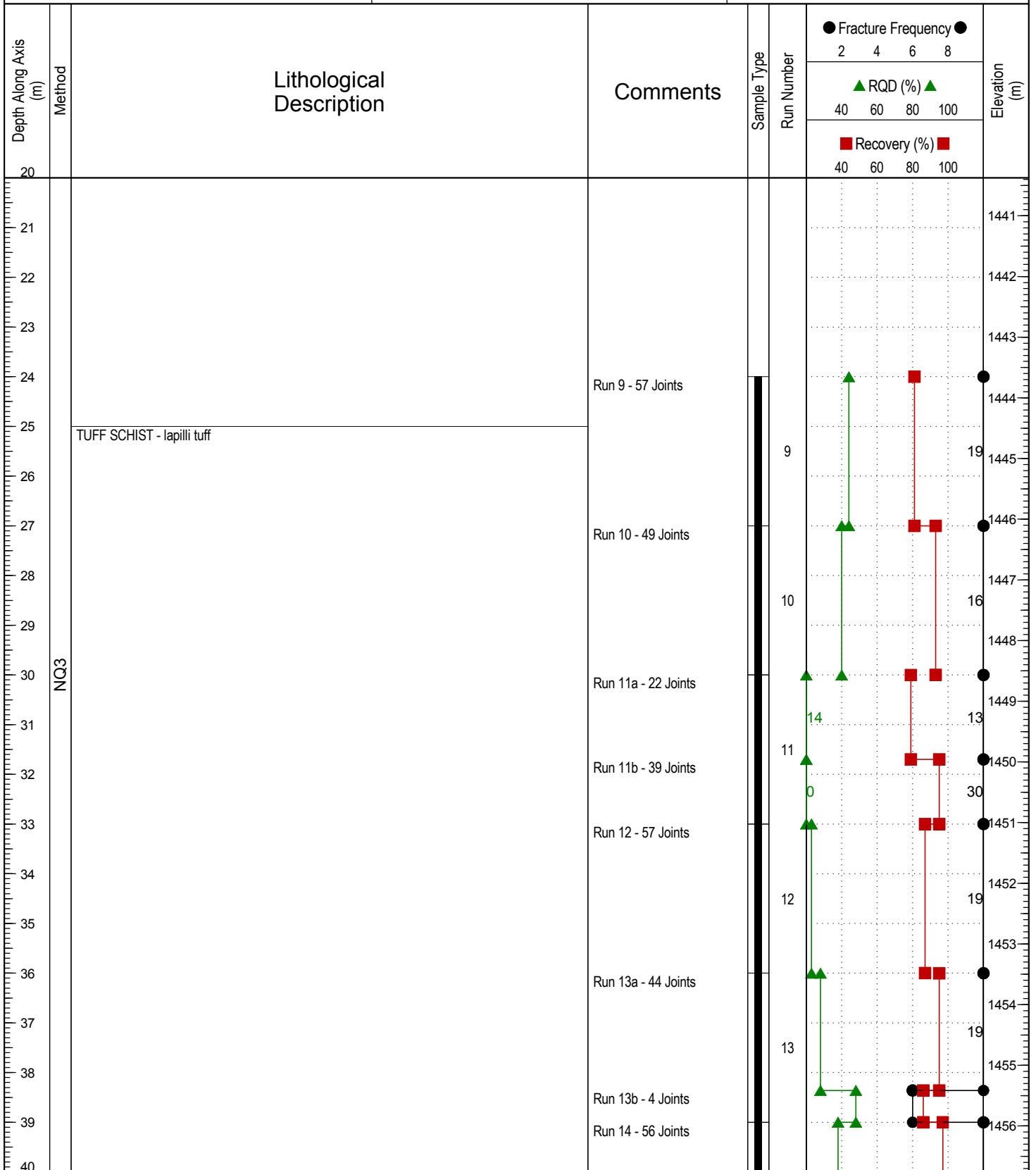
Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1423.992 m

Yukon

UTM: 415206.697 E; 6815594.549 N; Z 9 NAD83



TETRA TECH EBA

Contractor: Geotech Drilling

Completion Depth: 285 m

Drilling Rig Type: Hydracore

Start Date: 2015 August 30

Logged By: Client

Completion Date: 2015 September 21

Reviewed By: SK

Page 2 of 15

# BMC Minerals (No. 1) Ltd.

## Borehole No: K15-265

Project: KZK Hydrogeological Assessment

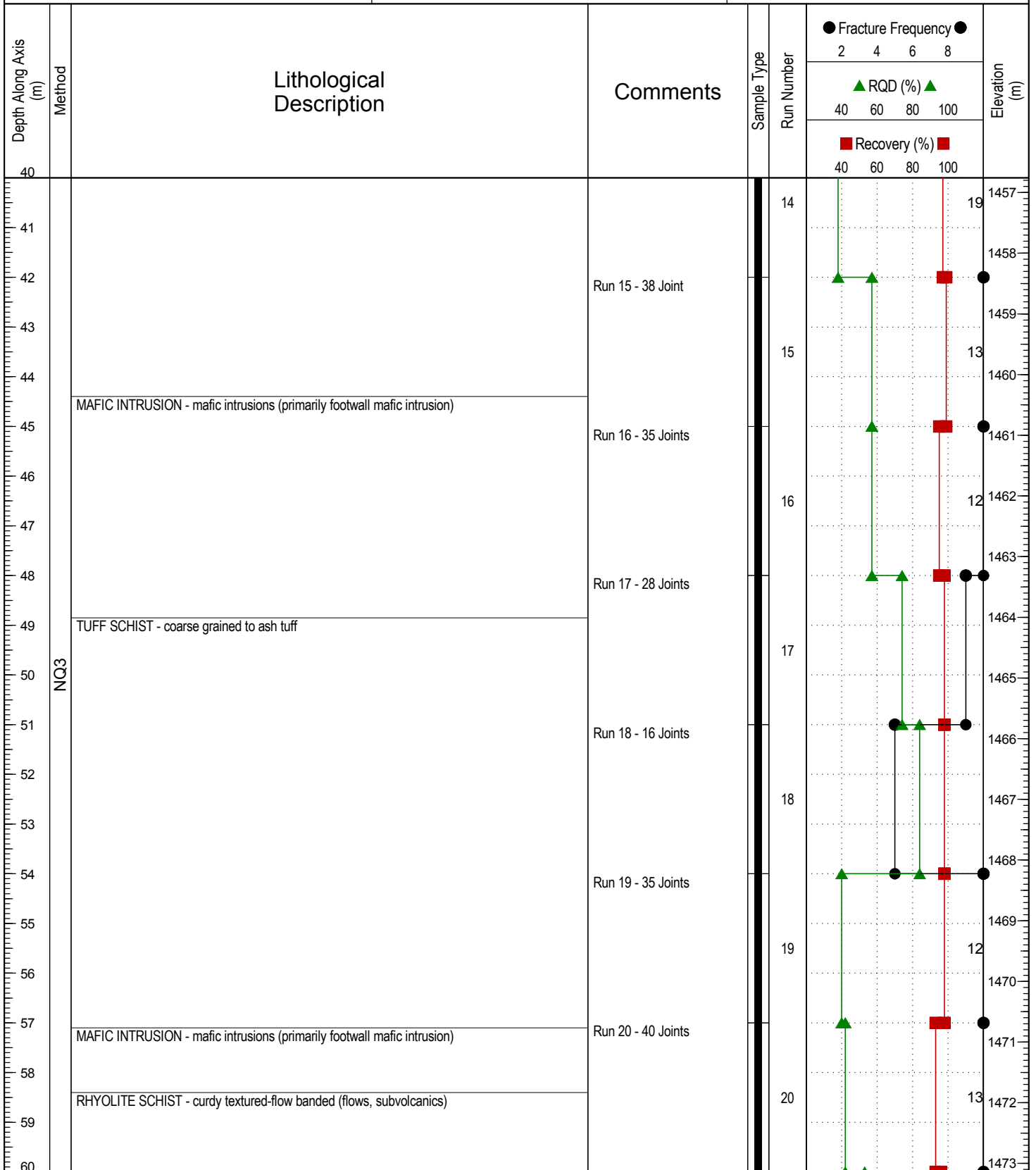
Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1423.992 m

Yukon

UTM: 415206.697 E; 6815594.549 N; Z 9 NAD83



TETRA TECH EBA

Contractor: Geotech Drilling

Completion Depth: 285 m

Drilling Rig Type: Hydracore

Start Date: 2015 August 30

Logged By: Client

Completion Date: 2015 September 21

Reviewed By: SK

Page 3 of 15

# BMC Minerals (No. 1) Ltd.

# Borehole No: K15-265

Project: KZK Hydrogeological Assessment

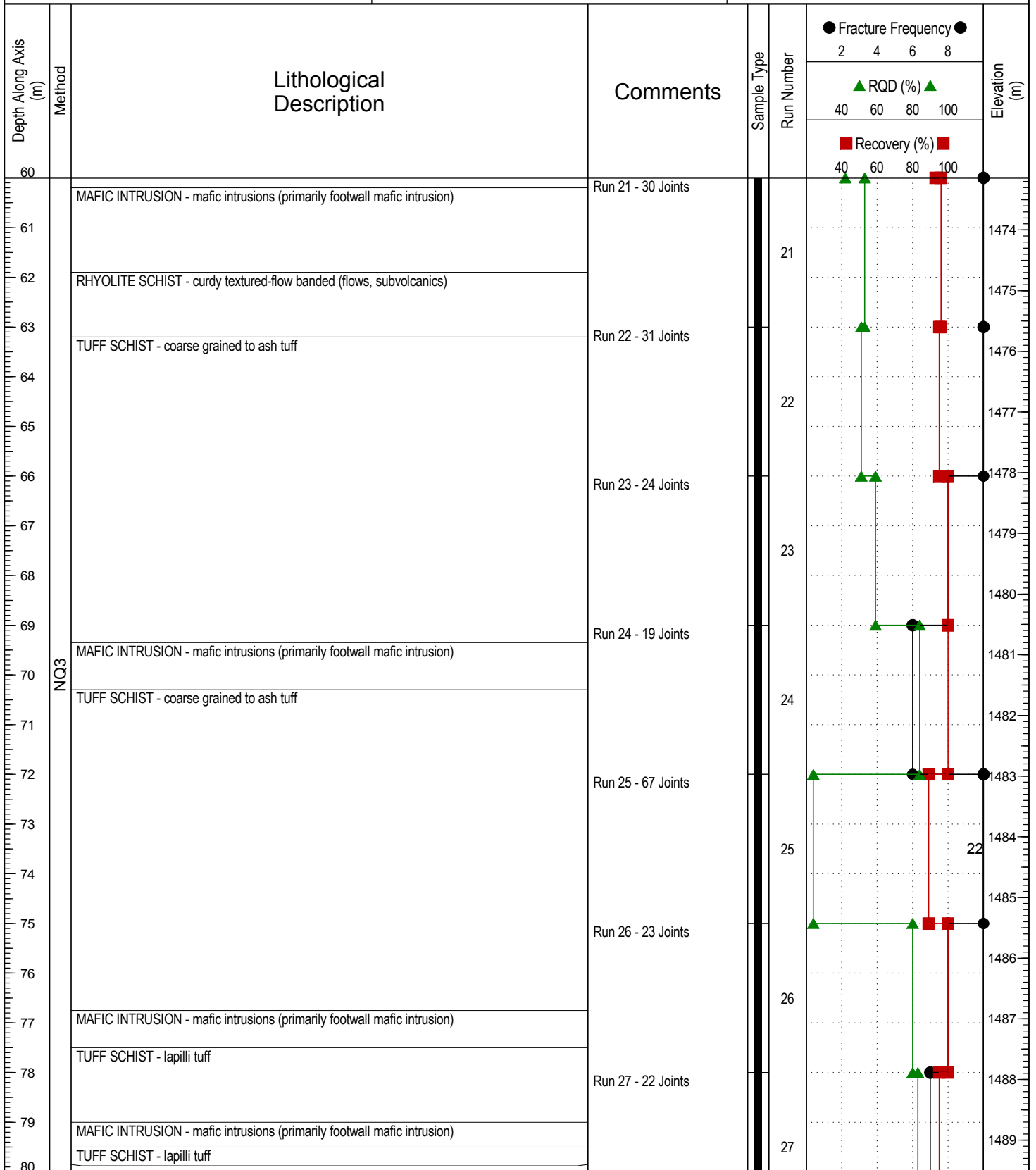
Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1423.992 m

Yukon

UTM: 415206.697 E; 6815594.549 N; Z 9 NAD83



**TETRA TECH EBA**

Contractor: Geotech Drilling

Completion Depth: 285 m

Drilling Rig Type: Hydracore

Start Date: 2015 August 30

Logged By: Client

Completion Date: 2015 September 21

Reviewed By: SK

Page 4 of 15

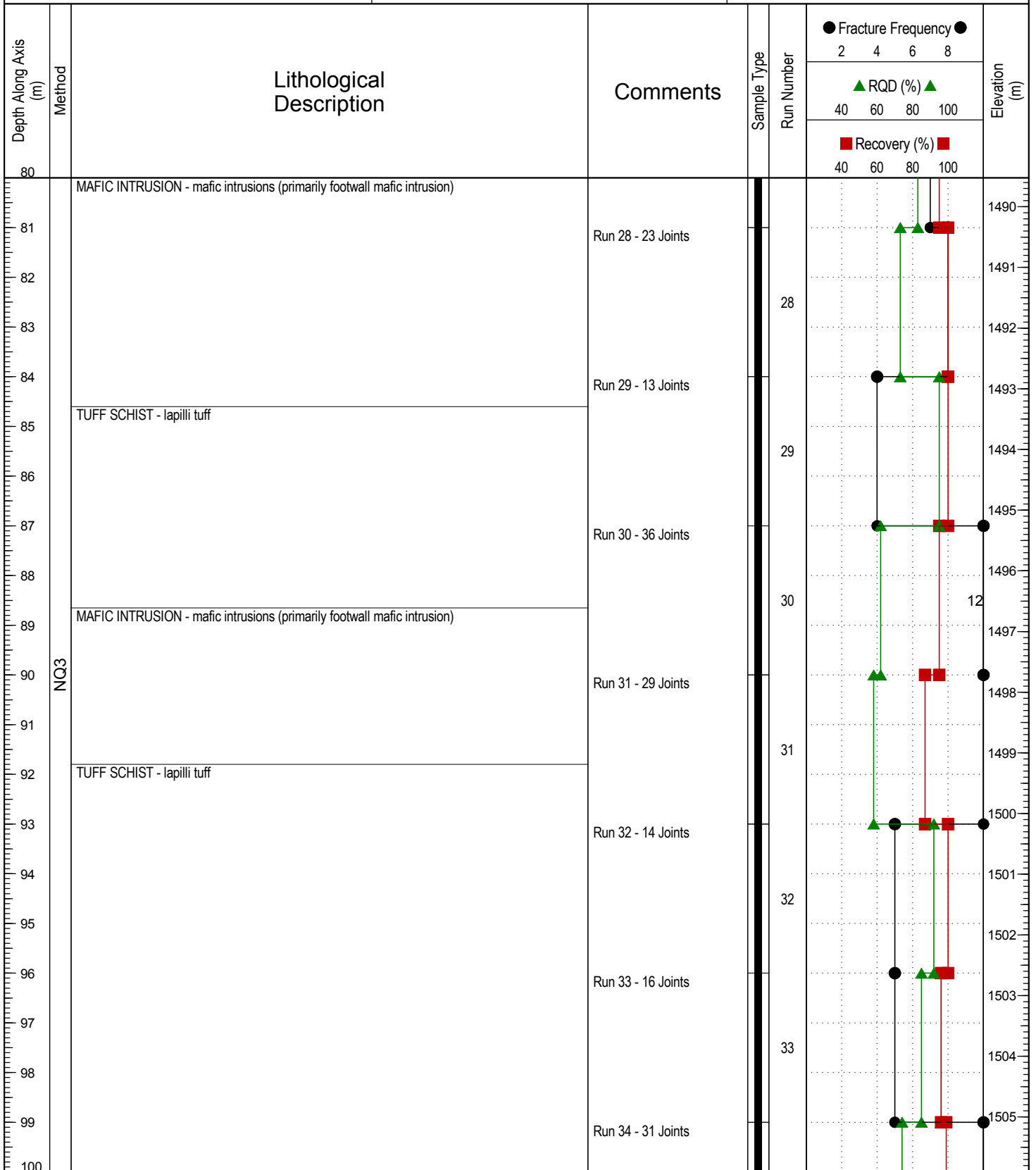


**BMC Minerals (No. 1) Ltd.**

**Borehole No: K15-265**

Project: KZK Hydrogeological Assessment  
 Location: Kudz Ze Kayah  
 Yukon

Project No: ENVMIN03071-01  
 Ground Elev: 1423.992 m  
 UTM: 415206.697 E; 6815594.549 N; Z 9 NAD83



**TETRA TECH EBA**

Contractor: Geotech Drilling  
 Drilling Rig Type: Hydracore  
 Logged By: Client  
 Reviewed By: SK

Completion Depth: 285 m  
 Start Date: 2015 August 30  
 Completion Date: 2015 September 21  
 Page 5 of 15

# BMC Minerals (No. 1) Ltd.

## Borehole No: K15-265

Project: KZK Hydrogeological Assessment

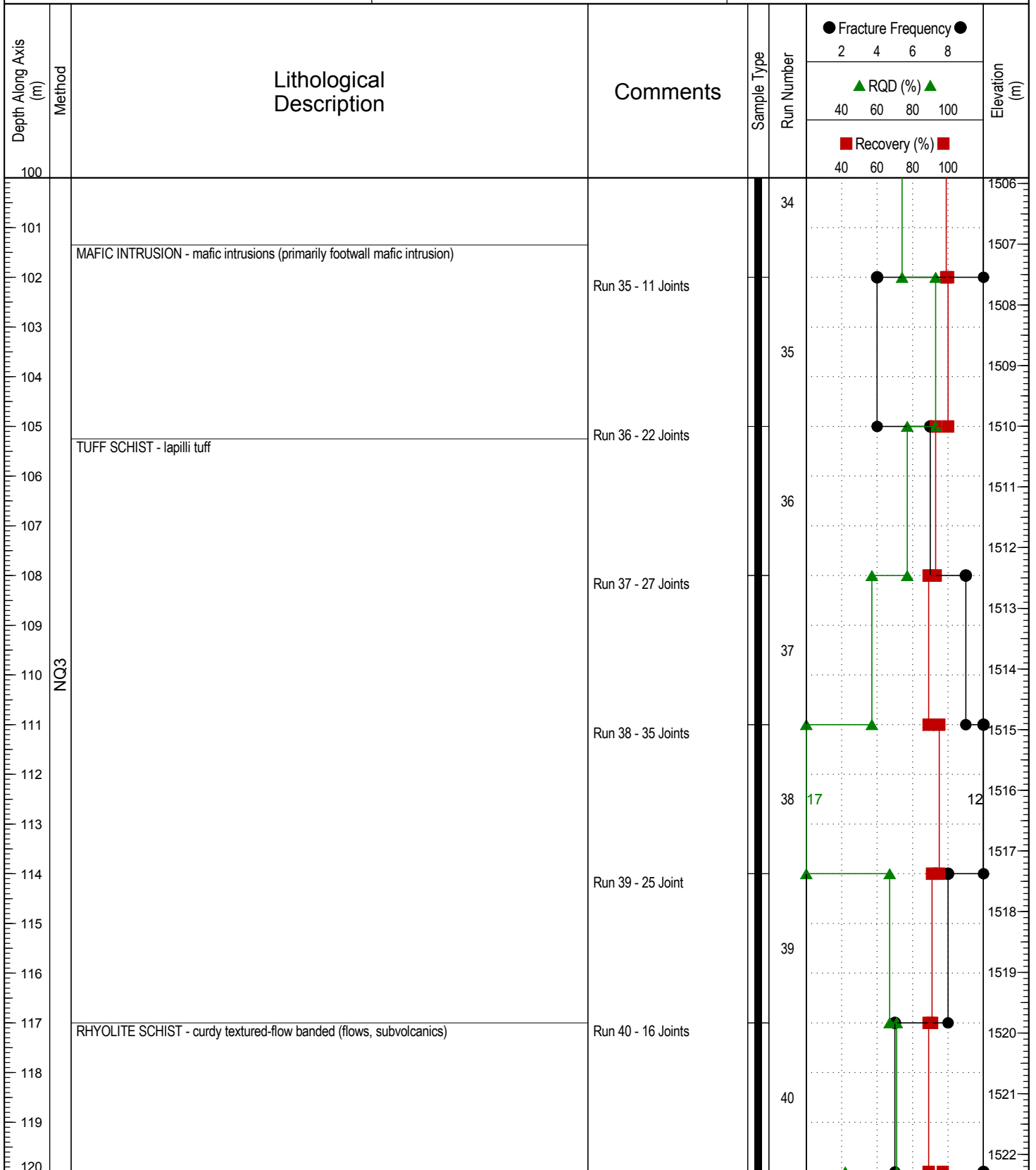
Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1423.992 m

Yukon

UTM: 415206.697 E; 6815594.549 N; Z 9 NAD83



TETRA TECH EBA

Contractor: Geotech Drilling

Completion Depth: 285 m

Drilling Rig Type: Hydracore

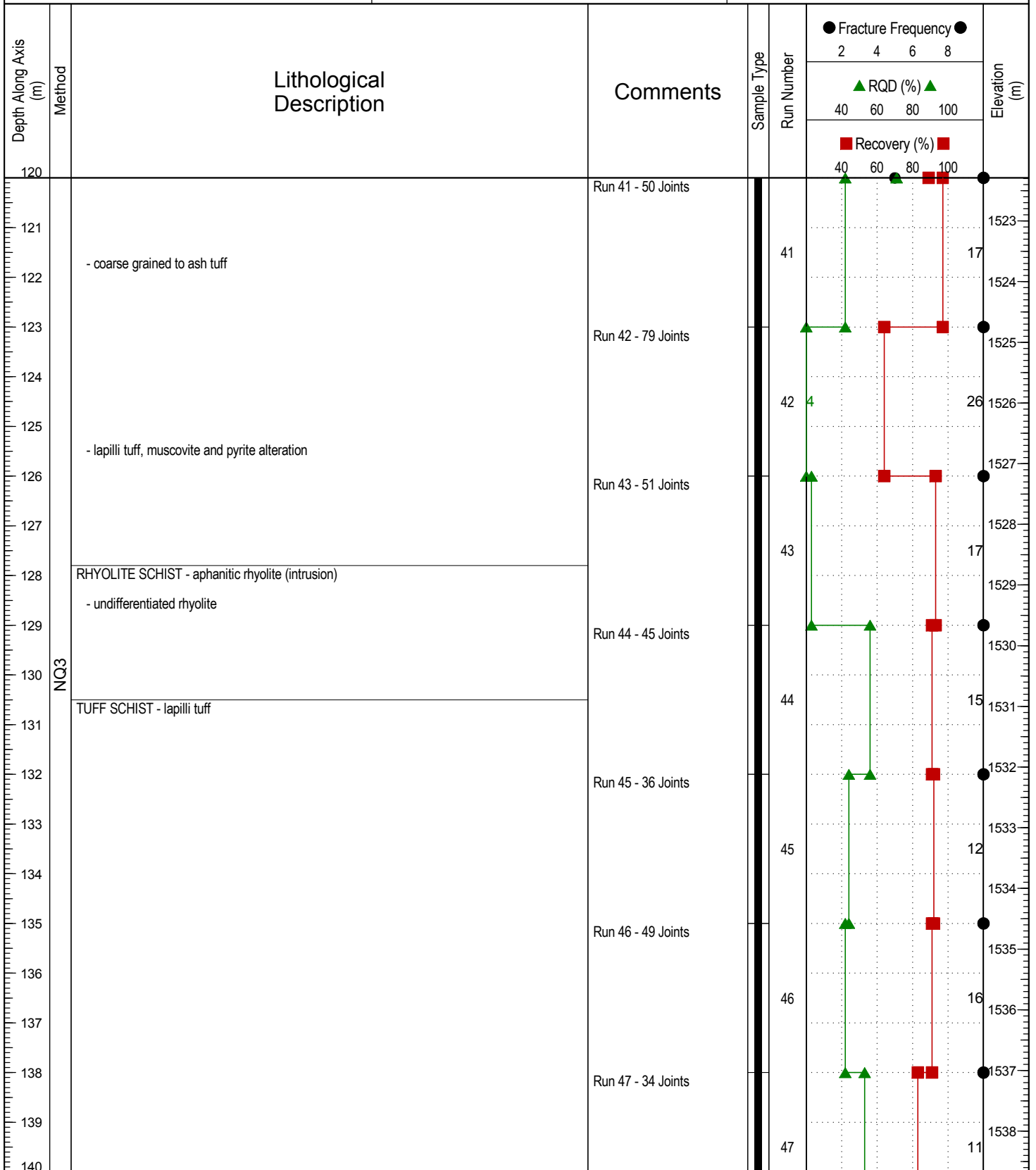
Start Date: 2015 August 30

Logged By: Client

Completion Date: 2015 September 21

Reviewed By: SK

Page 6 of 15



# BMC Minerals (No. 1) Ltd.

## Borehole No: K15-265

Project: KZK Hydrogeological Assessment

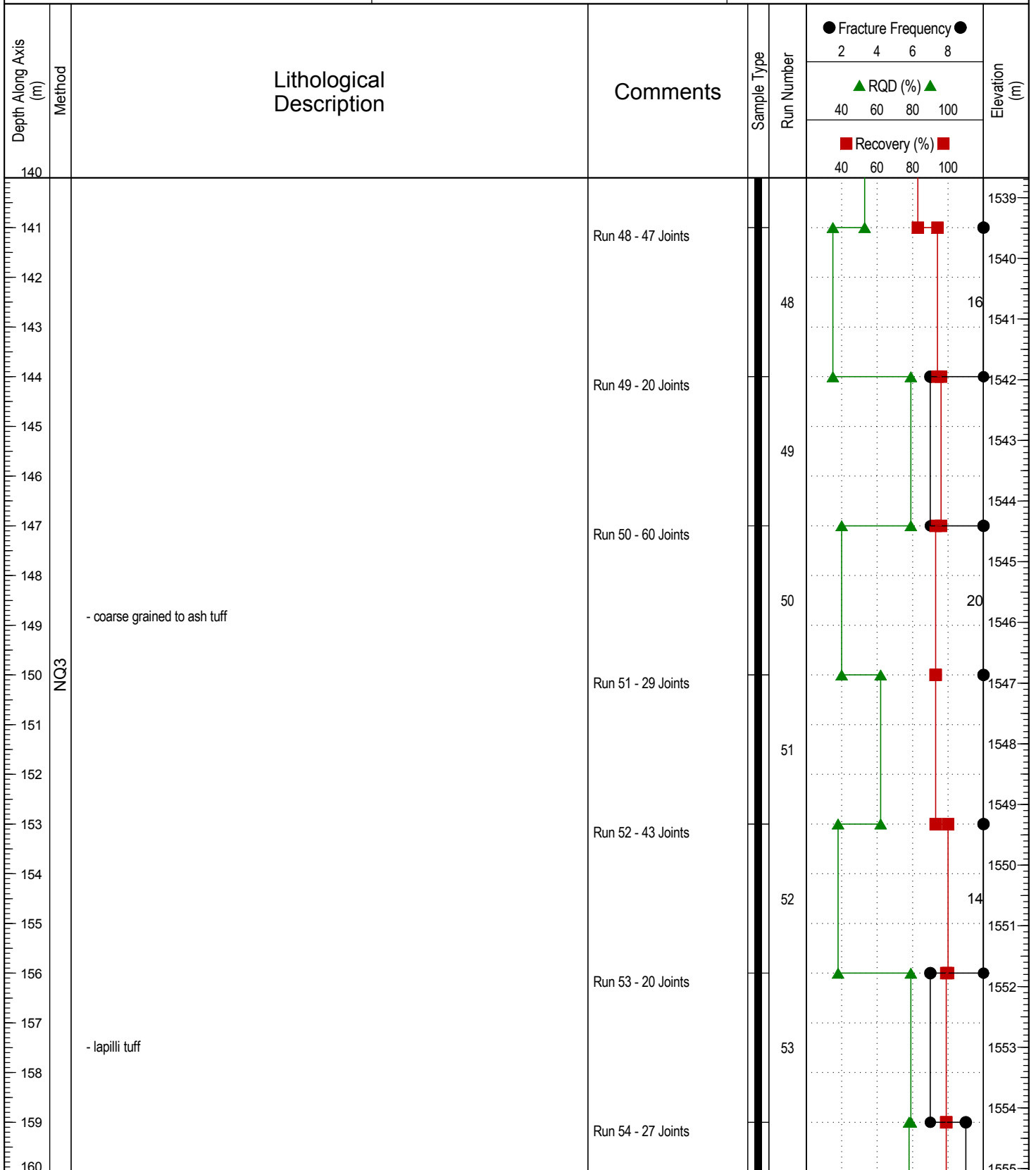
Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1423.992 m

Yukon

UTM: 415206.697 E; 6815594.549 N; Z 9 NAD83



TETRA TECH EBA

Contractor: Geotech Drilling

Completion Depth: 285 m

Drilling Rig Type: Hydracore

Start Date: 2015 August 30

Logged By: Client

Completion Date: 2015 September 21

Reviewed By: SK

Page 8 of 15

# BMC Minerals (No. 1) Ltd.

# Borehole No: K15-265

Project: KZK Hydrogeological Assessment

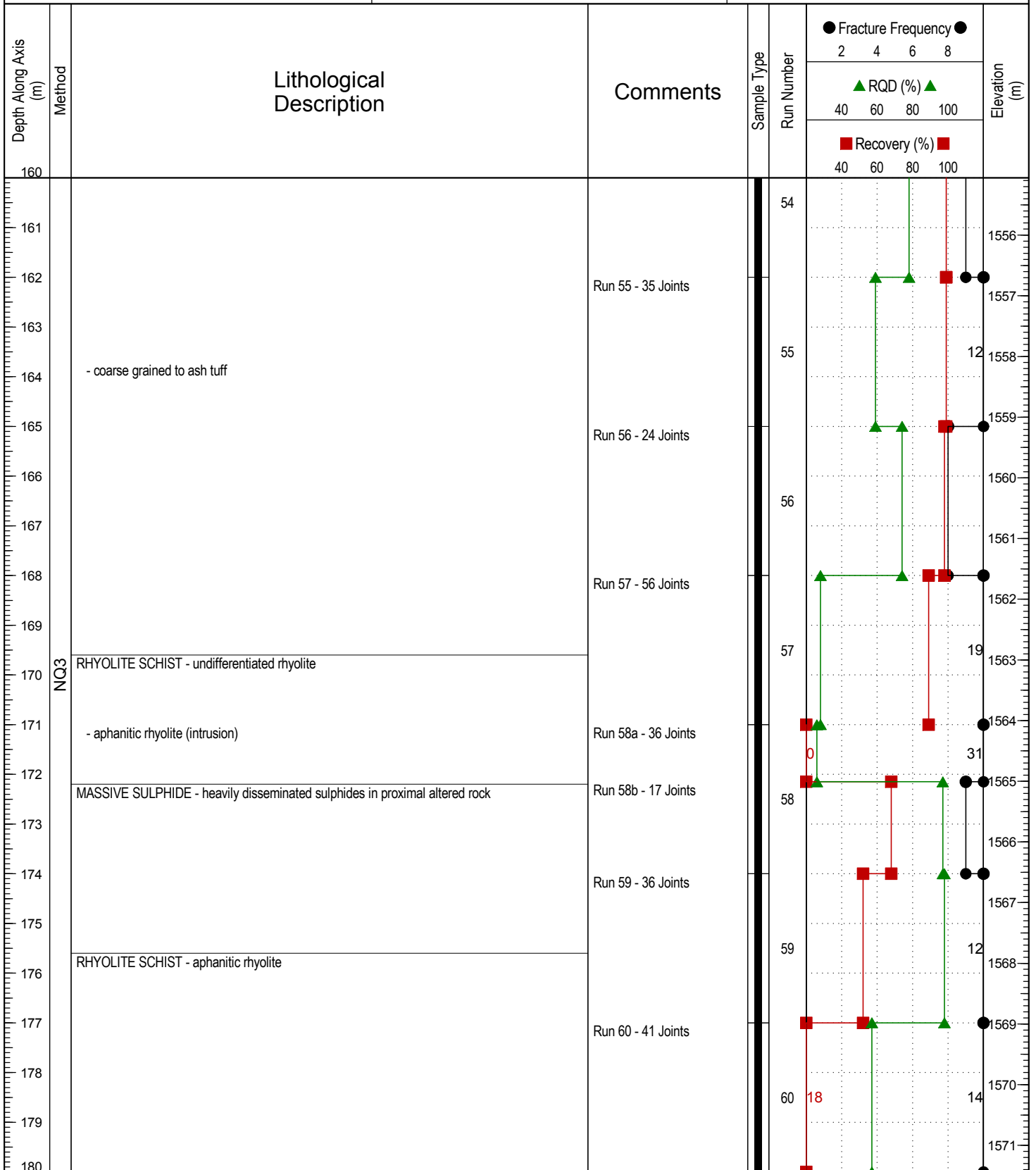
Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1423.992 m

Yukon

UTM: 415206.697 E; 6815594.549 N; Z 9 NAD83



**TETRA TECH EBA**

Contractor: Geotech Drilling

Completion Depth: 285 m

Drilling Rig Type: Hydracore

Start Date: 2015 August 30

Logged By: Client

Completion Date: 2015 September 21

Reviewed By: SK

Page 9 of 15

# BMC Minerals (No. 1) Ltd.

## Borehole No: K15-265

Project: KZK Hydrogeological Assessment

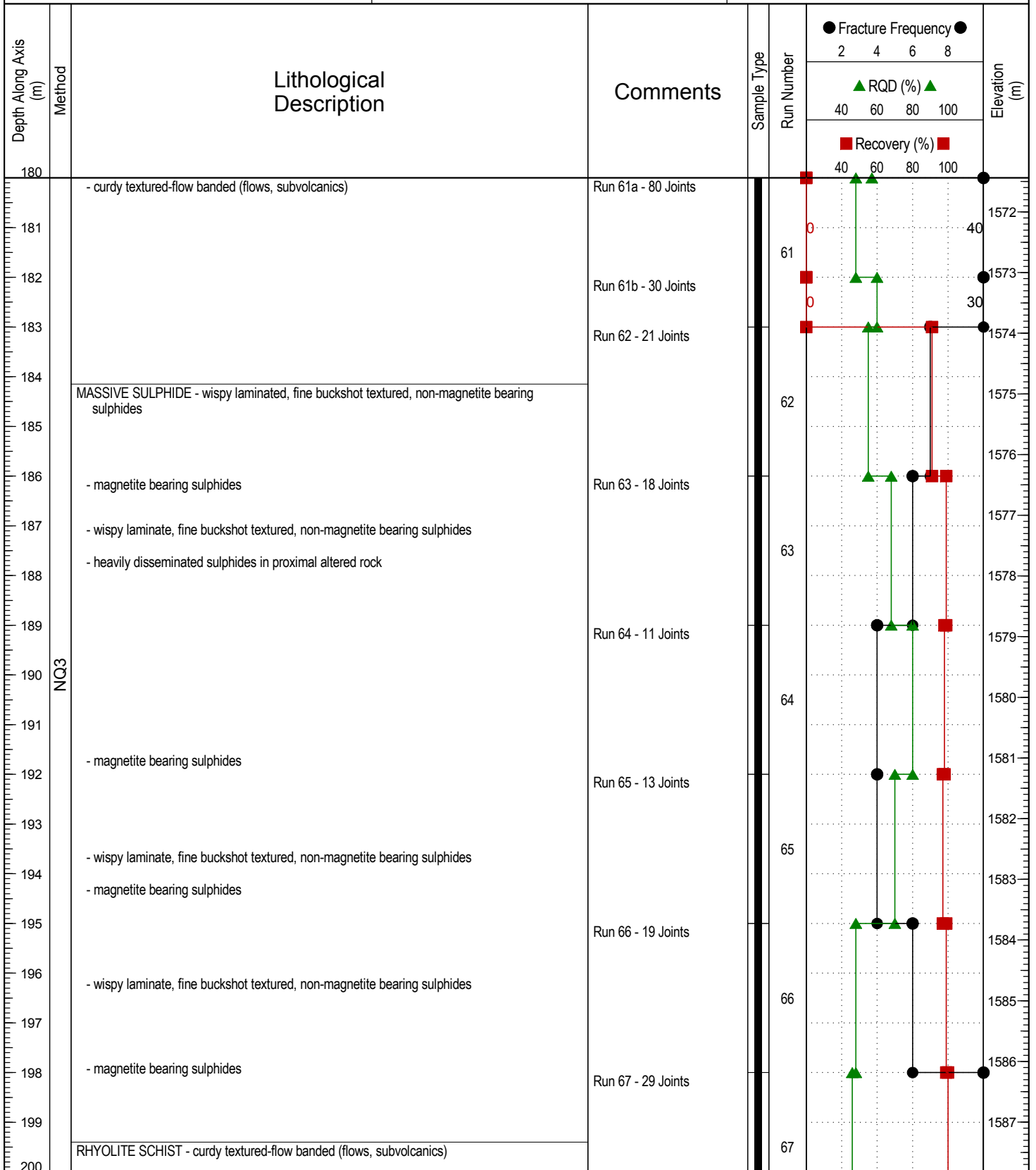
Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1423.992 m

Yukon

UTM: 415206.697 E; 6815594.549 N; Z 9 NAD83



TETRA TECH EBA

Contractor: Geotech Drilling

Completion Depth: 285 m

Drilling Rig Type: Hydracore

Start Date: 2015 August 30

Logged By: Client

Completion Date: 2015 September 21

Reviewed By: SK

Page 10 of 15

# BMC Minerals (No. 1) Ltd.

## Borehole No: K15-265

Project: KZK Hydrogeological Assessment

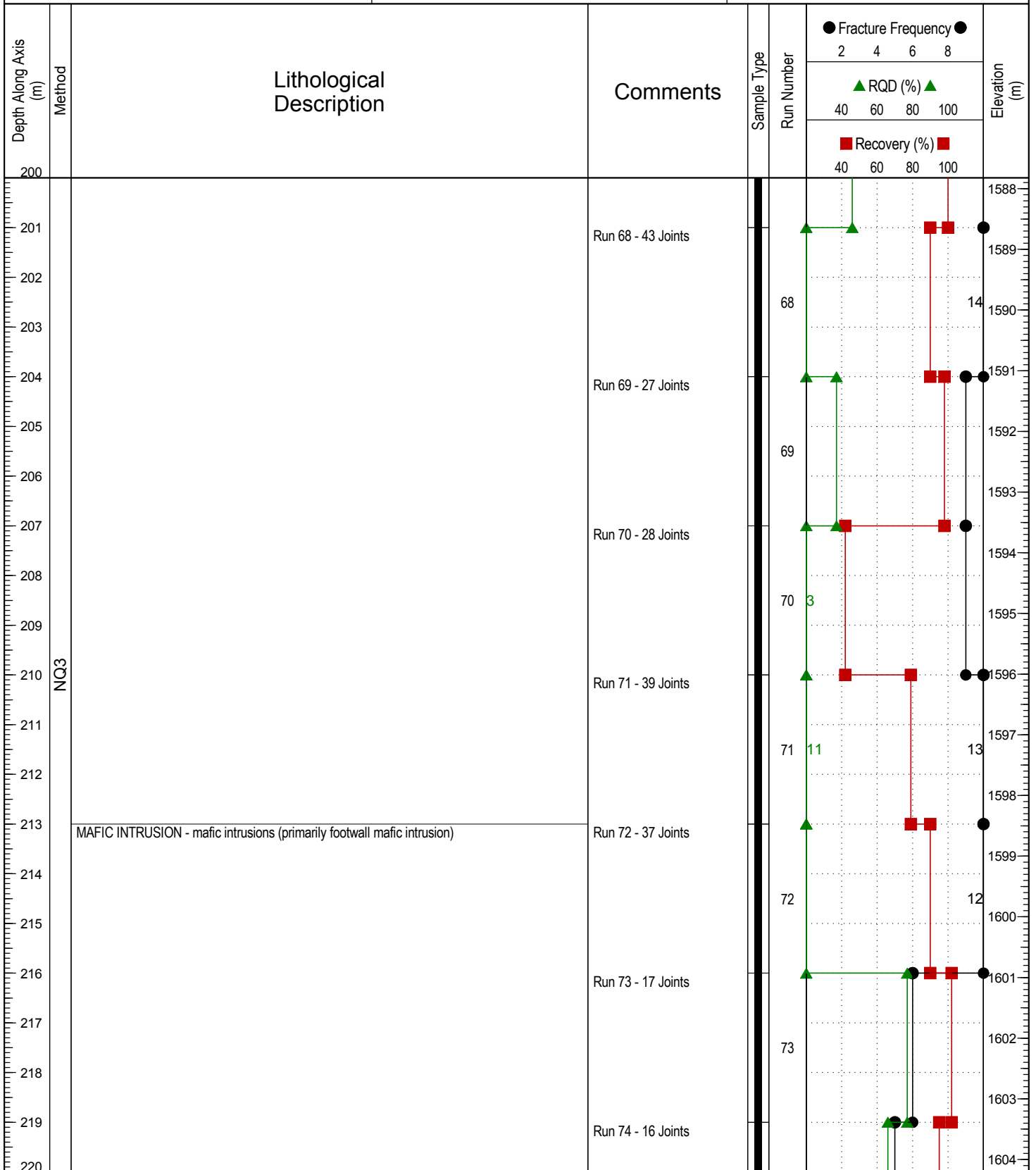
Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1423.992 m

Yukon

UTM: 415206.697 E; 6815594.549 N; Z 9 NAD83



TETRA TECH EBA

Contractor: Geotech Drilling

Completion Depth: 285 m

Drilling Rig Type: Hydracore

Start Date: 2015 August 30

Logged By: Client

Completion Date: 2015 September 21

Reviewed By: SK

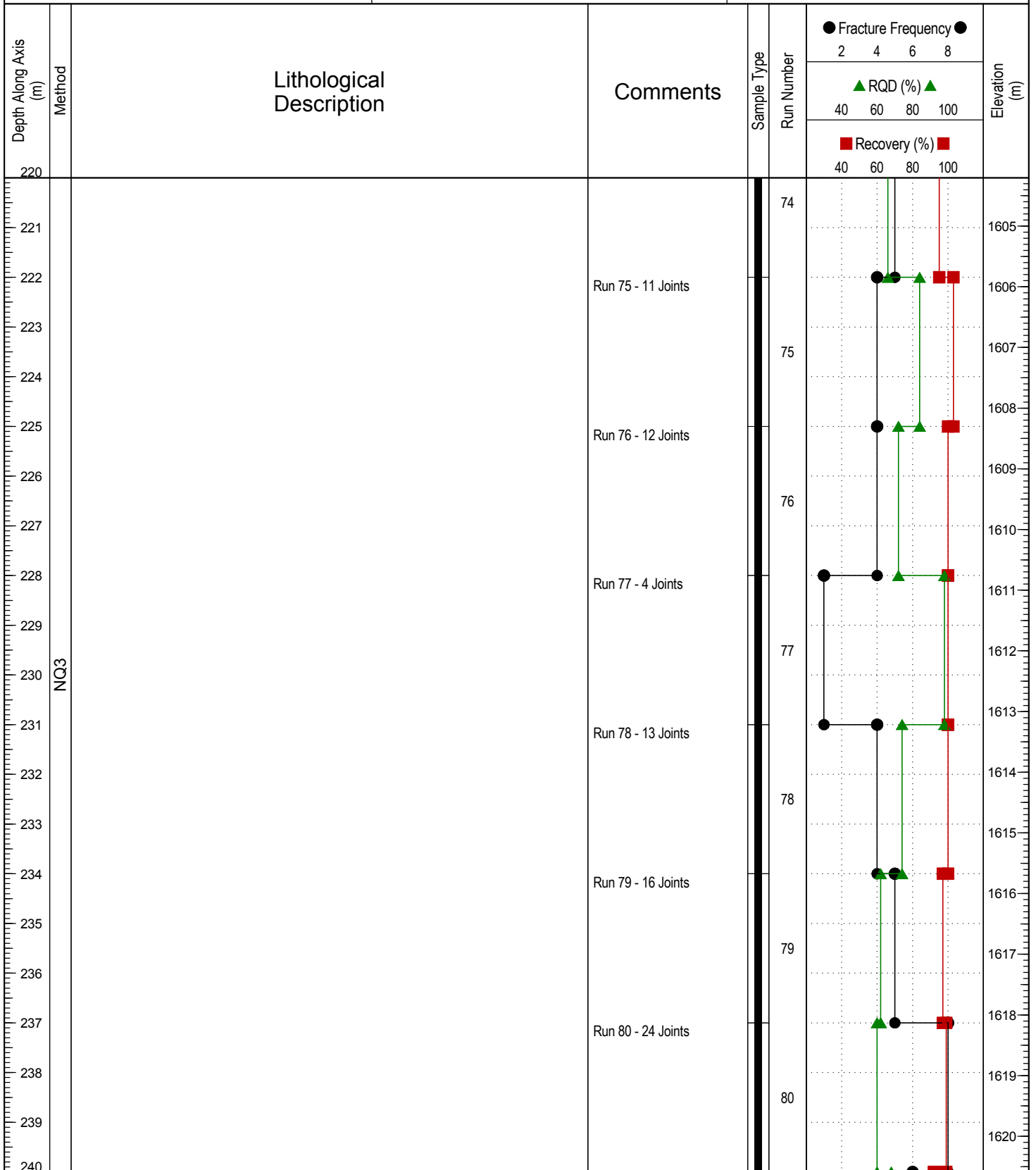
Page 11 of 15

**BMC Minerals (No. 1) Ltd.**

**Borehole No: K15-265**

Project: KZK Hydrogeological Assessment  
 Location: Kudz Ze Kayah  
 Yukon

Project No: ENVMIN03071-01  
 Ground Elev: 1423.992 m  
 UTM: 415206.697 E; 6815594.549 N; Z 9 NAD83



**TETRA TECH EBA**

Contractor: Geotech Drilling  
 Drilling Rig Type: Hydracore  
 Logged By: Client  
 Reviewed By: SK

Completion Depth: 285 m  
 Start Date: 2015 August 30  
 Completion Date: 2015 September 21  
 Page 12 of 15

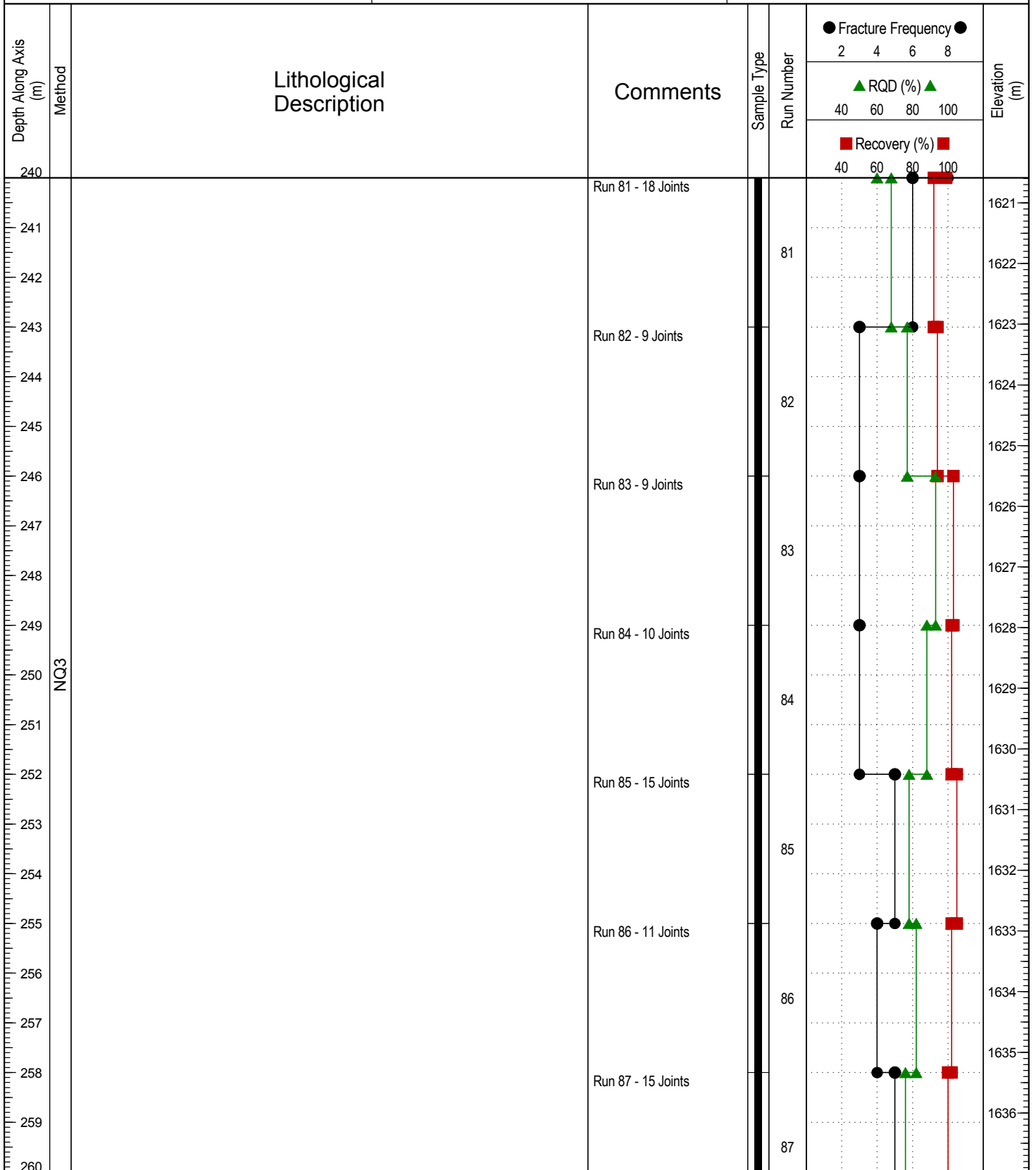


**BMC Minerals (No. 1) Ltd.**

**Borehole No: K15-265**

Project: KZK Hydrogeological Assessment  
 Location: Kudz Ze Kayah  
 Yukon

Project No: ENVMIN03071-01  
 Ground Elev: 1423.992 m  
 UTM: 415206.697 E; 6815594.549 N; Z 9 NAD83



**TETRA TECH EBA**

Contractor: Geotech Drilling

Drilling Rig Type: Hydracore

Logged By: Client

Reviewed By: SK

Completion Depth: 285 m

Start Date: 2015 August 30

Completion Date: 2015 September 21

Page 13 of 15

# BMC Minerals (No. 1) Ltd.

## Borehole No: K15-265

Project: KZK Hydrogeological Assessment

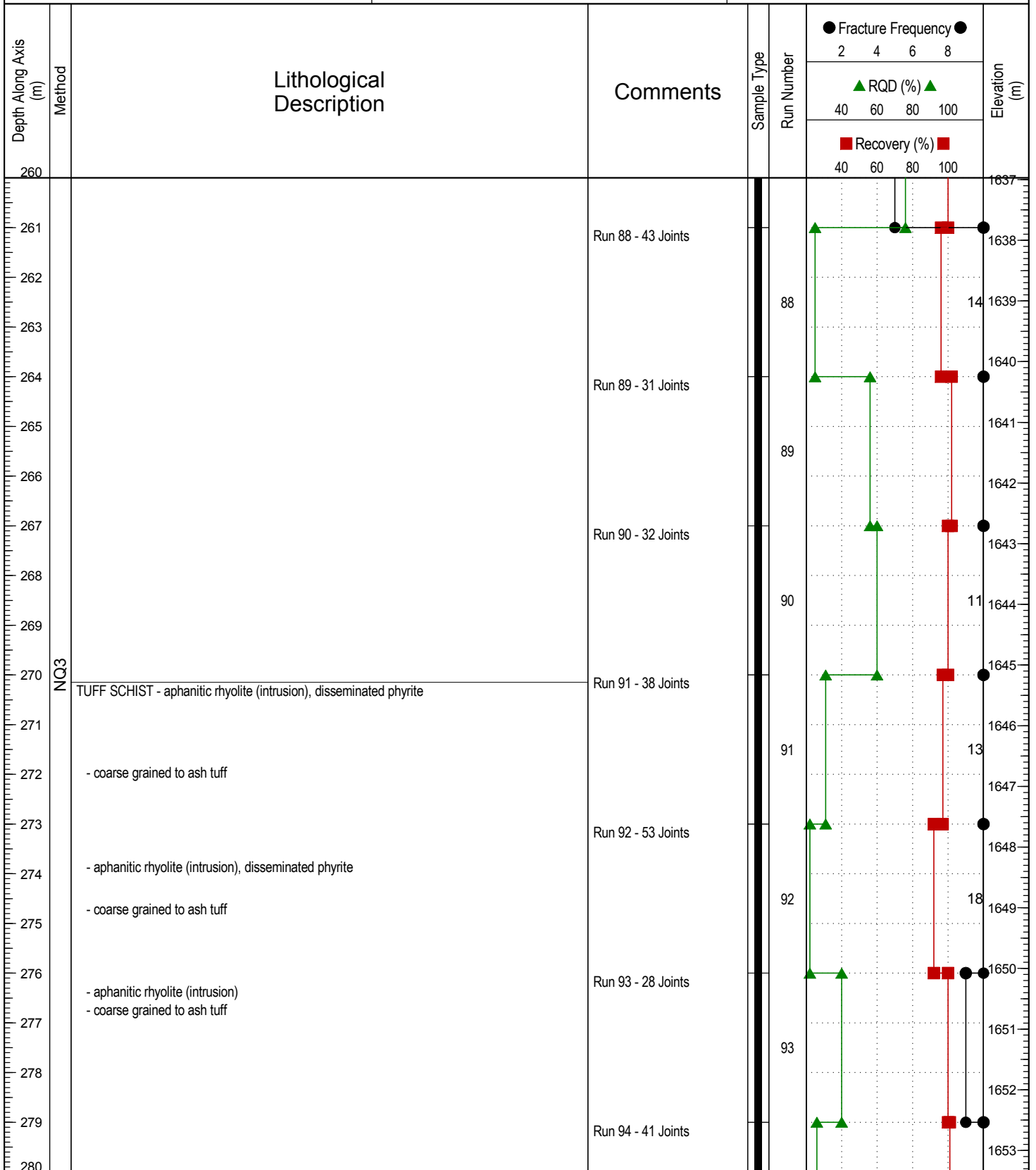
Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1423.992 m

Yukon

UTM: 415206.697 E; 6815594.549 N; Z 9 NAD83



TETRA TECH EBA

Contractor: Geotech Drilling

Completion Depth: 285 m

Drilling Rig Type: Hydracore

Start Date: 2015 August 30

Logged By: Client

Completion Date: 2015 September 21

Reviewed By: SK

Page 14 of 15

**BMC Minerals (No. 1) Ltd.**

**Borehole No: K15-265**

Project: KZK Hydrogeological Assessment

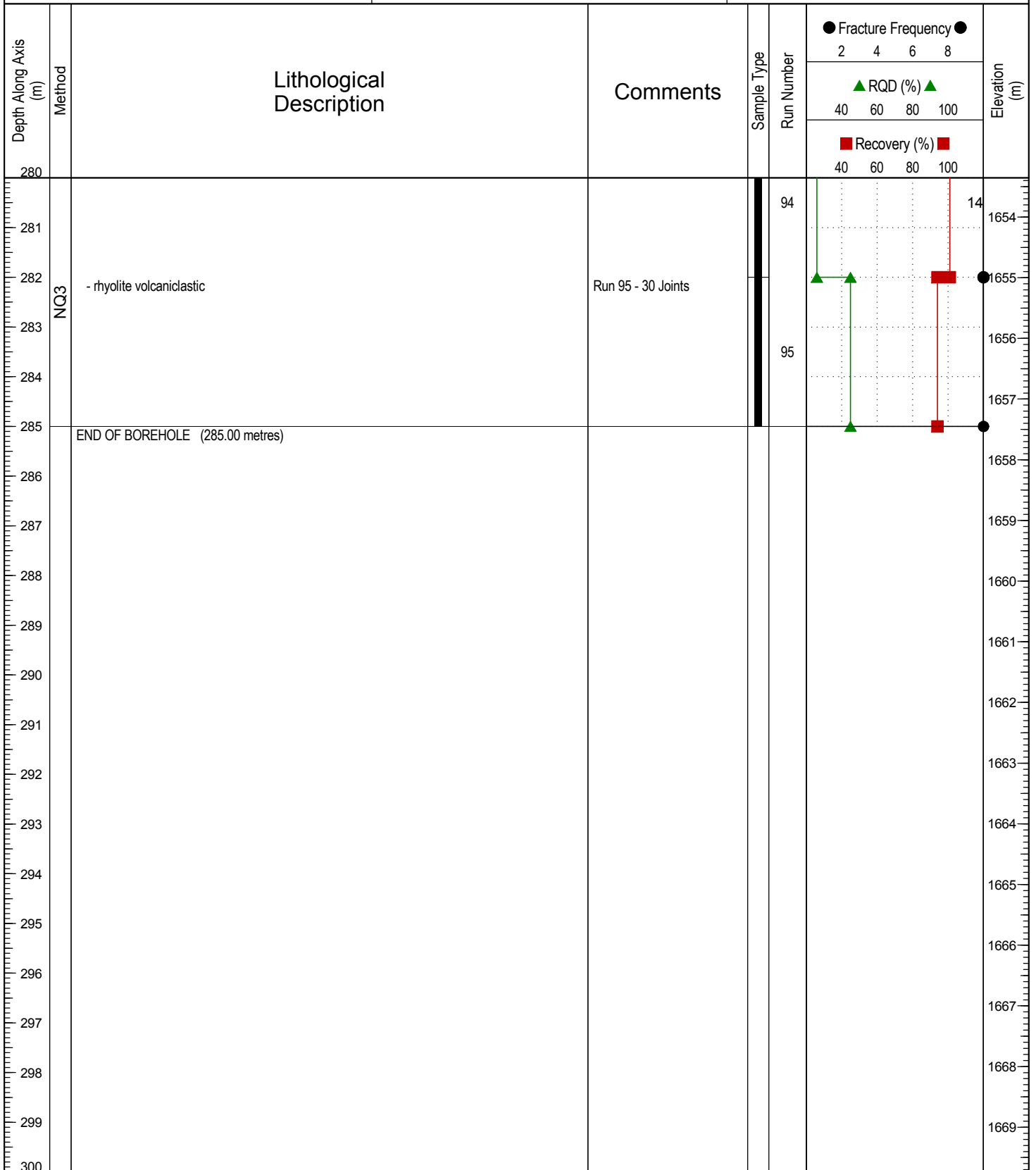
Project No: ENVMIN03071-01

Location: Kudz Ze Kayah

Ground Elev: 1423.992 m

Yukon

UTM: 415206.697 E; 6815594.549 N; Z 9 NAD83



**TETRA TECH EBA**

Contractor: Geotech Drilling

Completion Depth: 285 m

Drilling Rig Type: Hydracore

Start Date: 2015 August 30

Logged By: Client

Completion Date: 2015 September 21

Reviewed By: SK

Page 15 of 15

# APPENDIX C

## VIBRATING WIRE PIEZOMETER DATA AND CALIBRATION SHEETS

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**Vibrating Wire Piezometer Calibration Data (VW33430)**

Hole ID	Elevation	VWP s/n	Depth	Angle	True Depth	Date installed	p_CF	p_ini	T_CF	T_ini	F	B_ini	A	B	C
	[m asl]		[m ah]	[deg]	[m bgs]		[kPa/B]	[B]	[kPa/oC rise]	oC	[kPa/mbar]	[mbar]			
K15-200	1408.3	VW33430	199.95	-70	188		0.8235	8753.4	0.4254	23.4	0.1	1015			
	[m asl]		[m ah]	[deg]	[m bgs]		[MPa/B]	[B]	[MPa/oC rise]	oC	[MPa/mbar]	[mbar]			
	1408.3	VW33430	199.95	-70	188	4-Aug-15	0.0008235	8753.4	0.0004254	23.4	0.0001	1015	-3.2686E-09	-0.0007782	7.0567

**Readings**

Date	p_mes	B_mes	T_mes	p_lin	p_lin	p_lin (no baro corr)	p_poly	p_poly (no baro corr)	H2O column	Hydraulic Head
	[B]	[hPa]	[oC]	[kPa]	[MPa]	[kPa]	[kPa]	[kPa]	[m]	[m asl]
4-Aug-15	8759	857	12.2	6	0	-9.4	-21.6	-5.8	0.7	1221.063
4-Aug-15	6510.1	857	7.9	1857	2	1840.8	1842.6	1858.4	189.3	1409.725
5-Aug-15	6531.6	857	7.1	1839	2	1822.7	1825.3	1841.1	187.5	1407.885
6-Aug-15	6533.4	857	6.6	1837	2	1821.0	1824.0	1839.8	187.3	1407.712
7-Aug-15	6533.7	857	6.4	1836	2	1820.7	1823.9	1839.7	187.3	1407.678
10-Aug-15	6536.2	857	6.1	1834	2	1818.5	1822.0	1837.8	187.0	1407.455
16-Aug-15	6539.6	857	6.0	1831	2	1815.7	1819.2	1835.0	186.8	1407.165
31-Aug-15	6536.6	857	5.9	1834	2	1818.1	1821.7	1837.5	187.0	1407.413
5-Sep-15	6537.5	857	5.9	1833	2	1817.3	1821.0	1836.8	186.9	1407.337
22-Sep-15	6545.7	857	5.9	1826	2	1810.6	1814.2	1830.0	186.2	1406.649
23-Sep-15	6546.4	857	5.9	1826	2	1810.0	1813.7	1829.5	186.2	1406.590
30-Oct-15	6545.2	857	5.9	1827	2	1811.0	1814.7	1830.4	186.3	1406.691
14-Mar-16	6567.2	857	5.9	1809	2	1792.9	1796.6	1812.4	184.4	1404.843

Zero Reading

**Vibrating Wire Piezometer Calibration Data (VW33428)**

Hole ID	Elevation	VWP s/n	Depth	Angle	True Depth	Date installed	p_CF	p_ini	T_CF	T_ini	F	B_ini	A	B	C
	[m asl]		[m ah]	[deg]	[m bgs]		[kPa/B]	[B]	[kPa/oC rise]	oC	[kPa/mbar]	[mbar]			
K15-200	1408.3	VW33428	124.97	-70	117		0.83142	9021.5	0.3601	23.5	0.1	1015			
	[m asl]		[m ah]	[deg]	[m bgs]		[MPa/B]	[B]	[MPa/oC rise]	oC	[MPa/mbar]	[mbar]			
	1408.3	VW33428	124.97	-70	117	4-Aug-15	0.0008314	9021.5	0.0003601	23.5	0.0001	1015	-3.6629E-09	-0.0007786	7.3158

**Readings**

Date	p_mes	B_mes	T_mes	p_lin	p_lin	p_lin (no baro corr)	p_poly	p_poly (no baro corr)	H2O column	Hydraulic Head
	[B]	[hPa]	[oC]	[kPa]	[MPa]	[kPa]	[kPa]	[kPa]	[m]	[m asl]
4-Aug-15	9027.3	857	12.4	7	0	-8.8	-23.2	-7.4	0.7	1291.578
4-Aug-15	7670.9	857	6.2	1132	1	1116.7	1118.1	1133.9	115.5	1406.348
5-Aug-15	7672.4	857	5.5	1131	1	1115.2	1117.1	1132.9	115.3	1406.195
6-Aug-15	7671.7	857	4.9	1131	1	1115.6	1117.9	1133.7	115.4	1406.232
7-Aug-15	7670.6	857	4.6	1132	1	1116.4	1119.0	1134.8	115.4	1406.314
10-Aug-15	7666.3	857	4.2	1136	1	1119.8	1122.7	1138.5	115.8	1406.664
16-Aug-15	7660.6	857	4.0	1140	1	1124.5	1127.5	1143.3	116.3	1407.140
31-Aug-15	7655.8	857	3.9	1144	1	1128.4	1131.6	1147.4	116.7	1407.543
5-Sep-15	7658	857	3.9	1142	1	1126.6	1129.7	1145.5	116.5	1407.357
22-Sep-15	7664.2	857	3.8	1137	1	1121.4	1124.6	1140.4	116.0	1406.827
23-Sep-15	7664.7	857	3.8	1137	1	1121.0	1124.2	1140.0	115.9	1406.785
30-Oct-15	7646.6	857	3.8	1152	1	1136.0	1139.3	1155.1	117.5	1408.320
14-Mar-16	7672.8	857	3.8	1130	1	1114.2	1117.4	1133.2	115.2	1406.098

Zero reading

Vibrating Wire Piezometer Calibration Data (VW33427)

Hole ID	Elevation	VWP s/n	Depth	Angle	True Depth	Date installed	p_CF	p_ini	T_CF	T_ini	F	B_ini	A	B	C
	[m asl]		[m ah]	[deg]	[m bgs]		[kPa/B]	[B]	[kPa/oC rise]	oC	[kPa/mbar]	[mbar]			
K15-200	1408.3	VW33427	49.99	-70	47		0.82528	8839.3	0.7823	23.2	0.1	1015			
	[m asl]		[m ah]	[deg]	[m bgs]		[MPa/B]	[B]	[MPa/oC rise]	oC	[MPa/mbar]	[mbar]			
	1408.3	VW33427	49.99	-70	47	4-Aug-15	0.0008253	8839.3	0.0007823	23.2	0.0001	1015	-4.4055E-09	-0.0007635	7.0851

Readings

Date	p_mes	B_mes	T_mes	p_lin	p_lin	p_lin (no baro corr)	p_poly	p_poly (no baro corr)	H2O column	Hydraulic Head
	[B]	[hPa]	[oC]	[kPa]	[MPa]	[kPa]	[kPa]	[kPa]	[m]	[m asl]
4-Aug-15	8841.2	857	12.1	6	0	-10.3	-16.5	-0.7	0.6	1361.890
4-Aug-15	8346	857	5.6	409	0	393.3	404.1	419.9	41.7	1403.045
5-Aug-15	8350.7	857	4.5	404	0	388.6	401.0	416.8	41.2	1402.562
6-Aug-15	8353	857	3.6	402	0	386.0	399.8	415.6	41.0	1402.297
7-Aug-15	8353.5	857	3.1	401	0	385.2	399.8	415.6	40.9	1402.215
10-Aug-15	8352.3	857	2.4	401	0	385.6	401.3	417.1	40.9	1402.260
16-Aug-15	8352.1	857	1.9	401	0	385.4	401.9	417.7	40.9	1402.237
31-Aug-15	8341.2	857	1.7	410	0	394.3	411.2	427.0	41.8	1403.138
5-Sep-15	8340.1	857	1.7	411	0	395.2	412.1	427.9	41.9	1403.231
22-Sep-15	8335	857	1.7	415	0	399.4	416.4	432.2	42.3	1403.660
23-Sep-15	8334.1	857	1.7	416	0	400.1	417.1	432.9	42.4	1403.735
30-Oct-15	8333.7	857	1.6	416	0	400.4	417.5	433.3	42.4	1403.761
14-Mar-16	8347.5	857	1.5	405	0	388.9	406.1	421.9	41.3	1402.592

Zero Reading

**Vibrating Wire Piezometer Calibration Data (VW33431)**

Hole ID	Elevation	VWP s/n	Depth	Angle	True Depth	Date installed	p_CF	p_ini	T_CF	T_ini	F	B_ini	A	B	C
	[m asl]		[m ah]	[deg]	[m bgs]		[kPa/B]	[B]	[kPa/oC rise]	oC	[kPa/mbar]	[mbar]			
K15-248	1424.3	VW33431	274.3	-75	265		1.30093	8795.6	0.9171	23.3	0.1	1015			
	[m asl]		[m ah]	[deg]	[m bgs]		[MPa/B]	[B]	[MPa/oC rise]	oC	[MPa/mbar]	[mbar]			
	1424.3	VW33431	274.3	-75	265	10-Sep-15	0.0013009	8795.6	0.0009171	23.3	0.0001	1015	-6.1332E-09	-0.0012167	11.164

**Readings**

Date	p_mes	B_mes	T_mes	p_lin	p_lin	p_lin (no baro corr)	p_poly	p_poly (no baro corr)	H2O column	Hydraulic Head
	[B]	[hPa]	[oC]	[kPa]	[MPa]	[kPa]	[kPa]	[kPa]	[m]	[m asl]
10-Sep-15	8804	855	7.2	-10	0	-25.7	-24.5	-8.5	-1.0	1158.354
12-Sep-15	6840.4	855	8.7	2546	3	2530.2	2551.7	2567.7	259.6	1418.981
20-Sep-15	6848	855	8.2	2536	3	2519.8	2542.3	2558.2	258.6	1417.926
23-Sep-15	6848.5	855	8.2	2535	3	2519.2	2541.6	2557.6	258.5	1417.860
31-Oct-15	6851.2	855	8.2	2532	3	2515.7	2538.1	2554.1	258.2	1417.502
14-Mar-16	6857.9	855	8.1	2523	3	2506.9	2529.5	2545.4	257.3	1416.604

Zero Reading



**Vibrating Wire Piezometer Calibration Data (VW33429)**

Hole ID	Elevation	VWP s/n	Depth	Angle	True Depth	Date installed	p_CF	p_ini	T_CF	T_ini	F	B_ini	A	B	C
	[m asl]		[m ah]	[deg]	[m bgs]		[kPa/B]	[B]	[kPa/oC rise]	oC	[kPa/mbar]	[mbar]			
K15-248	1424.3	VW33429	174.3	-75	168		0.85253	8666.9	0.5493	23.4	0.1	1015			
	[m asl]		[m ah]	[deg]	[m bgs]		[MPa/B]	[B]	[MPa/oC rise]	oC	[MPa/mbar]	[mbar]			
	1424.3	VW33429	174.3	-75	168	10-Sep-15	0.0008525	8666.9	0.0005493	23.4	0.0001	1015	-2.1977E-09	-0.0008222	7.2872

**Readings**

Date	p_mes	B_mes	T_mes	p_lin	p_lin	p_lin (no baro corr)	p_poly	p_poly (no baro corr)	H2O column	Hydraulic Head
	[B]	[hPa]	[oC]	[kPa]	[MPa]	[kPa]	[kPa]	[kPa]	[m]	[m asl]
10-Sep-15	8679.6	855	7.4	-4	0	-19.6	-21.7	-5.8	-0.4	1255.566
12-Sep-15	6907.1	855	6.0	1507	2	1490.7	1497.1	1513.0	153.6	1409.578
20-Sep-15	6932.9	855	5.0	1484	1	1468.2	1475.6	1491.6	151.3	1407.279
23-Sep-15	6935.6	855	5.0	1482	1	1465.9	1473.3	1489.3	151.1	1407.044
31-Oct-15	6946.9	855	4.8	1472	1	1456.1	1463.8	1479.8	150.1	1406.051
14-Mar-16	6956.4	855	4.7	1464	1	1448.0	1455.8	1471.7	149.3	1405.219

Zero Reading

**Vibrating Wire Piezometer Calibration Data (VW33426)**

Hole ID	Elevation	VWP s/n	Depth	Angle	True Depth	Date installed	p_CF	p_ini	T_CF	T_ini	F	B_ini	A	B	C
	[m asl]		[m ah]	[deg]	[m bgs]		[kPa/B]	[B]	[kPa/oC rise]	oC	[kPa/mbar]	[mbar]			
K15-248	1424.3	VW33426	50.8	-75	49		0.8274	8824.2	0.6503	23.2	0.1	1015			
	[m asl]		[m ah]	[deg]	[m bgs]		[MPa/B]	[B]	[MPa/oC rise]	oC	[MPa/mbar]	[mbar]			
	1424.3	VW33426	50.8	-75	49	10-Sep-15	0.0008274	8824.2	0.0006503	23.2	0.0001	1015	-3.8493E-09	-0.0007735	7.1183

**Readings**

Date	p_mes	B_mes	T_mes	p_lin	p_lin	p_lin (no baro corr)	p_poly	p_poly (no baro corr)	H2O column	Hydraulic Head
	[B]	[hPa]	[oC]	[kPa]	[MPa]	[kPa]	[kPa]	[kPa]	[m]	[m asl]
10-Sep-15	8824.5	855	7.1	5	0	-10.7	-12.6	3.4	0.5	1375.765
12-Sep-15	8450	855	3.0	312	0	296.5	304.6	320.6	31.9	1407.090
20-Sep-15	8457.8	855	1.6	305	0	289.1	299.0	315.0	31.1	1406.340
23-Sep-15	8458.4	855	1.5	305	0	288.6	298.6	314.5	31.1	1406.282
31-Oct-15	8461.7	855	1.1	302	0	285.6	296.1	312.0	30.7	1405.977
14-Mar-16	8464.6	855	1.0	299	0	283.1	293.7	309.7	30.5	1405.726

Zero Reading



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# Calibration Record

RST Instruments Ltd., 11545 Kingston St., Maple Ridge, British Columbia, Canada V2X 0Z5  
Tel: 604 540 1100 • Fax: 604 540 1005 • Toll Free: 1 800 665 5599 (North America only)  
e-mail: info@rstinstruments.com • Website: www.rstinstruments.com

## Vibrating Wire Piezometer

Customer: BMC Minerals  
Model: VW2100-3.0  
Serial Number: VW33426  
Mfg Number: 1515557  
Range: 3.0 MPa  
Temperature: 23.3 °C  
Barometric Pressure: 990.0 millibars  
Work Order Number: 207430  
Cable Length: 53 meters  
Cable Markings: 919395 m - 919448 m  
Cable Colour Code: Red / Black (Coil) Green / White (Thermistor)  
Cable Type: EL380004  
Thermistor Type: 3 kΩ

Applied Pressure (MPa)	First Reading (B units)	Second Reading (B units)	Average Reading (B units)	Calculated Linear (MPa)	Linearity Error (% FS)	Polynomial Error (% FS)
0.0	8816	8817	8817	0.006	0.21	-0.01
0.6	8100	8100	8100	0.599	-0.03	0.02
1.2	7380	7380	7380	1.195	-0.17	0.01
1.8	6656	6656	6656	1.794	-0.20	-0.02
2.4	5925	5926	5926	2.398	-0.05	0.00
3.0	5190	5190	5190	3.007	0.23	0.01
Max. Error (%):					0.23	0.02

Linear Calibration Factor: C.F. = 0.00082740 MPa/B unit  
Regression Zero: At Calibration = 8824.2 B unit  
Temperature Correction Factor: Tk = 0.0006503 MPa/°C rise

Polynomial Gage Factors (MPa) A: -3.8493E-09 B: -0.00077349 C: 7.1183

Pressure is calculated with the following equations:

Linear:  $P(\text{MPa}) = C.F. (L_i - L_c) - [Tk(T_i - T_c)] + [0.00010(B_i - B_c)]$

Polynomial:  $P(\text{MPa}) = A(L_c)^2 + BL_c + C + Tk(T_c - T_i) - [0.00010(B_c - B_i)]$

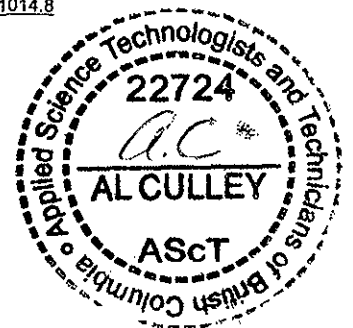
	Date (dd/mm/yy)	VW Readout Pos. B (Li)	Temp °C (Ti)	Baro (Bi)
Shipped Zero Readings:	<u>6-Jul-15</u>	<u>8821</u>	<u>23.2</u>	<u>1014.8</u>

$L_i, L_c$  = initial ( at installation) and current readings  
 $T_i, T_c$  = initial ( at installation) and current temperature, in °C  
 $B_i, B_c$  = initial ( at installation) and current barometric pressure readings, in millibars  
B units = B scale output of VW 2102, VW 2104, VW 2106 and DT 2011 readouts  
B units = Hz<sup>2</sup> / 1000 ie: 1700Hz = 2890 B units

Technician: S. Kim SK

Date: 6-Jul-15

This instrument has been calibrated using standards traceable to the NIST in compliance with ANSI Z540-1



Document Number: ELL0143H





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# Calibration Record

RST Instruments Ltd., 11545 Kingston St., Maple Ridge, British Columbia, Canada V2X 0Z5  
Tel: 604 540 1100 • Fax: 604 540 1005 • Toll Free: 1 800 665 5599 (North America only)  
e-mail: info@rstinstruments.com • Website: www.rstinstruments.com

## Vibrating Wire Piezometer

Customer: BMC Minerals  
Model: VW2100-5.0-HD  
Serial Number: VW33431  
Mfg Number: 1516392  
Range: 5.0 MPa  
Temperature: 23.3 °C  
Barometric Pressure: 991.1 millibars  
Work Order Number: 207430  
Cable Length: 303 meters  
Cable Markings: 884740 m - 885045 m  
Cable Colour Code: Red / Black (Coil) Green / White (Thermistor)  
Cable Type: EL380004  
Thermistor Type: 3 kΩ

Applied Pressure (MPa)	First Reading (B units)	Second Reading (B units)	Average Reading (B units)	Calculated Linear (MPa)	Linearity Error (% FS)	Polynomial Error (% FS)
0.0	8787	8787	8787	0.011	0.22	-0.02
1.0	8028	8027	8028	0.999	-0.01	0.03
2.0	7266	7266	7266	1.990	-0.20	-0.01
3.0	6499	6497	6498	2.989	-0.22	-0.02
4.0	5723	5722	5723	3.998	-0.04	0.01
5.0	4943	4943	4943	5.012	0.24	0.00
<b>Max. Error (%):</b>					<b>0.24</b>	<b>0.03</b>

Linear Calibration Factor: C.F.= 0.00130093 MPa/B unit  
Regression Zero: At Calibration = 8795.6 B unit  
Temperature Correction Factor: Tk = 0.0009171 MPa/°C rise

Polynomial Gage Factors (MPa) A: -6.1332E-09 B: -0.00121672 C: 11.1641

Pressure is calculated with the following equations:

Linear:  $P(\text{MPa}) = C.F. \cdot (L_i - L_c) - [Tk(T_i - T_c)] + [0.00010(B_i - B_c)]$

Polynomial:  $P(\text{MPa}) = A(L_c)^2 + B L_c + C + Tk(T_c - T_i) - [0.00010(B_c - B_i)]$

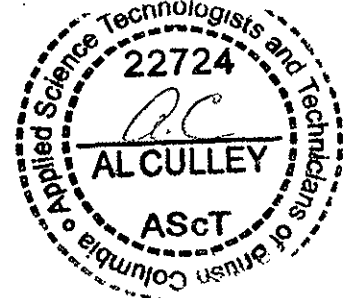
	Date (dd/mm/yy)	VW Readout Pos. B (Li)	Temp °C (Ti)	Baro (Bi)
Shipped Zero Readings:	<u>6-Jul-15</u>	<u>8797</u>	<u>23.3</u>	<u>1014.8</u>

Li, Lc = initial ( at installation) and current readings  
Ti, Tc = initial ( at installation) and current temperature, in °C  
Bi, Bc = initial ( at installation) and current barometric pressure readings, in millibars  
B units = B scale output of VW 2102, VW 2104, VW 2106 and DT 2011 readouts  
B units = Hz<sup>2</sup> / 1000 ie: 1700Hz = 2890 B units

Technician: S. Kim *SK*

Date: 6-Jul-15

This instrument has been calibrated using standards traceable to the NIST in compliance with ANSI Z540-1



Document Number: ELL0143H



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# Calibration Record

RST Instruments Ltd., 11545 Kingston St., Maple Ridge, British Columbia, Canada V2X 0Z5  
Tel: 604 540 1100 • Fax: 604 540 1005 • Toll Free: 1 800 665 5599 (North America only)  
e-mail: info@rstinstruments.com • Website: www.rstinstruments.com

## Vibrating Wire Piezometer

Customer: BMC Minerals  
Model: VW2100-3.0  
Serial Number: VW33430  
Mfg Number: 1517018  
Range: 3.0 MPa  
Temperature: 22.6 °C  
Barometric Pressure: 991.1 millibars  
Work Order Number: 207430  
Cable Length: 203 meters  
Cable Markings: 884535 m - 884739 m  
Cable Colour Code: Red / Black (Coil) Green / White (Thermistor)  
Cable Type: EL380004  
Thermistor Type: 3 kΩ

Applied Pressure (MPa)	First Reading (B units)	Second Reading (B units)	Average Reading (B units)	Calculated Linear (MPa)	Linearity Error (% FS)	Polynomial Error (% FS)
0.0	8747	8747	8747	0.005	0.18	-0.02
0.6	8025	8025	8025	0.600	-0.01	0.03
1.2	7302	7302	7302	1.195	-0.16	-0.01
1.8	6574	6573	6574	1.795	-0.16	-0.01
2.4	5841	5841	5841	2.398	-0.06	-0.01
3.0	5103	5103	5103	3.006	0.20	0.01
Max. Error (%):					0.20	0.03

Linear Calibration Factor: C.F. = 0.00082350 MPa/B unit  
Regression Zero: At Calibration = 8753.4 B unit  
Temperature Correction Factor: Tk = 0.0004254 MPa/°C rise

Polynomial Gage Factors (MPa) A: -3.2686E-09 B: -0.00077823 C: 7.0567

Pressure is calculated with the following equations:

Linear:  $P(\text{MPa}) = C.F. \cdot (L_i - L_c) - [Tk(T_i - T_c)] + [0.00010(B_i - B_c)]$

Polynomial:  $P(\text{MPa}) = A(L_c)^2 + BL_c + C + Tk(T_c - T_i) - [0.00010(B_c - B_i)]$

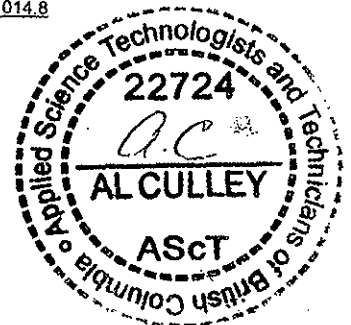
	Date (dd/mm/yy)	VW Readout Pos. B (Li)	Temp °C (Ti)	Baro (Bi)
Shipped Zero Readings:	<u>6-Jul-15</u>	<u>8747</u>	<u>23.4</u>	<u>1014.8</u>

Li, Lc = initial ( at installation) and current readings  
Ti, Tc = initial ( at installation) and current temperature, in °C  
Bi, Bc = initial ( at installation) and current barometric pressure readings, in millibars  
B units = B scale output of VW 2102, VW 2104, VW 2106 and DT 2011 readouts  
B units = Hz<sup>2</sup> / 1000 ie: 1700Hz = 2890 B units

Technician: S. Kim *SK*

Date: 6-Jul-15

This instrument has been calibrated using standards traceable to the NIST in compliance with ANSI Z540-1



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# Calibration Record

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e-mail: info@rstinstruments.com • Website: www.rstinstruments.com

## Vibrating Wire Piezometer

Customer: BMC Minerals  
Model: VW2100-3.0  
Serial Number: VW33429  
Mfg Number: 1517017  
Range: 3.0 MPa  
Temperature: 22.6 °C  
Barometric Pressure: 991.1 millibars  
Work Order Number: 207430  
Cable Length: 178 meters  
Cable Markings: 884356 m - 884534 m  
Cable Colour Code: Red / Black (Coil) Green / White (Thermistor)  
Cable Type: EL380004  
Thermistor Type: 3 kΩ

Applied Pressure (MPa)	First Reading (B units)	Second Reading (B units)	Average Reading (B units)	Calculated Linear (MPa)	Linearity Error (% FS)	Polynomial Error (% FS)
0.0	8662	8663	8663	0.004	0.12	0.00
0.6	7964	7964	7964	0.599	-0.03	0.00
1.2	7263	7263	7263	1.197	-0.11	-0.01
1.8	6559	6559	6559	1.797	-0.10	0.00
2.4	5852	5852	5852	2.400	-0.01	0.02
3.0	5144	5144	5144	3.003	0.11	-0.01
Max. Error (%):					0.12	0.02

Linear Calibration Factor: C.F. = 0.00085253 MPa/B unit  
Regression Zero: At Calibration = 8666.9 B unit  
Temperature Correction Factor: Tk = 0.0005493 MPa/°C rise

Polynomial Gage Factors (MPa) A: -2.1977E-09 B: -0.00082218 C: 7.2872

Pressure is calculated with the following equations:

Linear:  $P(\text{MPa}) = C.F. \cdot (L_i - L_c) - [Tk(T_i - T_c)] + [0.00010(B_i - B_c)]$

Polynomial:  $P(\text{MPa}) = A(L_c)^2 + B L_c + C + Tk(T_c - T_i) - [0.00010(B_c - B_i)]$

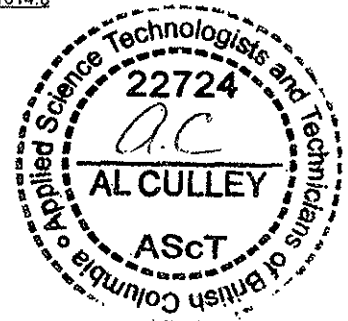
	Date (dd/mm/yy)	VW Readout Pos. B (Li)	Temp °C (Ti)	Baro (Bi)
Shipped Zero Readings:	<u>6-Jul-15</u>	<u>8674</u>	<u>23.4</u>	<u>1014.8</u>

Li, Lc = initial ( at installation) and current readings  
Ti, Tc = initial ( at installation) and current temperature, in °C  
Bi, Bc = initial ( at installation) and current barometric pressure readings, in millibars  
B units = B scale output of VW 2102, VW 2104, VW 2106 and DT 2011 readouts  
B units = Hz<sup>2</sup> / 1000 ie: 1700Hz = 2890 B units

Technician: S. Kim *Sx*

Date: 6-Jul-15

This instrument has been calibrated using standards traceable to the NIST in compliance with ANSI Z540-1



Document Number: ELL0143H



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# Calibration Record

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Tel: 604 540 1100 • Fax: 604 540 1005 • Toll Free: 1 800 665 5599 (North America only)  
e-mail: info@rstinstruments.com • Website: www.rstinstruments.com

## Vibrating Wire Piezometer

Customer: BMC Minerals  
Model: VW2100-3.0  
Serial Number: VW33428  
Mfg Number: 1517016  
Range: 3.0 MPa  
Temperature: 22.6 °C  
Barometric Pressure: 991.1 millibars  
Work Order Number: 207430  
Cable Length: 128 meters  
Cable Markings: 884226 m - 884355 m  
Cable Colour Code: Red / Black (Coil) Green / White (Thermistor)  
Cable Type: EL380004  
Thermistor Type: 3 kΩ

Applied Pressure (MPa)	First Reading (B units)	Second Reading (B units)	Average Reading (B units)	Calculated Linear (MPa)	Linearity Error (% FS)	Polynomial Error (% FS)
0.0	9014	9015	9015	0.006	0.19	-0.02
0.6	8300	8300	8300	0.600	0.00	0.04
1.2	7585	7585	7585	1.194	-0.19	-0.02
1.8	6863	6863	6863	1.795	-0.18	-0.01
2.4	6136	6137	6137	2.399	-0.04	0.00
3.0	5405	5406	5406	3.006	0.21	0.00
Max. Error (%):					0.21	0.04

Linear Calibration Factor: C.F. = 0.00083142 MPa/B unit  
Regression Zero: At Calibration = 9021.5 B unit  
Temperature Correction Factor: Tk = 0.0003601 MPa/°C rise

Polynomial Gage Factors (MPa) A: -3.6629E-09 B: -0.00077860 C: 7.3158

Pressure is calculated with the following equations:

Linear:  $P(\text{MPa}) = C.F. \cdot (Li - Lc) - [Tk(Ti - Tc)] + \{0.00010(Bi - Bc)\}$

Polynomial:  $P(\text{MPa}) = A(Lc)^2 + B.Lc + C + Tk(Tc - Ti) - \{0.00010(Bc - Bi)\}$

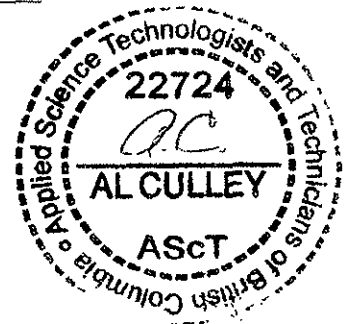
	Date (dd/mm/yy)	VW Readout Pos. B (Li)	Temp °C (Ti)	Baro (Bi)
Shipped Zero Readings:	<u>6-Jul-15</u>	<u>9014</u>	<u>23.5</u>	<u>1014.8</u>

Li, Lc = initial ( at installation) and current readings  
Ti, Tc = initial ( at installation) and current temperature, in °C  
Bi, Bc = initial ( at installation) and current barometric pressure readings, in millibars  
B units = B scale output of VW 2102, VW 2104, VW 2106 and DT 2011 readouts  
B units = Hz<sup>2</sup> / 1000 ie: 1700Hz = 2890 B units

Technician: S. Kim SK

Date: 6-Jul-15

This instrument has been calibrated using standards traceable to the NIST in compliance with ANSI Z540-1



Document Number: ELL0143H



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# Calibration Record

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Tel: 604 540 1100 • Fax: 604 540 1005 • Toll Free: 1 800 665 5599 (North America only)  
e-mail: info@rstinstruments.com • Website: www.rstinstruments.com

## Vibrating Wire Piezometer

Customer: BMC Minerals  
Model: VW2100-3.0  
Serial Number: VW33427  
Mfg Number: 1515558  
Range: 3.0 MPa  
Temperature: 23.3 °C  
Barometric Pressure: 990.0 millibars  
Work Order Number: 207430  
Cable Length: 53 meters  
Cable Markings: 919449 m - 919501 m  
Cable Colour Code: Red / Black (Coil) Green / White (Thermistor)  
Cable Type: EL380004  
Thermistor Type: 3 kΩ

Applied Pressure (MPa)	First Reading (B units)	Second Reading (B units)	Average Reading (B units)	Calculated Linear (MPa)	Linearity Error (% FS)	Polynomial Error (% FS)
0.0	8830	8830	8830	0.008	0.26	0.00
0.6	8114	8114	8114	0.599	-0.05	0.00
1.2	7393	7393	7393	1.194	-0.21	-0.01
1.8	6666	6666	6666	1.794	-0.21	0.00
2.4	5933	5933	5933	2.399	-0.05	0.01
3.0	5195	5195	5195	3.008	0.25	0.00
Max. Error (%):					0.26	0.01

Linear Calibration Factor: C.F. = 0.00082528 MPa/B unit  
Regression Zero: At Calibration = 8839.3 B unit  
Temperature Correction Factor: Tk = 0.0007823 MPa/°C rise

Polynomial Gage Factors (MPa) A: -4.4055E-09 B: -0.00076349 C: 7.0851

Pressure is calculated with the following equations:

Linear:  $P(\text{MPa}) = C.F. (L_i - L_c) - [Tk(T_i - T_c)] + [0.00010(B_i - B_c)]$

Polynomial:  $P(\text{MPa}) = A(L_c)^2 + BL_c + C + Tk(T_c - T_i) - [0.00010(B_c - B_i)]$

	Date (dd/mm/yy)	VW Readout Pos. B (Li)	Temp °C (Ti)	Baro (Bi)
Shipped Zero Readings:	<u>6-Jul-15</u>	<u>8833</u>	<u>23.2</u>	<u>1014.8</u>

$L_i, L_c$  = initial ( at installation) and current readings

$T_i, T_c$  = initial ( at installation) and current temperature, in °C

$B_i, B_c$  = initial ( at installation) and current barometric pressure readings, in millibars

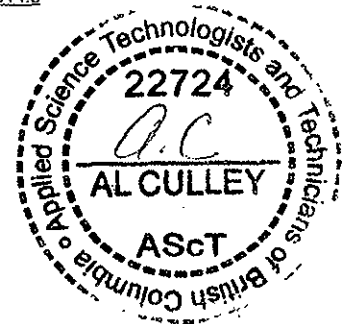
B units = B scale output of VW 2102, VW 2104, VW 2106 and DT 2011 readouts

B units = Hz<sup>2</sup> / 1000 ie: 1700Hz = 2890 B units

Technician: S. Kim *SK*

Date: 6-Jul-15

This instrument has been calibrated using standards traceable to the NIST in compliance with ANSI Z540-1



Document Number: ELL0143H



MIG0106B



# APPENDIX D

## HYDRAULIC RESPONSE TEST DATA ANALYSIS

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## Field Procedure and Interpretation of Hydraulic Response Test Data

The following field procedure was followed for all hydraulic response tests:

- The static water level was measured prior to initiating the hydraulic response test;
- A pressure transducer/datalogger was installed in the well to record total pressure and water temperature during the test at a recording frequency of 1 s to 10 s, depending on the rate of recovery;
- Falling head test:
  - A solid slug consisting of a 1 m or 2 m long solid 1-inch diameter PVC pipe filled with sand (slug volume of 0.9 L or 1.8 L, respectively) was lowered quickly into the well and fully submerged to create a quasi-instantaneous rise in water level;
  - The water level recovery was recorded by the pressure transducer/datalogger.
- Rising head test:
  - After the water level had fully recovered, the slug was quickly withdrawn from the well to cause a quasi-instantaneous drop in water level;
  - Alternatively, a bailer was used to remove a slug of water (volume of 1 L) to cause a quasi-instantaneous drop in water level;
  - The water level recovery was recorded by the pressure transducer/datalogger.
- At the end of the testing sequence, the pressure/transducer datalogger was retrieved from the well and the data were downloaded onto a field laptop.

The hydraulic conductivity  $K$  of the aquifer in the vicinity of the monitoring well was inferred from the recovery data using the Bouwer and Rice (1976) method. The hydraulic conductivity is inferred from the test data as follows:

$$K = \frac{r^2 \ln\left(\frac{R_{cont}}{R}\right)}{2L} \cdot \frac{1}{t} \cdot \ln\left(\frac{h_0}{h_t}\right)$$

where

- $r$  – casing radius
- $R$  – radius measured from centre of well to undisturbed aquifer material (borehole radius)
- $R_{cont}$  – contributing radial distance over which the difference in head,  $h_0$ , is dissipated in the aquifer
- $L$  – the length of the screen
- $b$  – length from bottom of well screen to top of the aquifer
- $h_t$  – displacement as a function of time ( $h_t/h_0$  must always be less than one, i.e. water level must always approach the static water level as time increases)
- $h_0$  – initial displacement

Slug test models including the Bouwer and Rice (1976) method neglect storage in the formation and therefore predict that the logarithm of water level change should be a linear function of time. In reality, all formations are compressible to some extent and have some storage capacity. Storage in the formation is manifested by curvature in the data in semilog space. This introduces complications in the interpretation of some of the data sets collected at the site where the curvature in the recovery data makes it difficult to identify an unambiguous straight line fit. For the Bouwer and Rice analysis, Butler (1998) recommends that the straight line be fitted to the interval  $\Delta H/\Delta H_0 = 0.2$  to  $\Delta H/\Delta H_0 = 0.3$  which is judged to be the most representative portion of the response.



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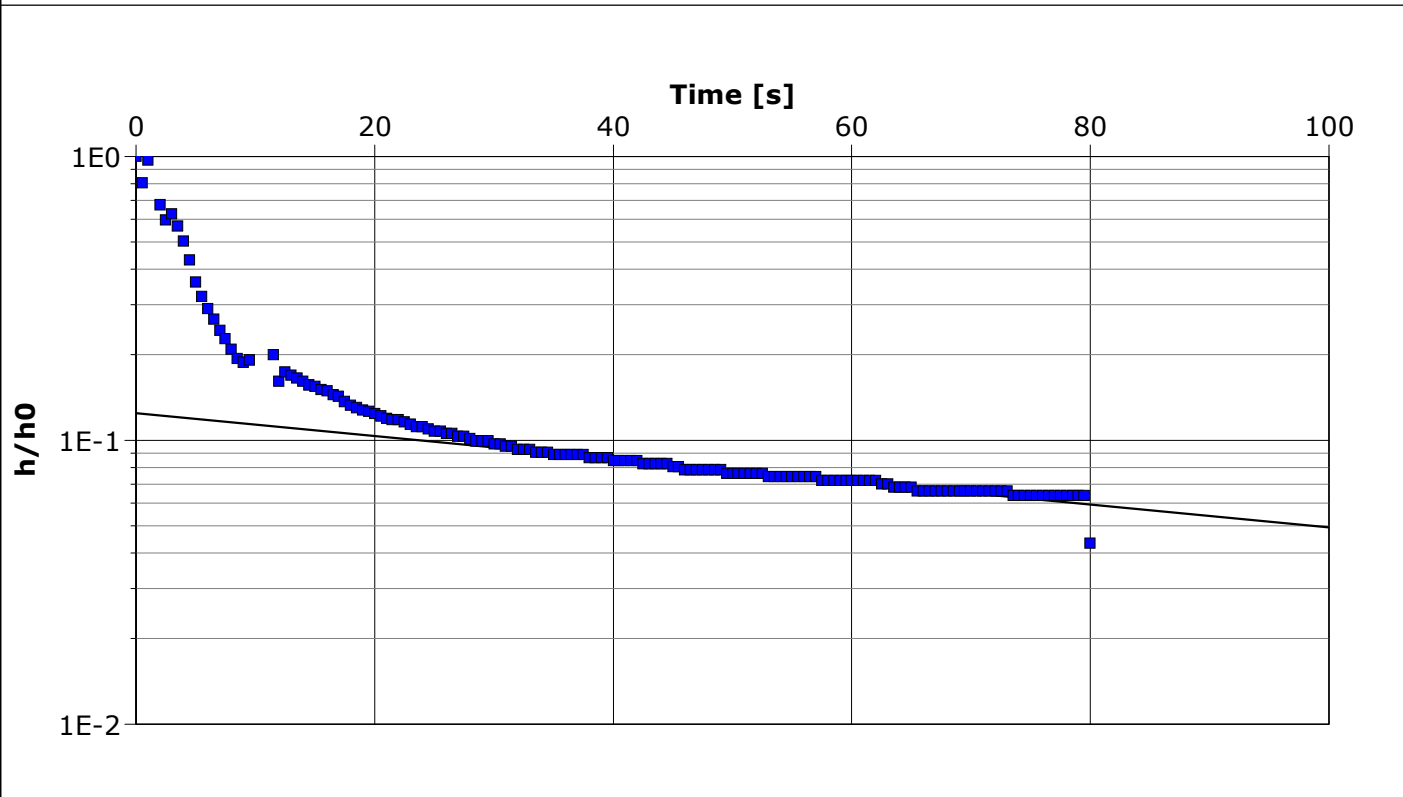
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-01 Slug Test 1	Test Well: MW15-01
Test Conducted by: ER/KR		Test Date: 9/1/2015
Analysis Performed by: ER	New analysis 1	Analysis Date: 10/2/2015
Aquifer Thickness: 10.71 m		



Calculation using Bouwer & Rice		
Observation Well	Hydraulic Conductivity [m/s]	
MW15-01	$7.00 \times 10^{-7}$	



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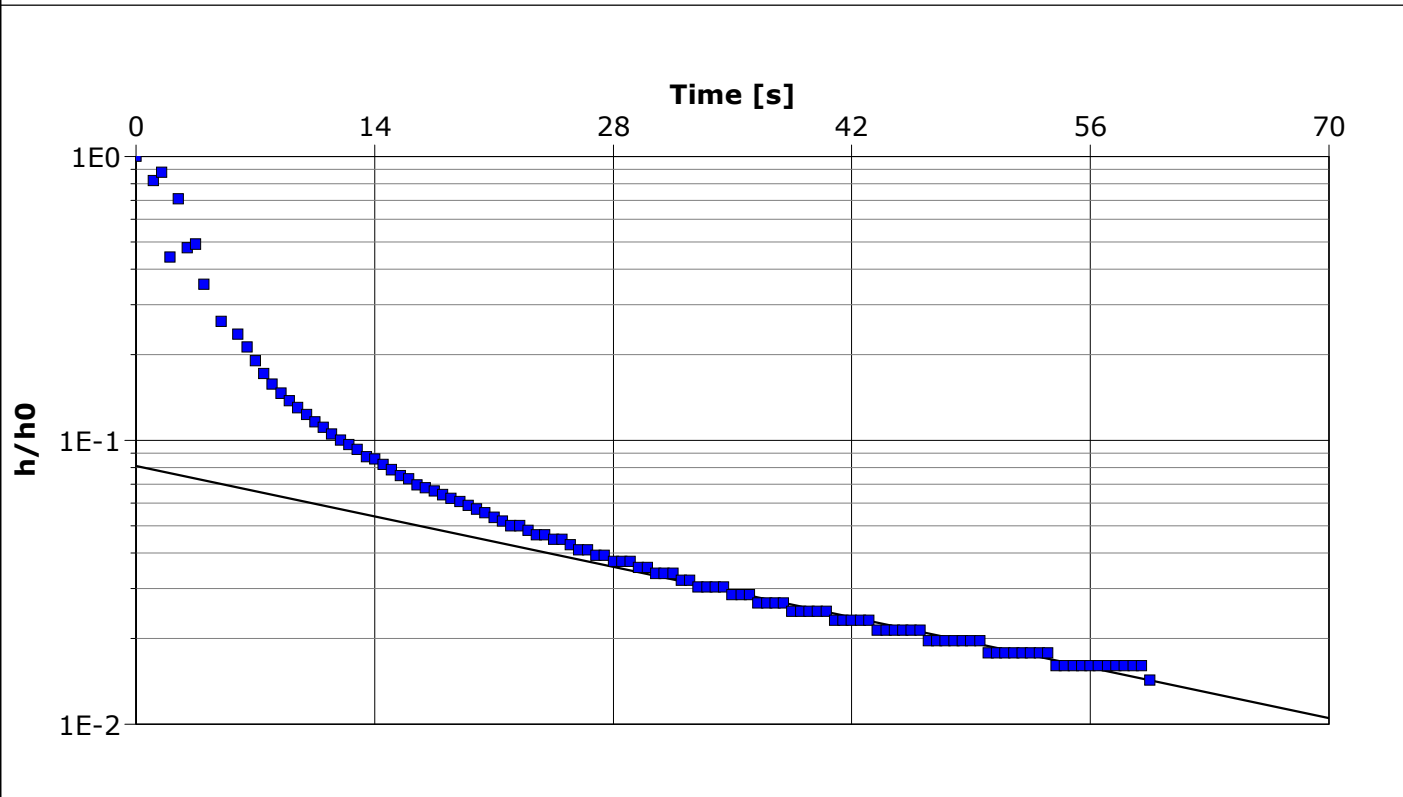
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-01 Slug Test 2	Test Well: MW15-01
Test Conducted by: ER/KR		Test Date: 9/1/2015
Analysis Performed by: ER	New analysis 1	Analysis Date: 10/2/2015
Aquifer Thickness: 10.71 m		



Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]
MW15-01	$2.20 \times 10^{-6}$



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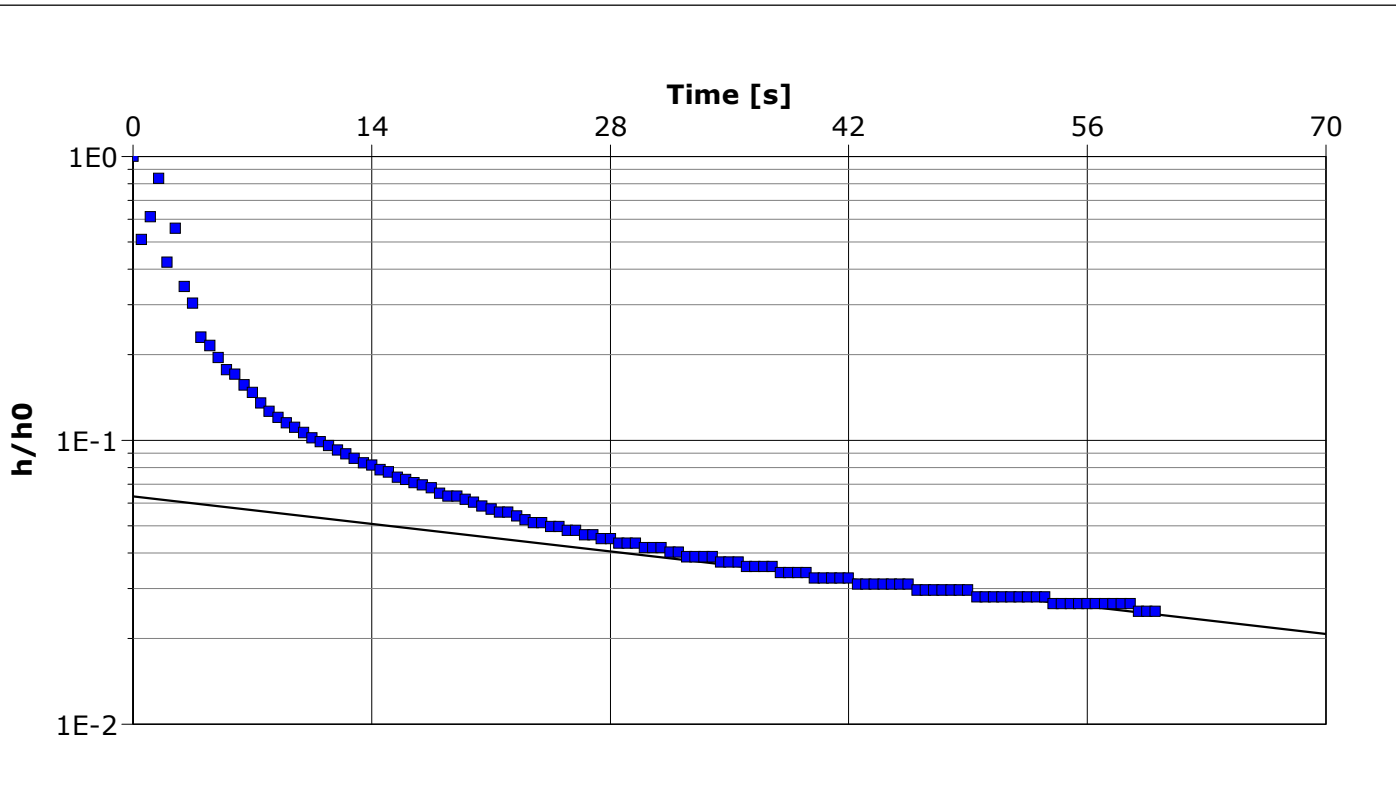
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-01 Slug Test 3	Test Well: MW15-01
Test Conducted by: ER/KR		Test Date: 9/1/2015
Analysis Performed by: ER	New analysis 1	Analysis Date: 10/2/2015
Aquifer Thickness: 10.71 m		



Calculation using Bouwer & Rice		
Observation Well	Hydraulic Conductivity [m/s]	
MW15-01	$1.20 \times 10^{-6}$	



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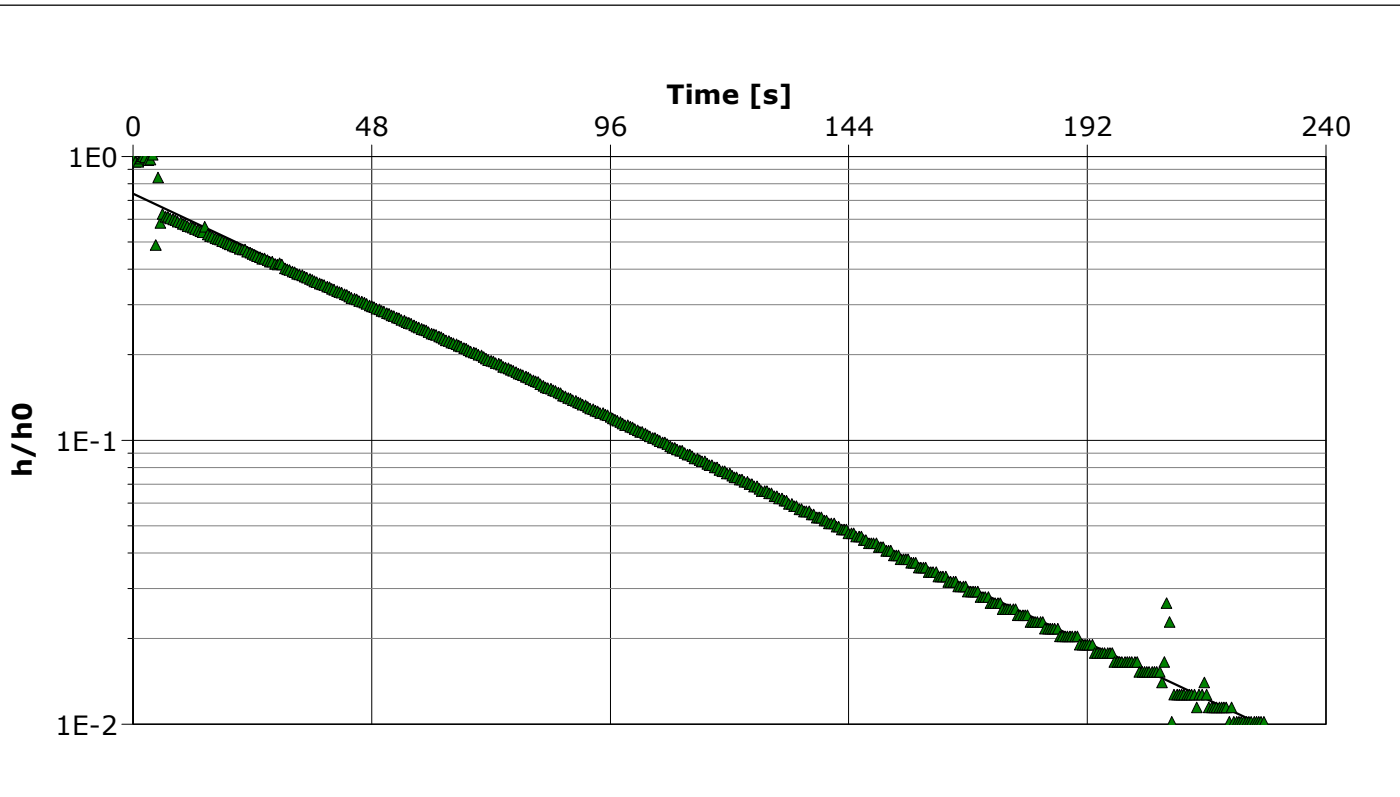
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-03D Slug Test 1	Test Well: MW15-03D
Test Conducted by: ER/KR		Test Date: 9/4/2015
Analysis Performed by:	New analysis 1	Analysis Date: 10/2/2015
Aquifer Thickness: 13.84 m		



Calculation using Bouwer & Rice		
Observation Well	Hydraulic Conductivity [m/s]	
MW15-03D	$1.98 \times 10^{-6}$	



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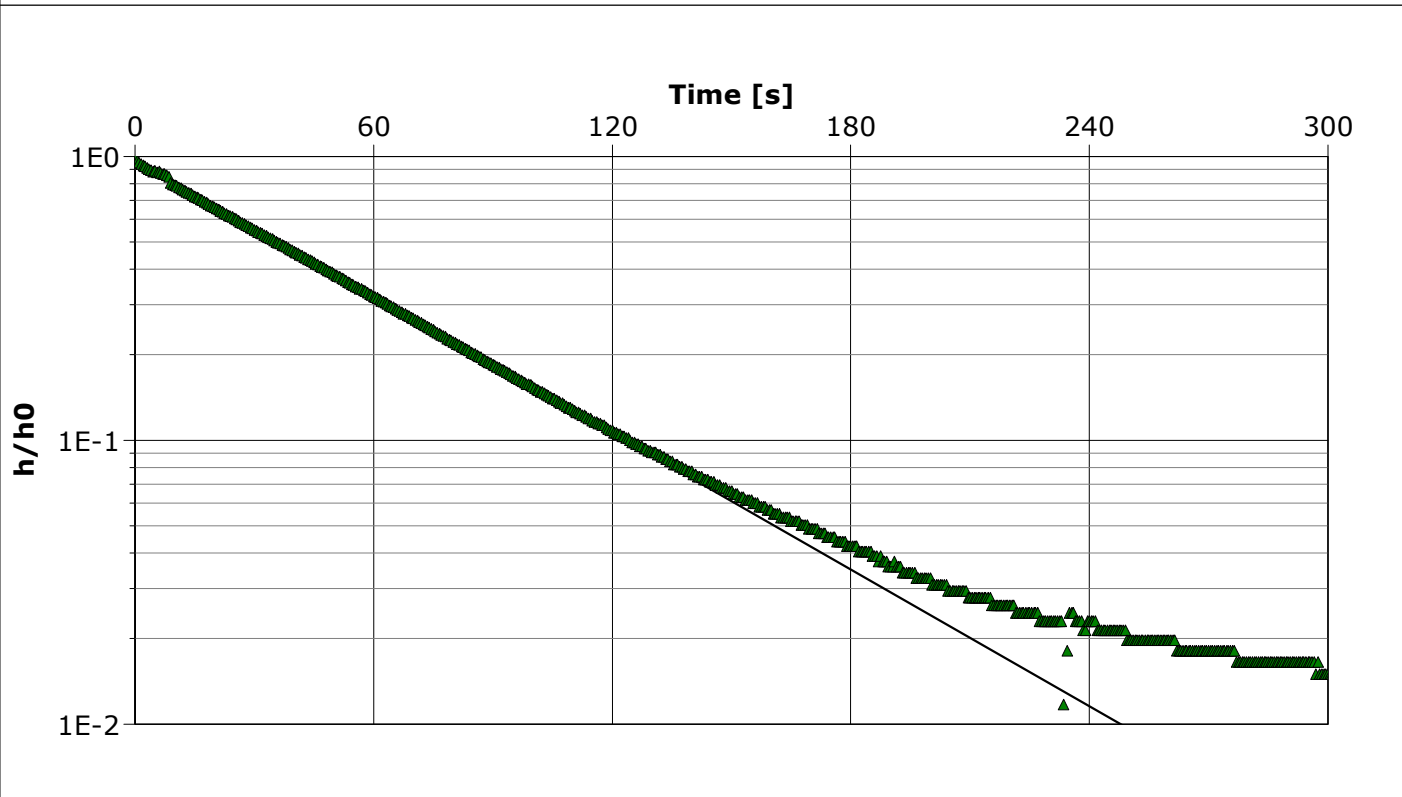
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-03D Slug Test 2	Test Well: MW15-03D
Test Conducted by: ER/KR		Test Date: 9/4/2015
Analysis Performed by: ER	New analysis 1	Analysis Date: 10/2/2015
Aquifer Thickness: 13.84 m		



Calculation using Bouwer & Rice		
Observation Well	Hydraulic Conductivity [m/s]	
MW15-03D	$1.93 \times 10^{-6}$	





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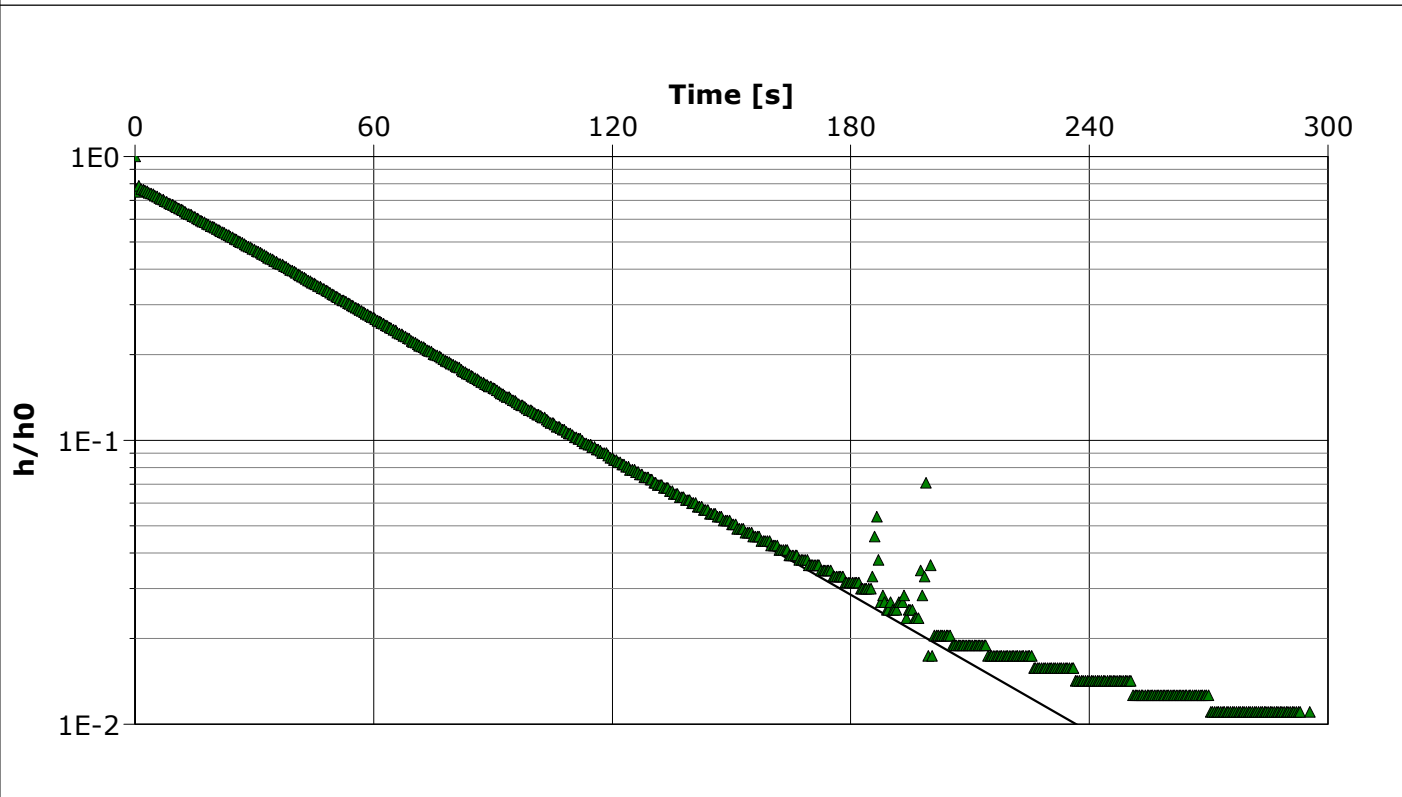
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-03D Slug Test 3	Test Well: MW15-03D
Test Conducted by: ER/KR		Test Date: 9/4/2015
Analysis Performed by: ER	New analysis 1	Analysis Date: 10/2/2015
Aquifer Thickness: 13.84 m		



Calculation using Bouwer & Rice		
Observation Well	Hydraulic Conductivity [m/s]	
MW15-03D	$1.93 \times 10^{-6}$	

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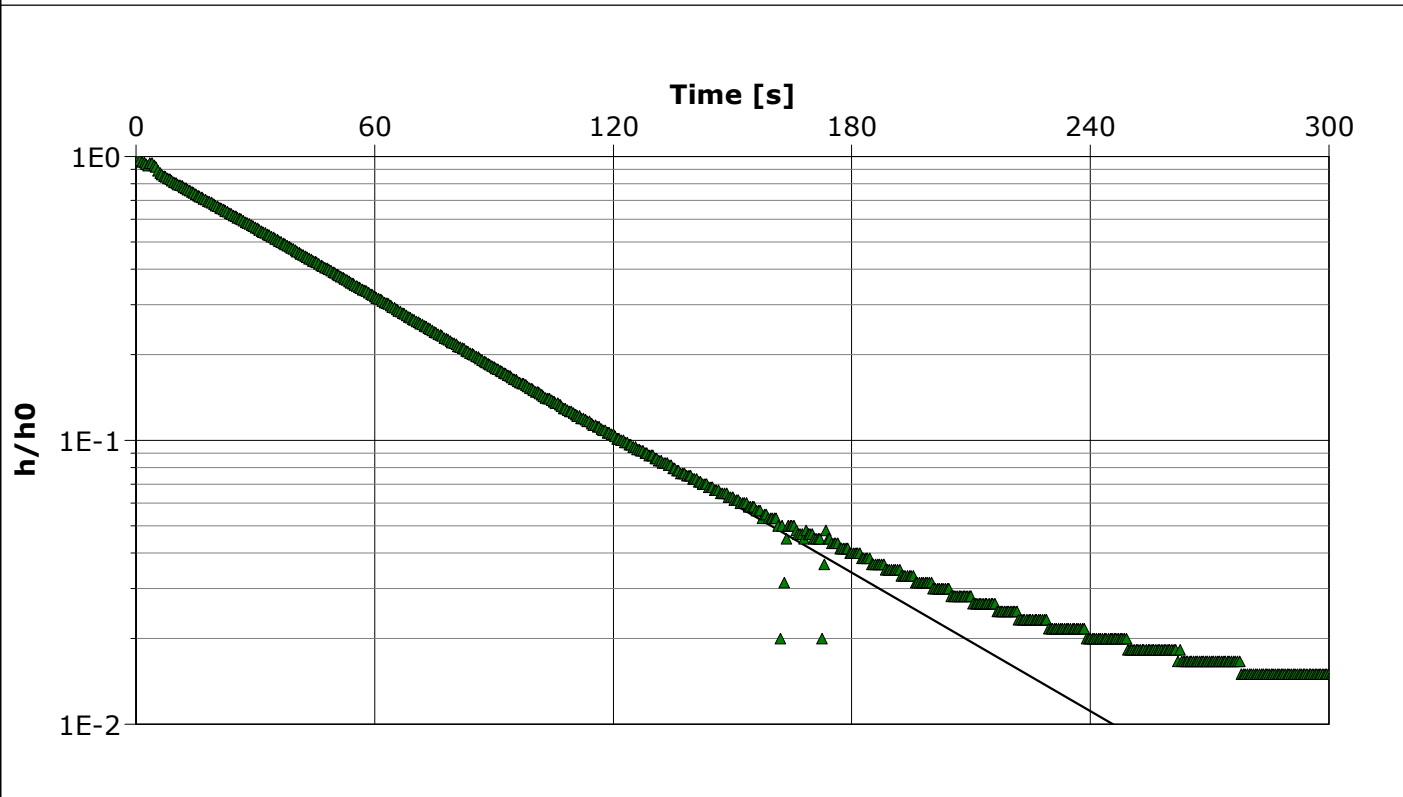
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-03D Slug Test 4	Test Well: MW15-03D
Test Conducted by: ER/KR		Test Date: 9/4/2015
Analysis Performed by: ER	New analysis 1	Analysis Date: 10/2/2015
Aquifer Thickness: 13.84 m		



Calculation using Bouwer & Rice		
Observation Well	Hydraulic Conductivity [m/s]	
MW15-03D	$1.95 \times 10^{-6}$	



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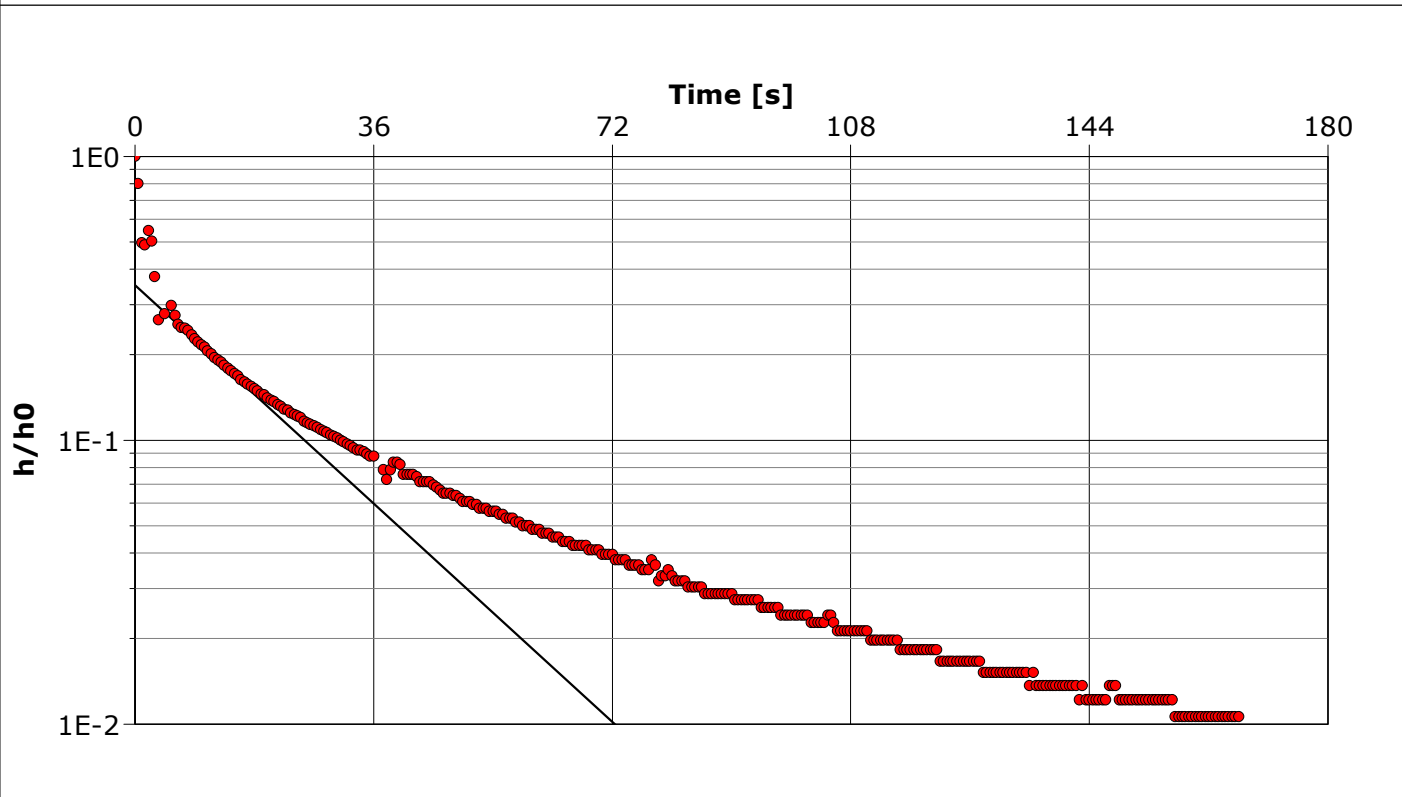
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-03S Slug Test 1	Test Well: MW15-03S
Test Conducted by: ER/KR		Test Date: 9/4/2015
Analysis Performed by: ER	New analysis 1	Analysis Date: 10/3/2015
Aquifer Thickness: 3.60 m		



Calculation using Bouwer & Rice		
Observation Well	Hydraulic Conductivity [m/s]	
MW15-03S	$8.85 \times 10^{-6}$	



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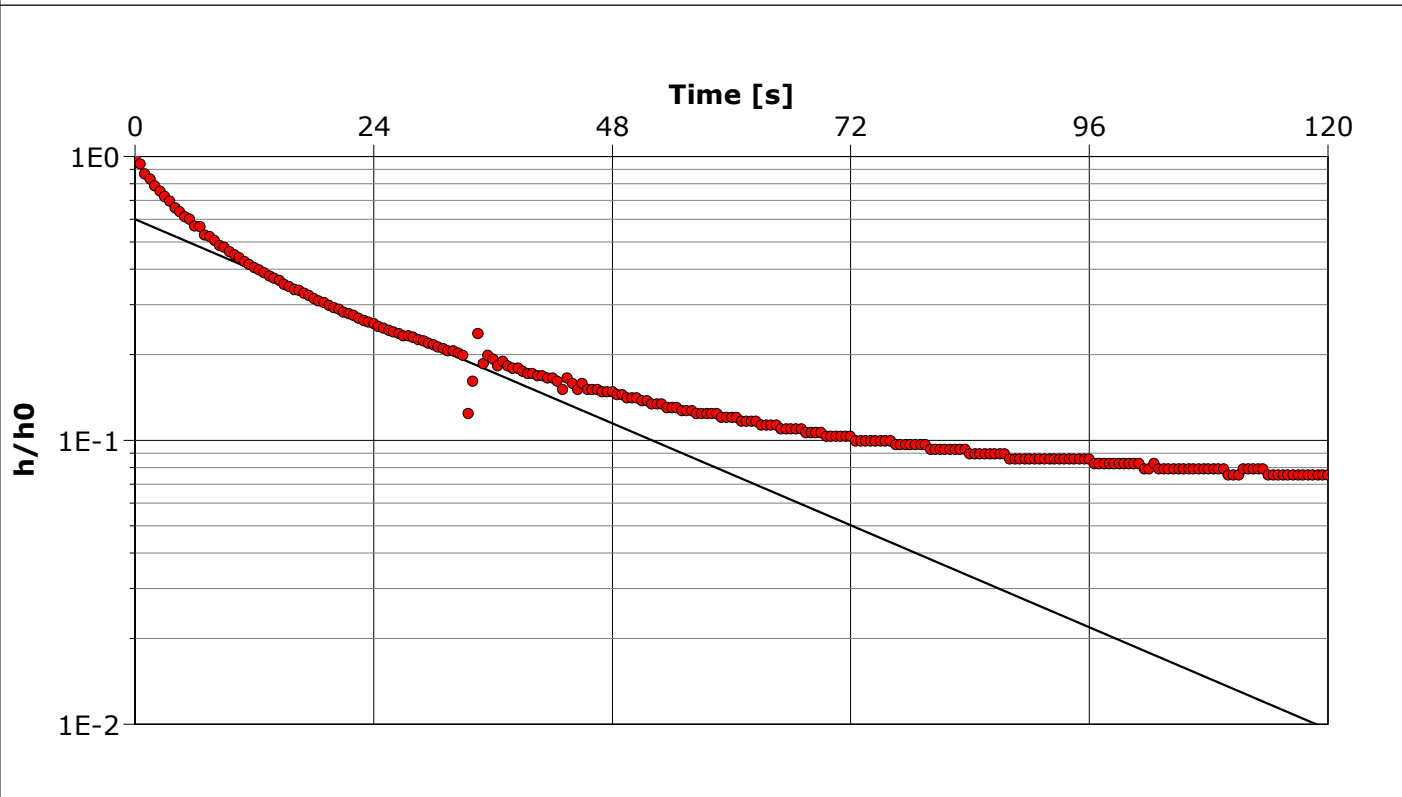
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-03S Slug Test 2	Test Well: MW15-03S
Test Conducted by: ER/KR		Test Date: 9/4/2015
Analysis Performed by: ER	New analysis 1	Analysis Date: 10/3/2015
Aquifer Thickness: 3.60 m		



Calculation using Bouwer & Rice		
Observation Well	Hydraulic Conductivity [m/s]	
MW15-03S	$6.20 \times 10^{-6}$	



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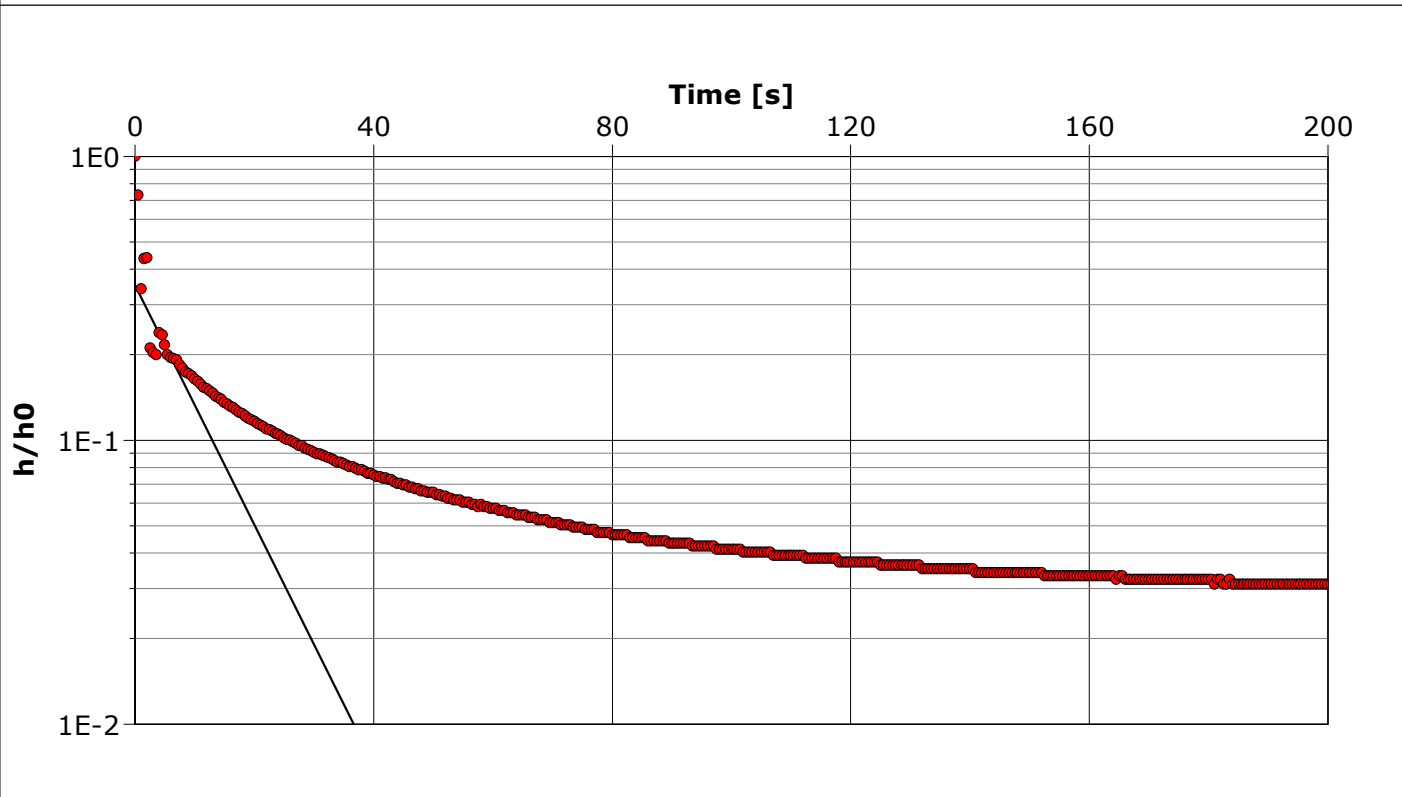
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-03S Slug Test 3	Test Well: MW15-03S
Test Conducted by: ER/KR		Test Date: 9/4/2015
Analysis Performed by: ER	New analysis 1	Analysis Date: 10/3/2015
Aquifer Thickness: 3.60 m		



Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]
MW15-03S	$1.75 \times 10^{-5}$



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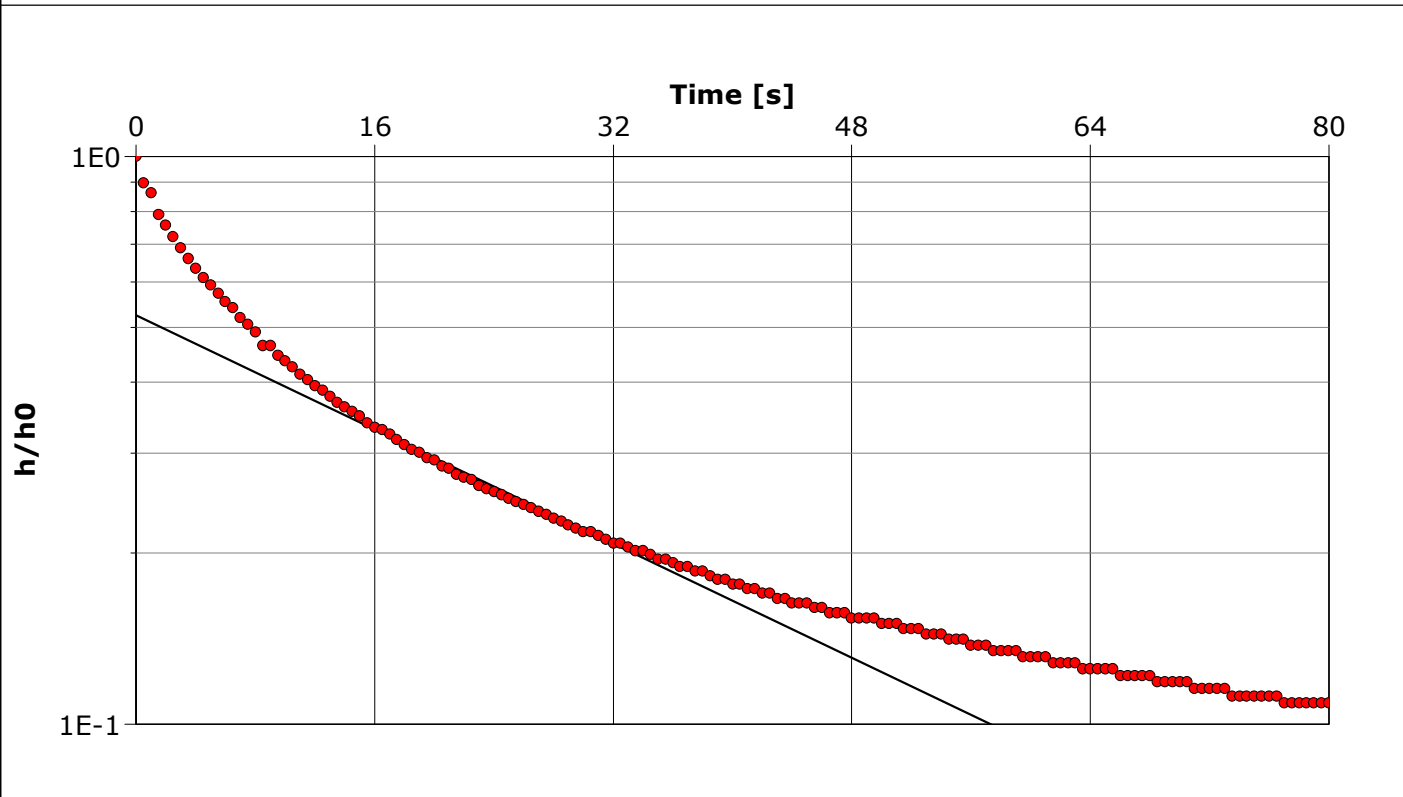
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-03S Slug Test 4	Test Well: MW15-03S
Test Conducted by: ER/KR		Test Date: 9/4/2015
Analysis Performed by: ER	New analysis 1	Analysis Date: 10/3/2015
Aquifer Thickness: 3.60 m		



Calculation using Bouwer & Rice		
Observation Well	Hydraulic Conductivity [m/s]	
MW15-03S	$5.20 \times 10^{-6}$	



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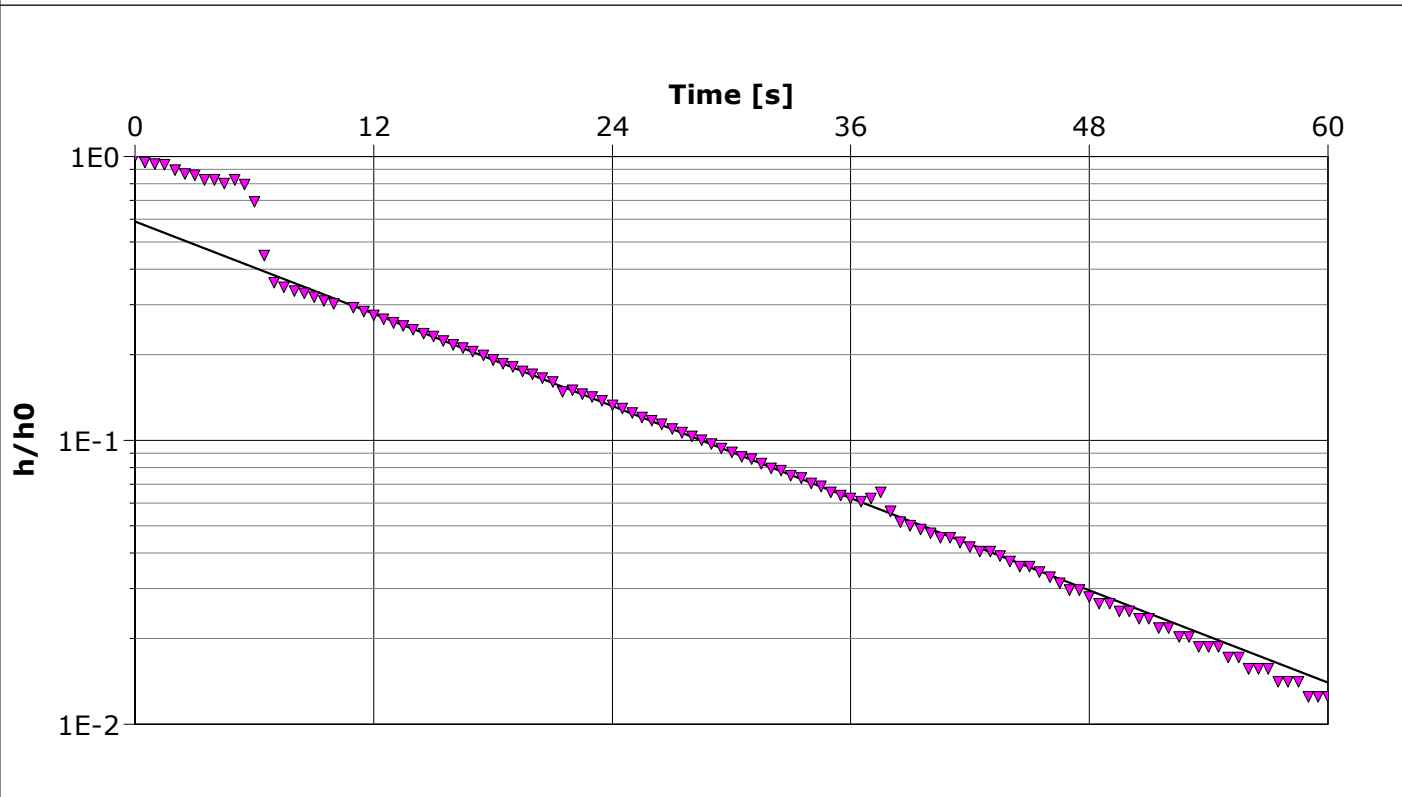
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-04S Slug Test 1	Test Well: MW15-04S
Test Conducted by: ER/KR		Test Date: 9/4/2015
Analysis Performed by:	New analysis 1	Analysis Date: 10/3/2015
Aquifer Thickness: 7.29 m		



Calculation using Bouwer & Rice		
Observation Well	Hydraulic Conductivity [m/s]	
MW15-04S	$1.12 \times 10^{-5}$	



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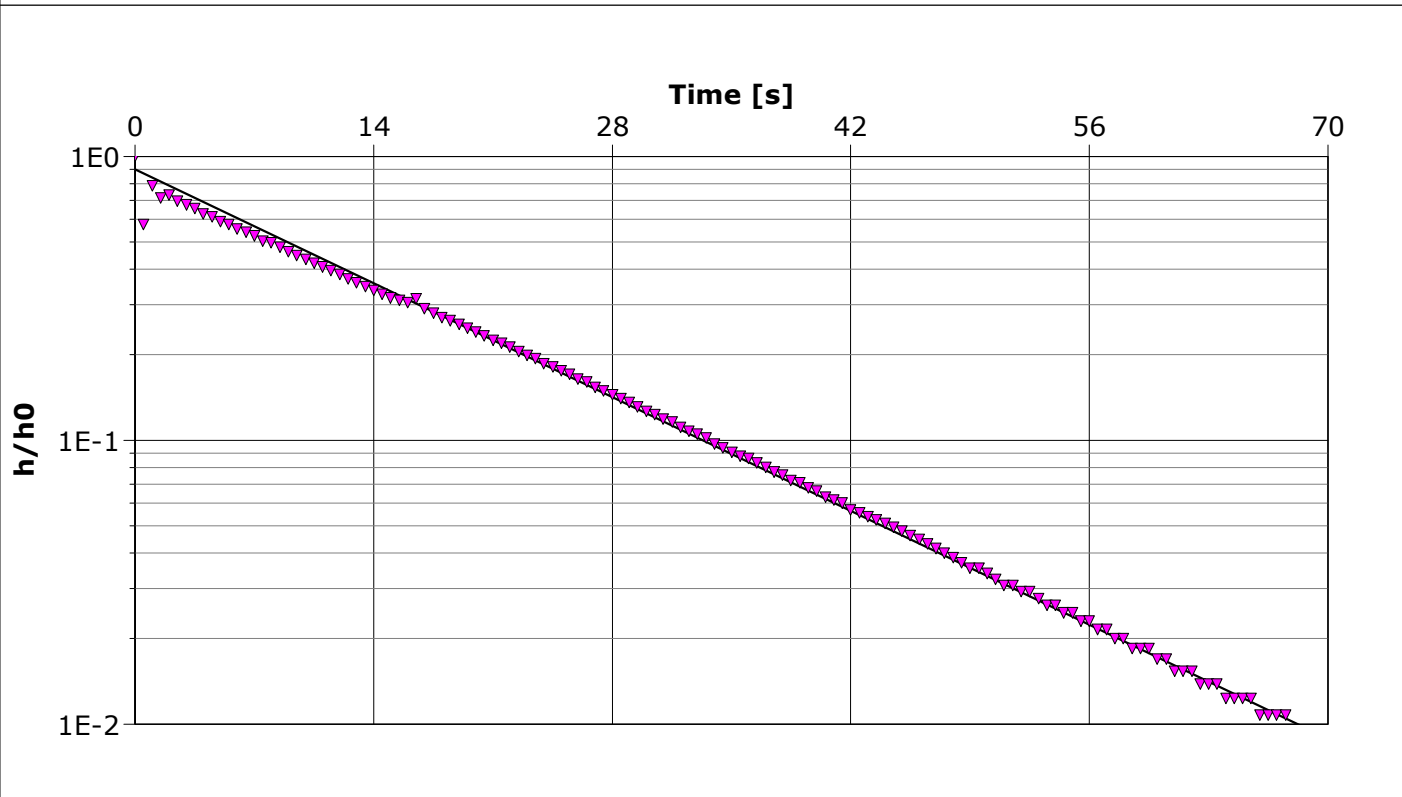
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-04S Slug Test 2	Test Well: MW15-04S
Test Conducted by: ER/KR		Test Date: 9/4/2015
Analysis Performed by:	New analysis 1	Analysis Date: 10/3/2015
Aquifer Thickness: 7.29 m		



Calculation using Bouwer & Rice		
Observation Well	Hydraulic Conductivity [m/s]	
MW15-04S	$1.19 \times 10^{-5}$	





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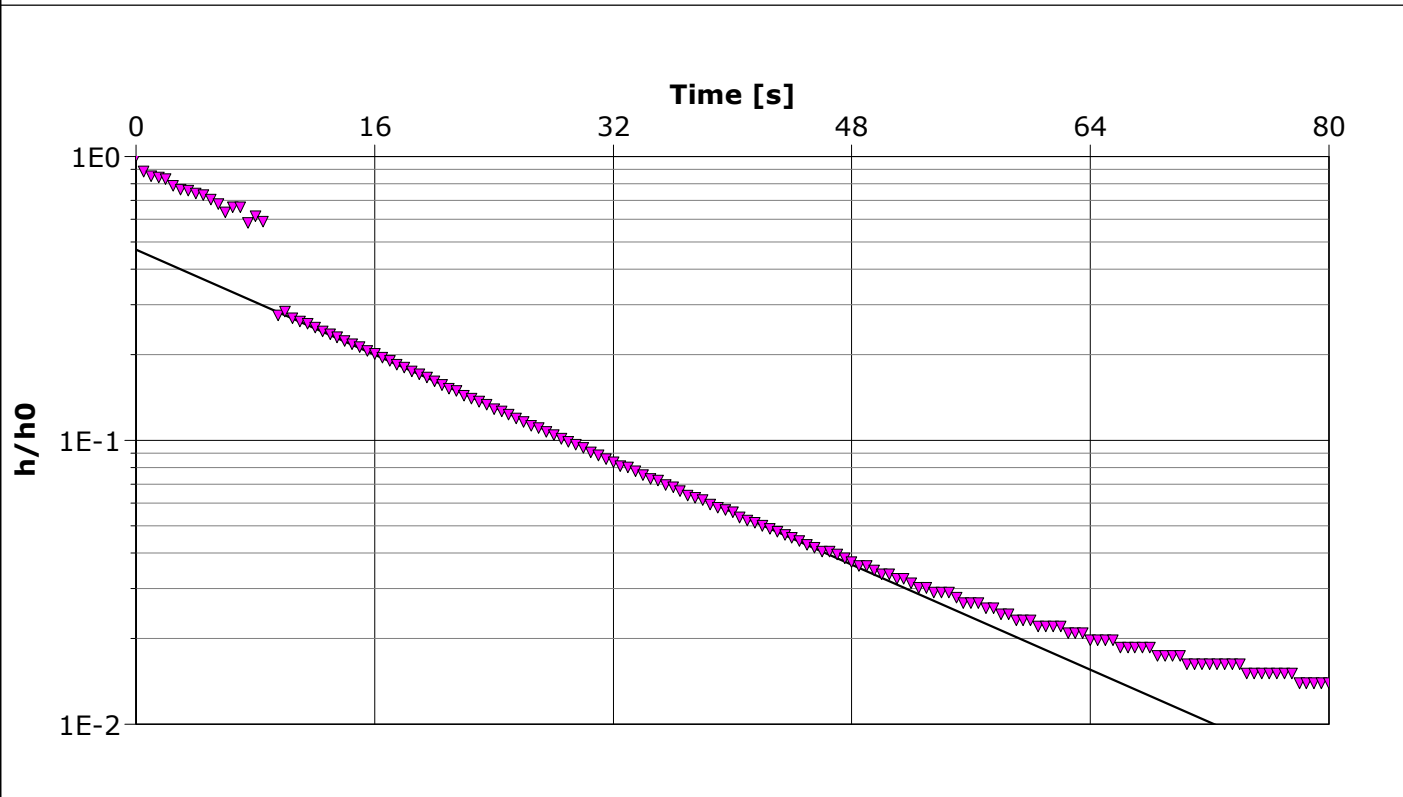
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-04S Slug Test 3	Test Well: MW15-04S
Test Conducted by: ER/KR		Test Date: 9/4/2015
Analysis Performed by:	New analysis 1	Analysis Date: 10/3/2015
Aquifer Thickness: 7.29 m		



Calculation using Bouwer & Rice		
Observation Well	Hydraulic Conductivity [m/s]	
MW15-04S	$9.58 \times 10^{-6}$	



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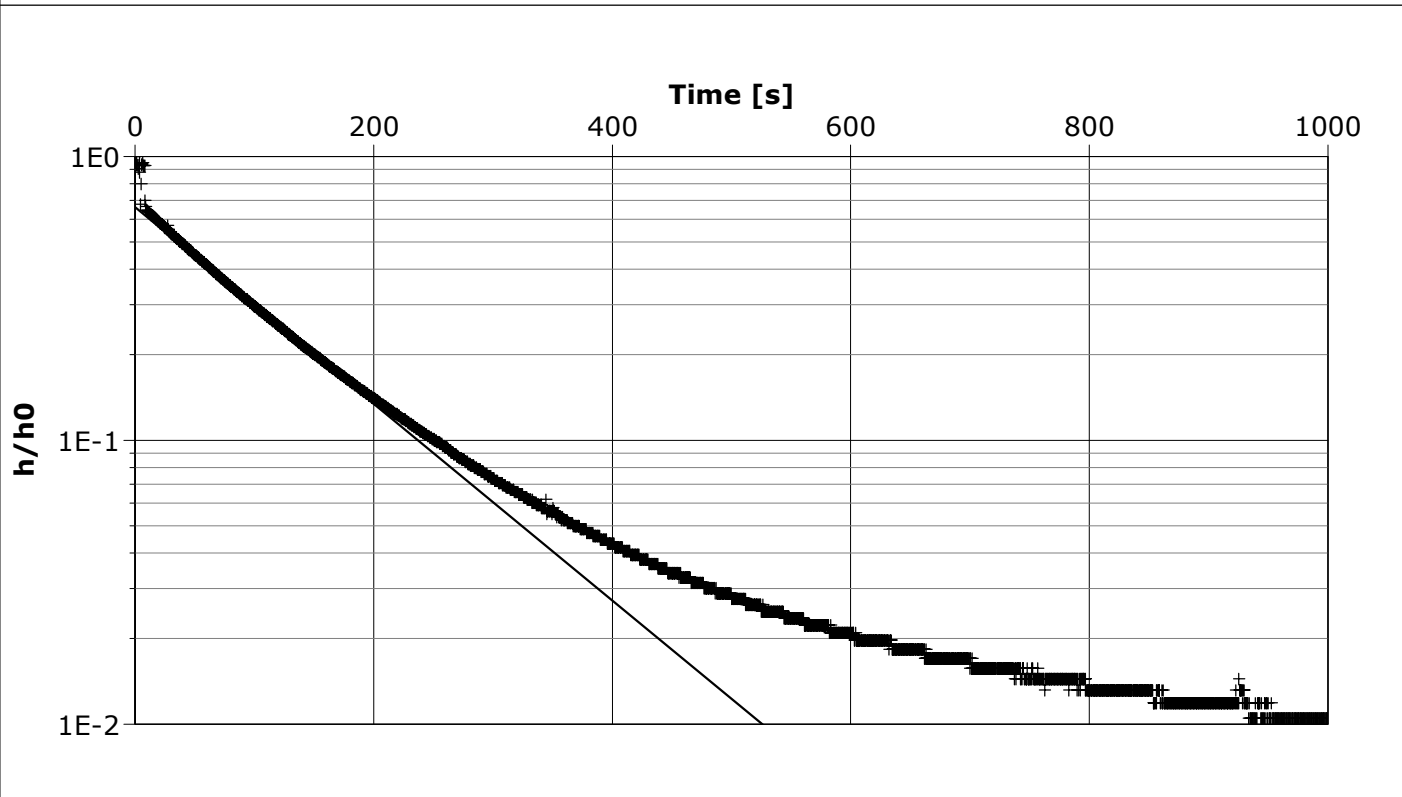
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-04D Slug Test 1	Test Well: MW15-04D
Test Conducted by: ER/KRR		Test Date: 9/4/2015
Analysis Performed by:	New analysis 1	Analysis Date: 10/3/2015
Aquifer Thickness: 24.84 m		



Calculation using Bouwer & Rice		
Observation Well	Hydraulic Conductivity [m/s]	
MW15-04D	$8.33 \times 10^{-7}$	



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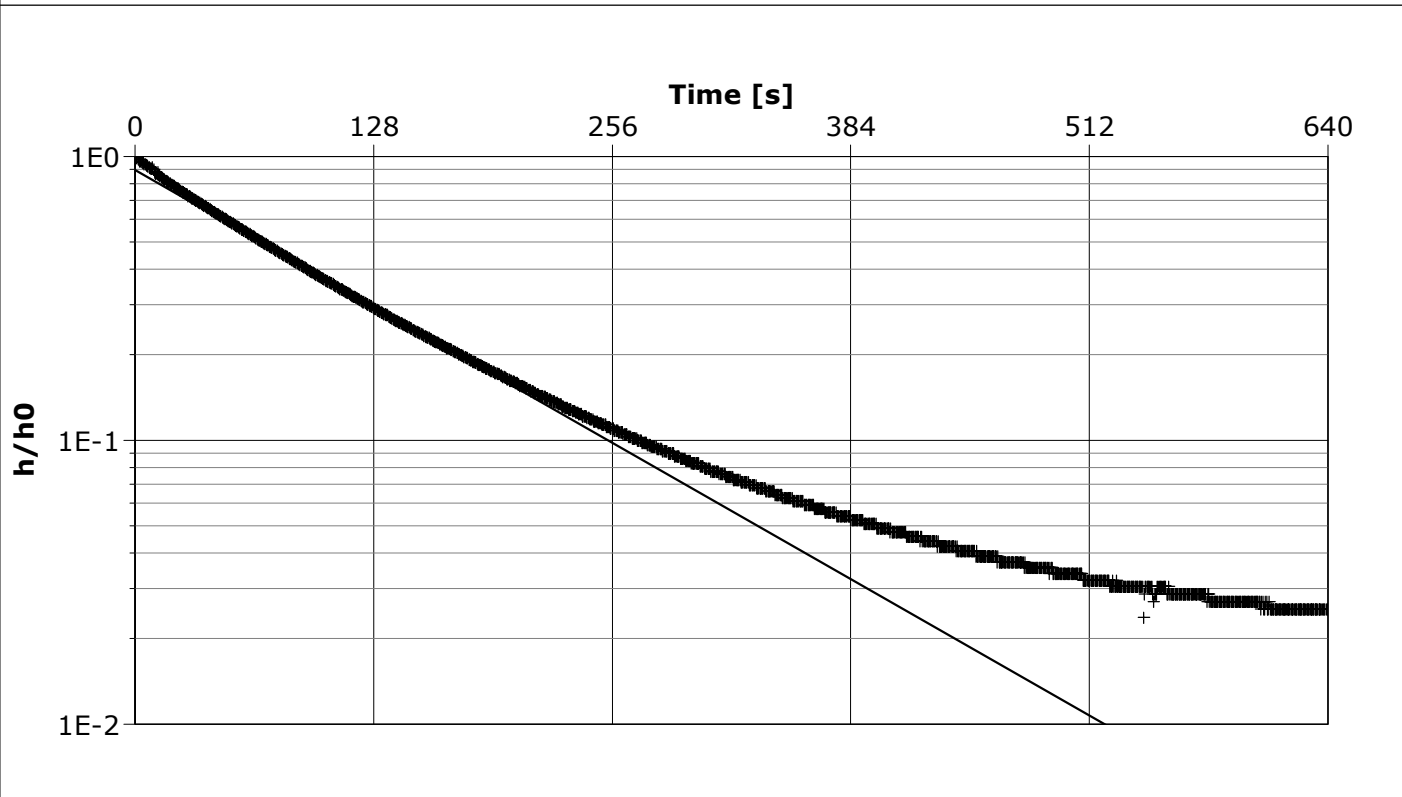
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-04D Slug Test 2	Test Well: MW15-04D
Test Conducted by: ER/KRR		Test Date: 9/4/2015
Analysis Performed by: ER	New analysis 1	Analysis Date: 10/3/2015
Aquifer Thickness: 24.84 m		



Calculation using Bouwer & Rice		
Observation Well	Hydraulic Conductivity [m/s]	
MW15-04D	$9.02 \times 10^{-7}$	



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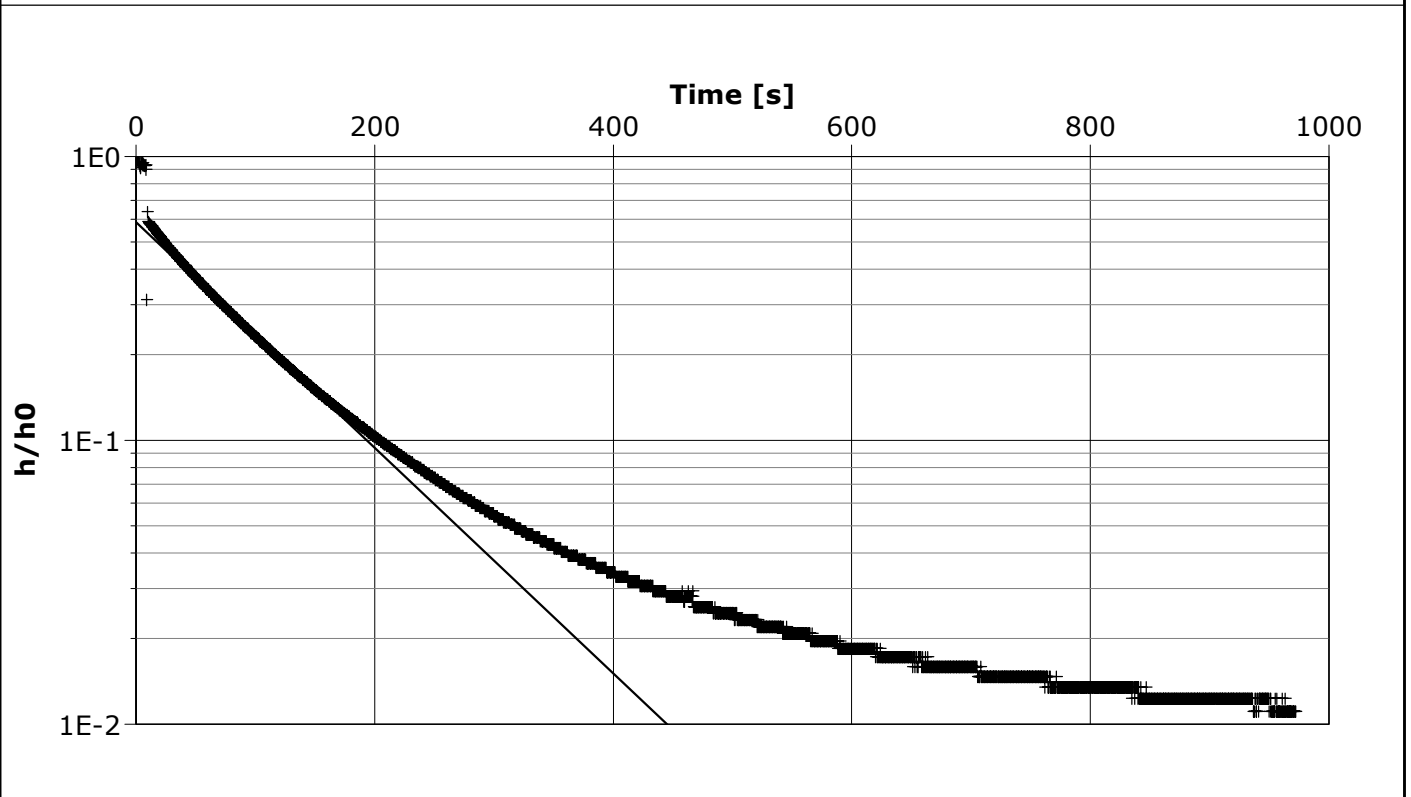
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-04D Slug Test 3	Test Well: MW15-04D
Test Conducted by: ER/KRR		Test Date: 9/4/2015
Analysis Performed by:	New analysis 1	Analysis Date: 10/3/2015
Aquifer Thickness: 24.84 m		



Calculation using Bouwer & Rice		
Observation Well	Hydraulic Conductivity [m/s]	
MW15-04D	$9.55 \times 10^{-7}$	



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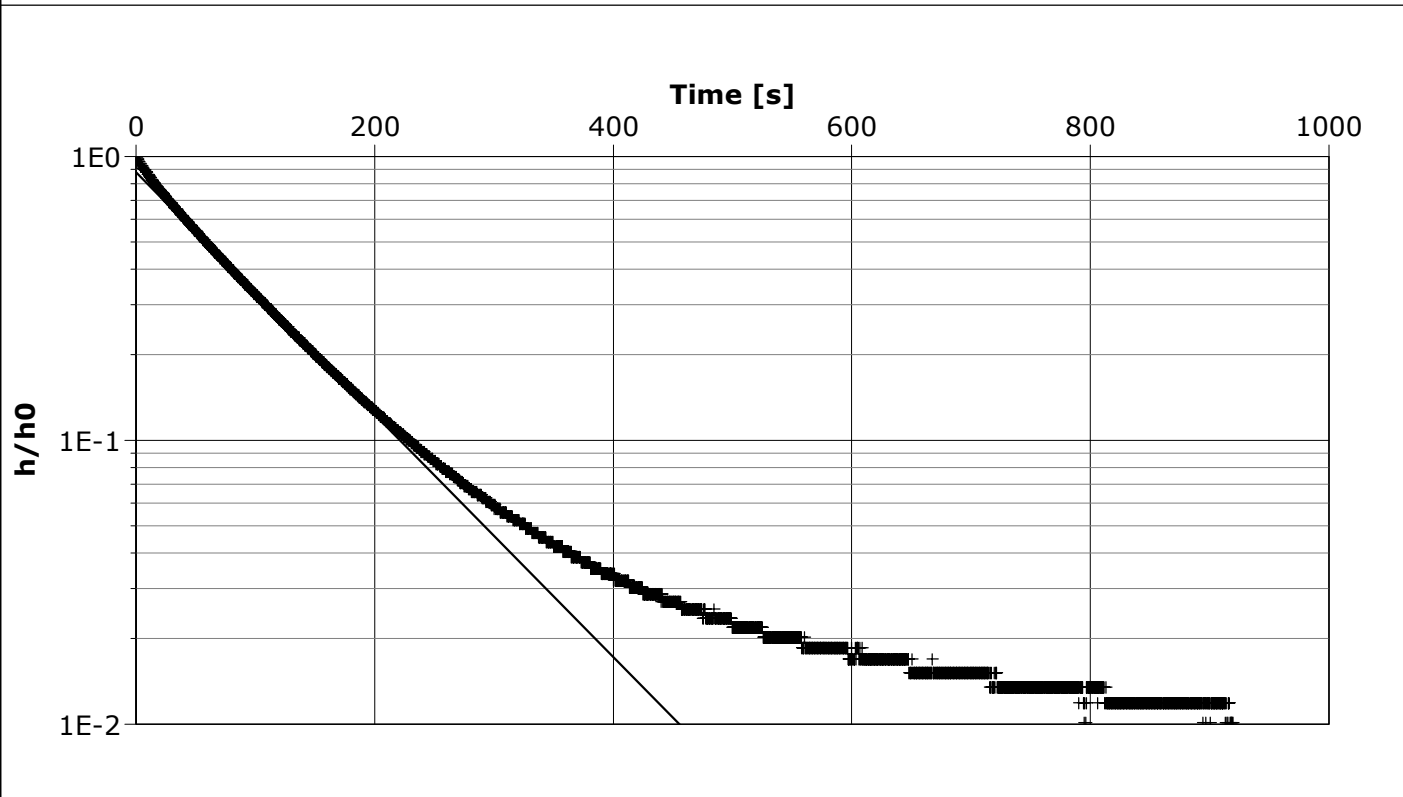
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-04D Slug Test 4	Test Well: MW15-04D
Test Conducted by: ER/KRR		Test Date: 9/4/2015
Analysis Performed by:	New analysis 1	Analysis Date: 10/3/2015
Aquifer Thickness: 24.84 m		



Calculation using Bouwer & Rice		
Observation Well	Hydraulic Conductivity [m/s]	
MW15-04D	$1.03 \times 10^{-6}$	



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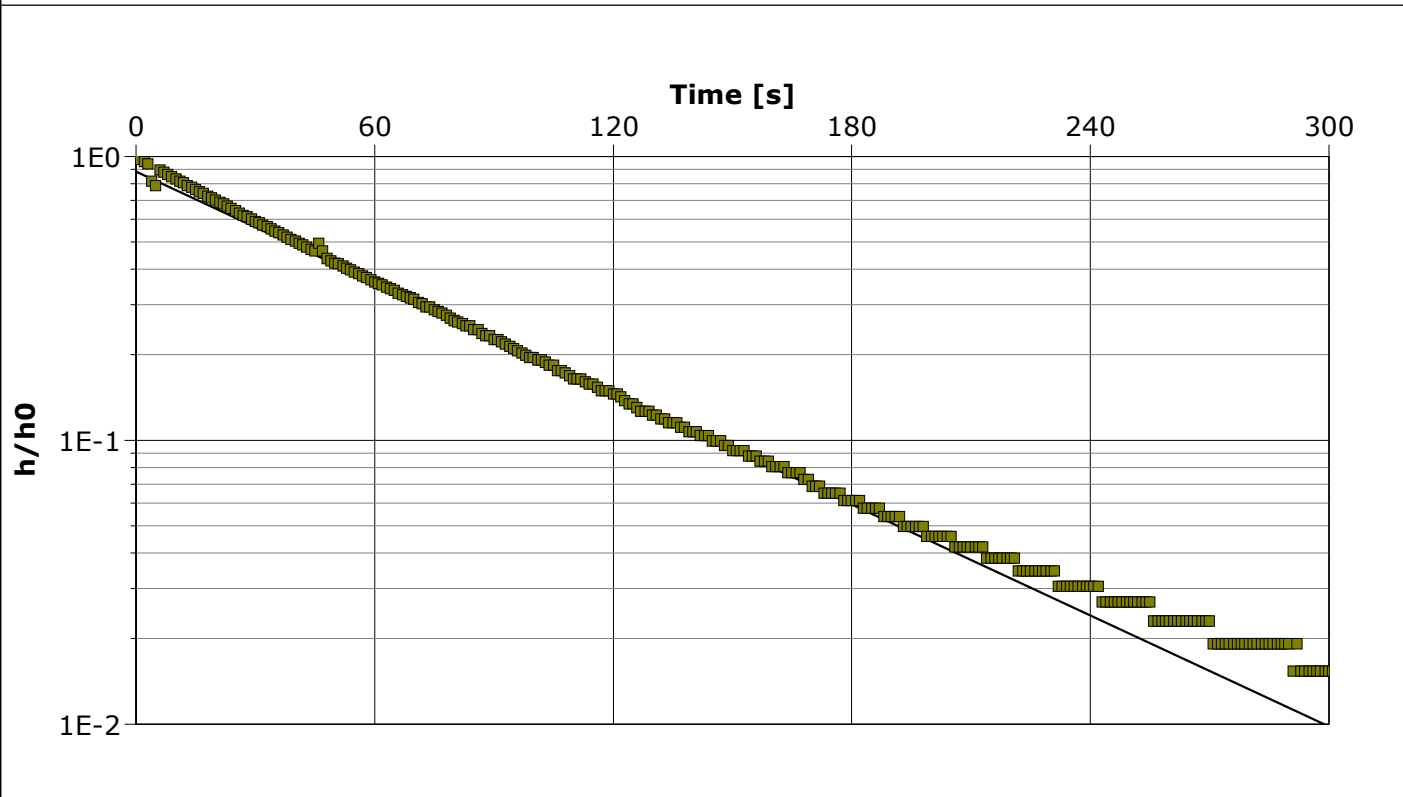
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-05D Slug Test 1	Test Well: MW15-05D
Test Conducted by: ER/KRR		Test Date: 9/7/2015
Analysis Performed by:	New analysis 1	Analysis Date: 10/3/2015
Aquifer Thickness: 11.17 m		



Calculation using Bouwer & Rice		
Observation Well	Hydraulic Conductivity [m/s]	
MW15-05D	$1.29 \times 10^{-6}$	



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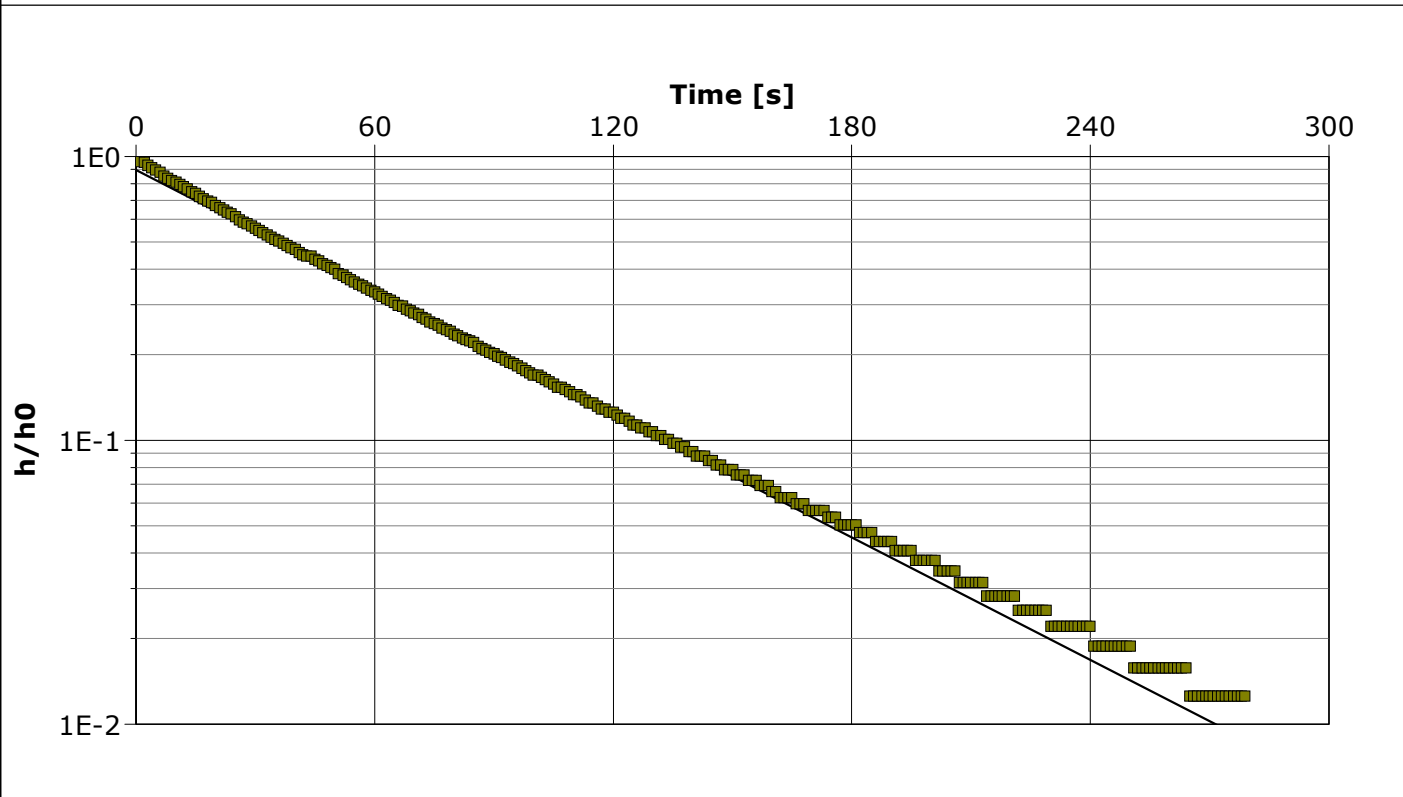
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Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-05D Slug Test 2	Test Well: MW15-05D
Test Conducted by: ER/KRR		Test Date: 9/7/2015
Analysis Performed by:	New analysis 1	Analysis Date: 10/5/2015
Aquifer Thickness: 11.17 m		



Calculation using Bouwer & Rice		
Observation Well	Hydraulic Conductivity [m/s]	
MW15-05D	$1.43 \times 10^{-6}$	

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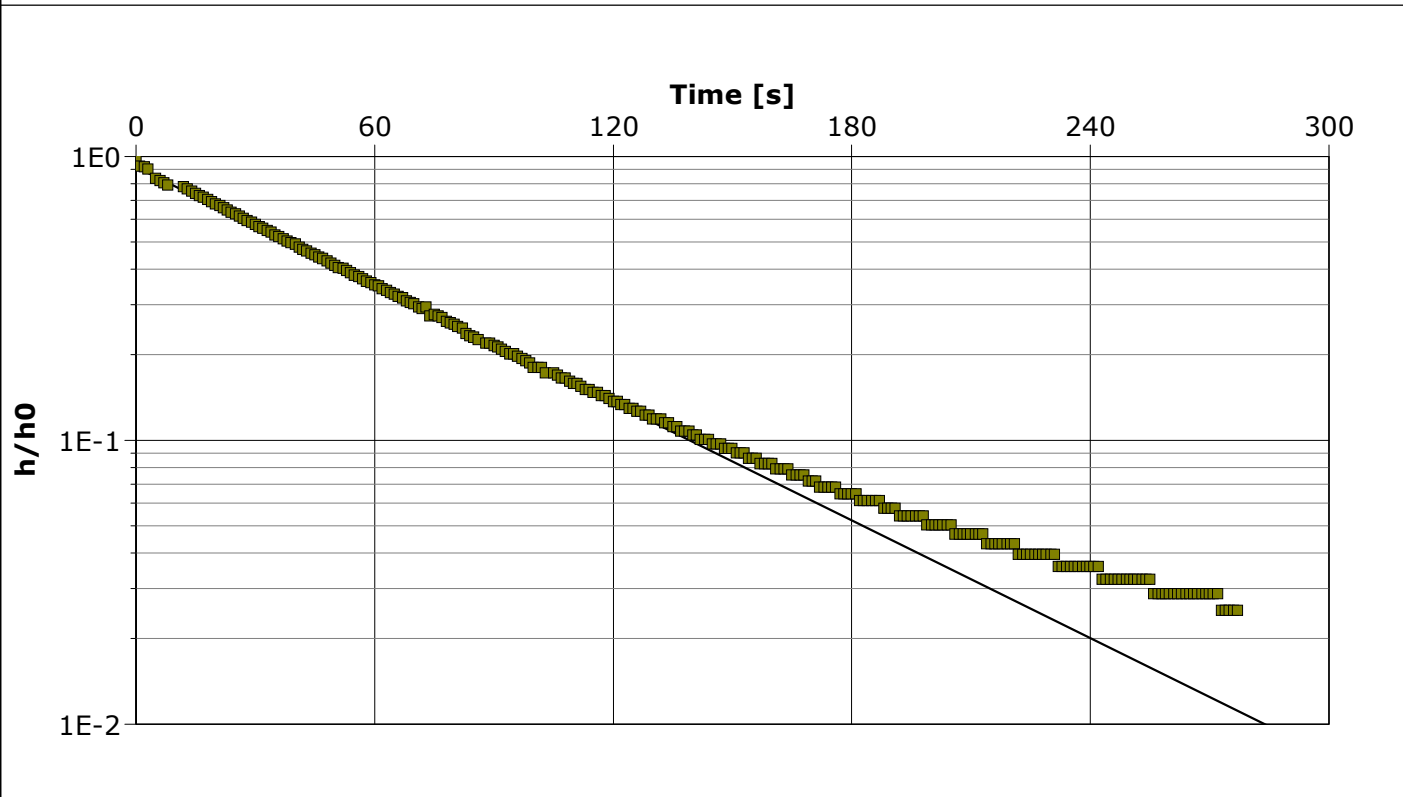
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-05D Slug Test 3	Test Well: MW15-05D
Test Conducted by: ER/KRR		Test Date: 9/7/2015
Analysis Performed by: ER	New analysis 1	Analysis Date: 10/5/2015
Aquifer Thickness: 11.17 m		



Calculation using Bouwer & Rice		
Observation Well	Hydraulic Conductivity [m/s]	
MW15-05D	$1.37 \times 10^{-6}$	

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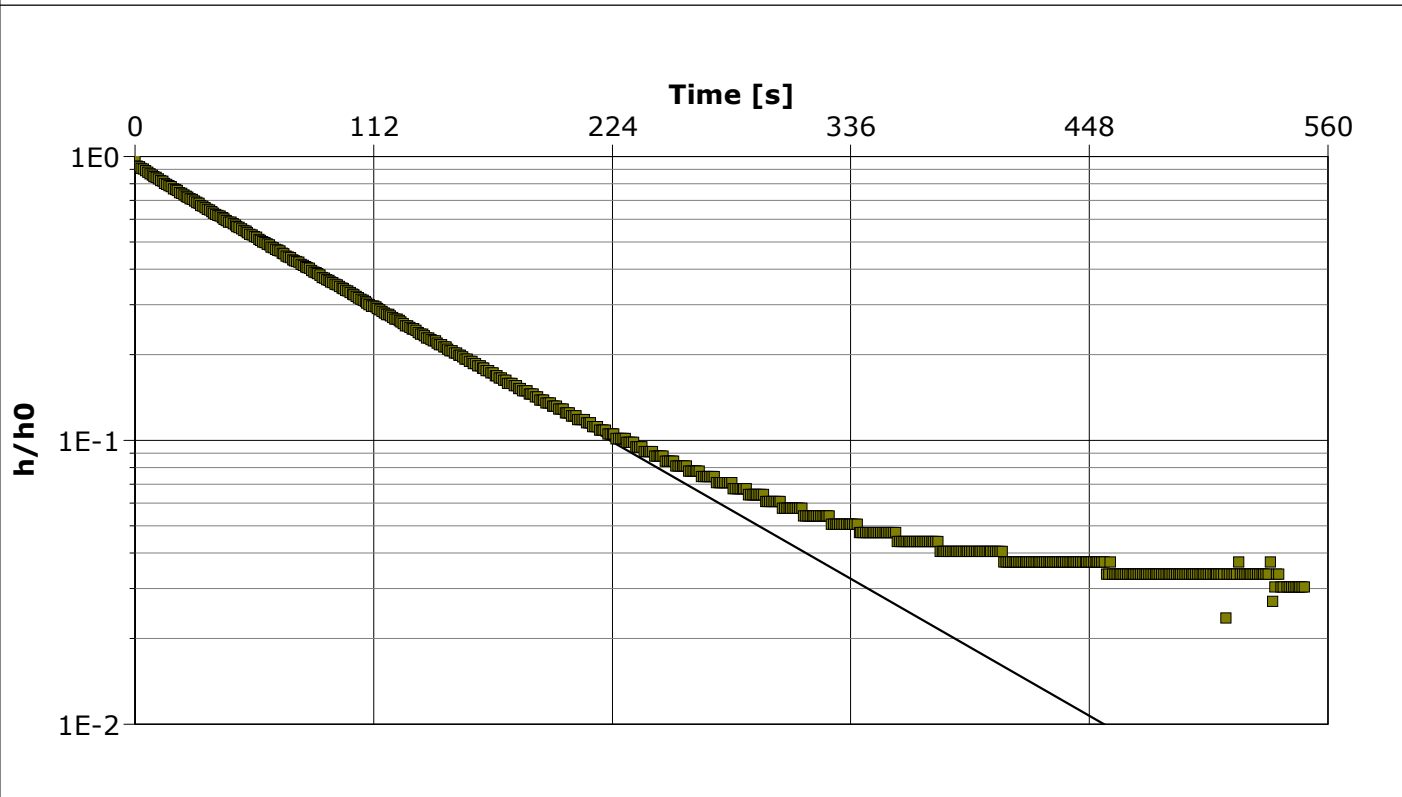
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-05D Slug Test 4	Test Well: MW15-05D
Test Conducted by: ER/KRR		Test Date: 9/7/2015
Analysis Performed by:	New analysis 1	Analysis Date: 12/8/2015
Aquifer Thickness: 11.17 m		



Calculation using Bouwer & Rice		
Observation Well	Hydraulic Conductivity [m/s]	
MW15-05D	$8.56 \times 10^{-7}$	



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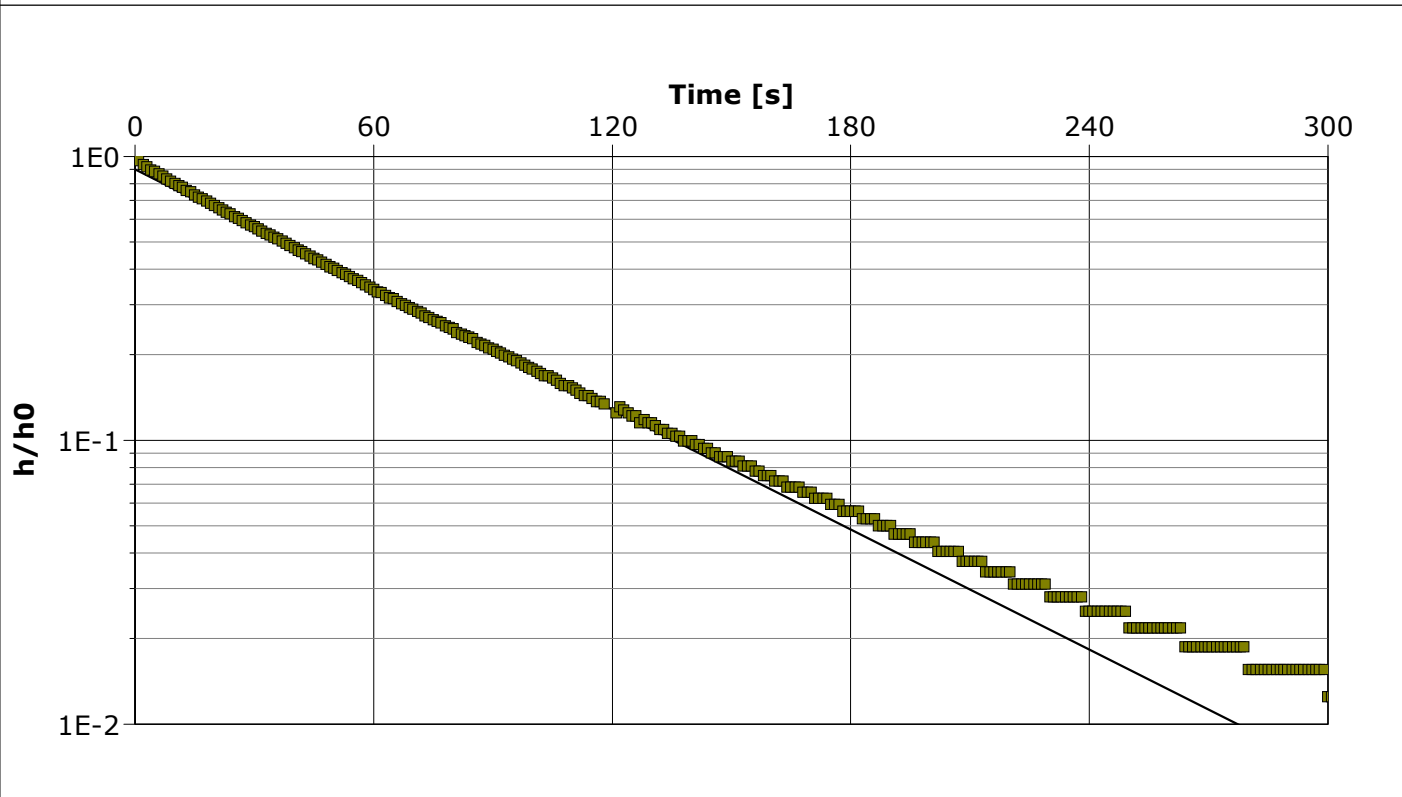
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-05D Slug Test 5	Test Well: MW15-05D
Test Conducted by: ER/KRR		Test Date: 9/7/2015
Analysis Performed by:	New analysis 1	Analysis Date: 12/8/2015
Aquifer Thickness: 11.17 m		



Calculation using Bouwer & Rice		
Observation Well	Hydraulic Conductivity [m/s]	
MW15-05D	$1.40 \times 10^{-6}$	



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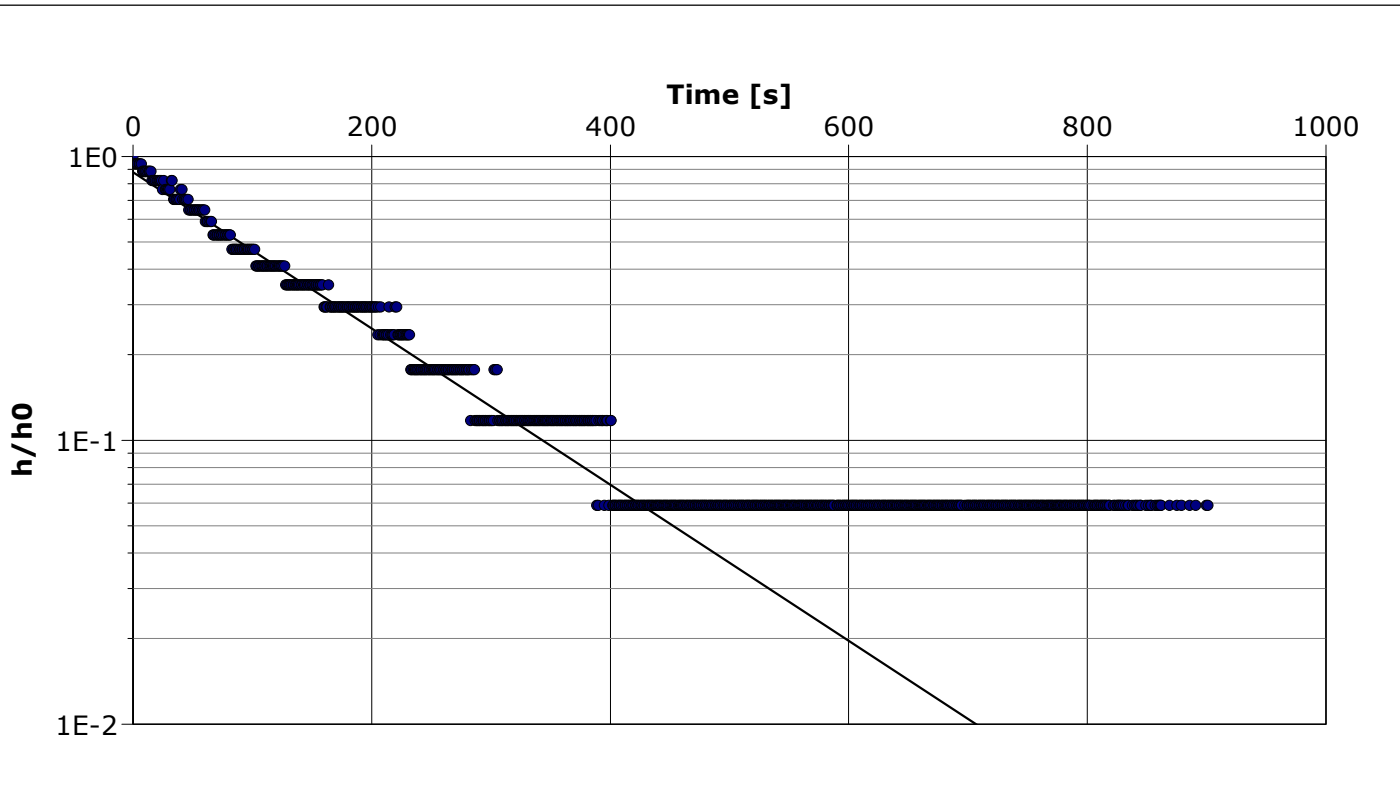
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-06 Slug Test 1	Test Well: MW15-06
Test Conducted by: ER/KRR		Test Date: 9/6/2015
Analysis Performed by:	New analysis 1	Analysis Date: 12/8/2015
Aquifer Thickness: 9.63 m		



Calculation using Bouwer & Rice		
Observation Well	Hydraulic Conductivity [m/s]	
MW15-06	$1.14 \times 10^{-6}$	



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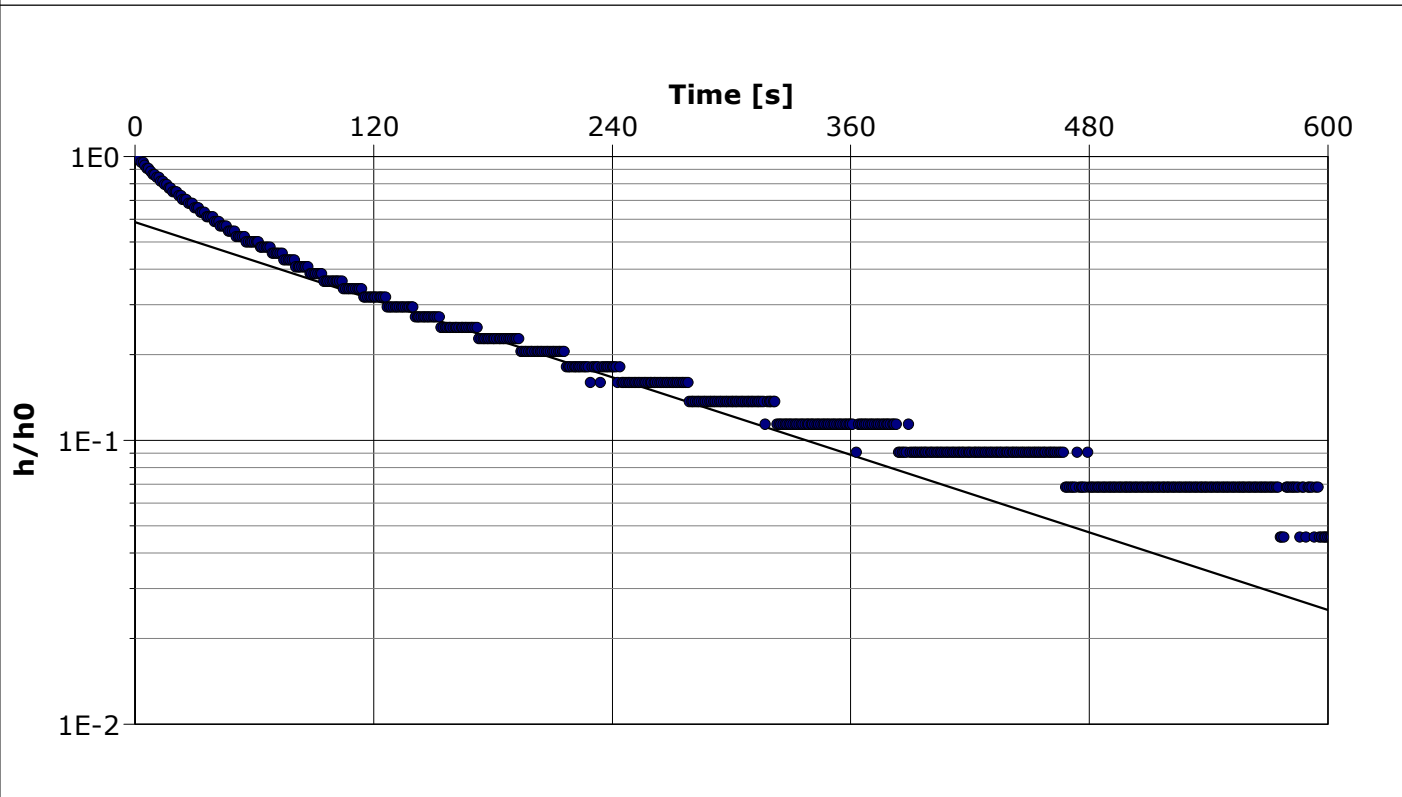
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-06 Slug Test 2	Test Well: MW15-06
Test Conducted by: ER/KRR		Test Date: 9/6/2015
Analysis Performed by:	New analysis 1	Analysis Date: 12/8/2015
Aquifer Thickness: 9.63 m		



Calculation using Bouwer & Rice		
Observation Well	Hydraulic Conductivity [m/s]	
MW15-06	$9.41 \times 10^{-7}$	



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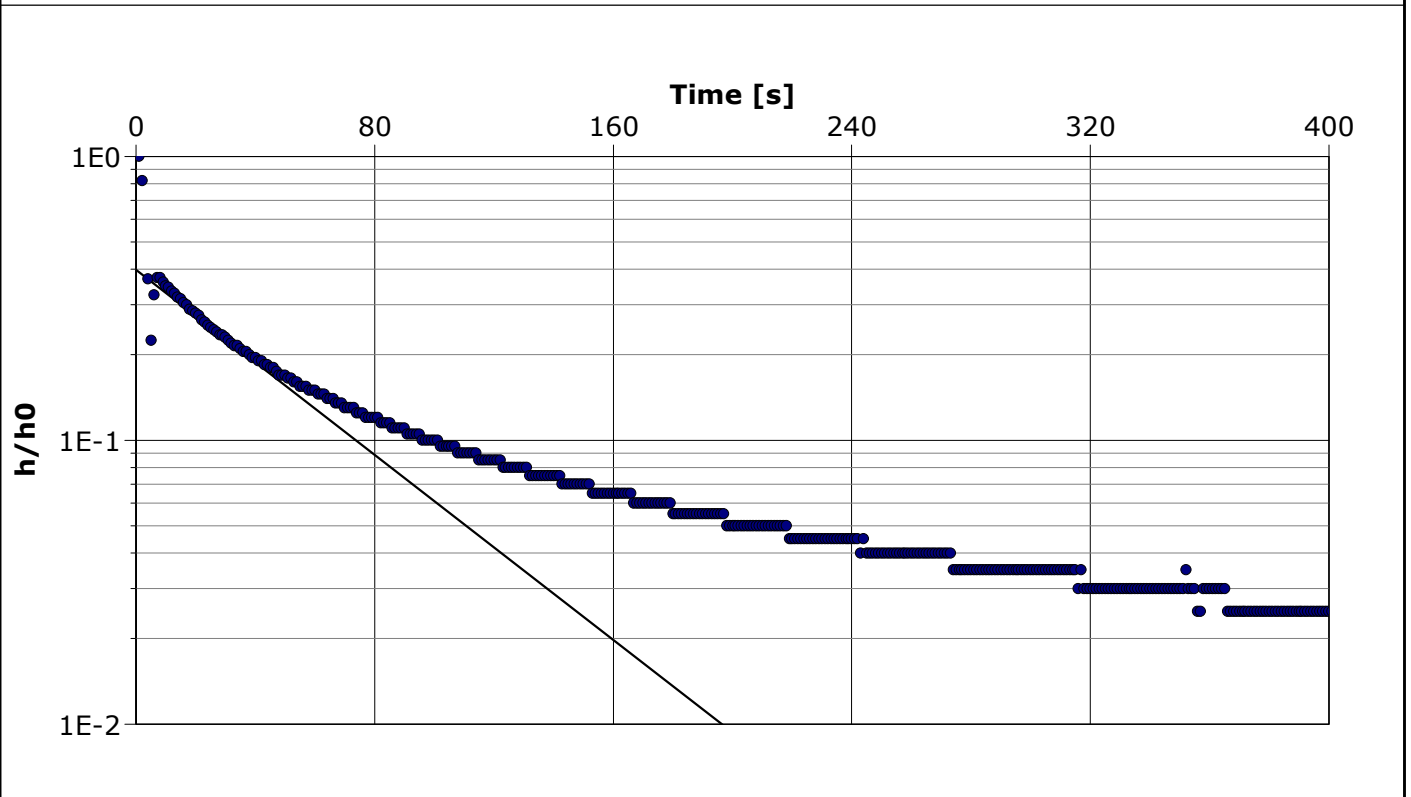
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-06 Slug Test 3	Test Well: MW15-06
Test Conducted by: ER/KRR		Test Date: 9/6/2015
Analysis Performed by:	New analysis 1	Analysis Date: 12/8/2015
Aquifer Thickness: 9.63 m		



Calculation using Bouwer & Rice		
Observation Well	Hydraulic Conductivity [m/s]	
MW15-06	$3.37 \times 10^{-6}$	



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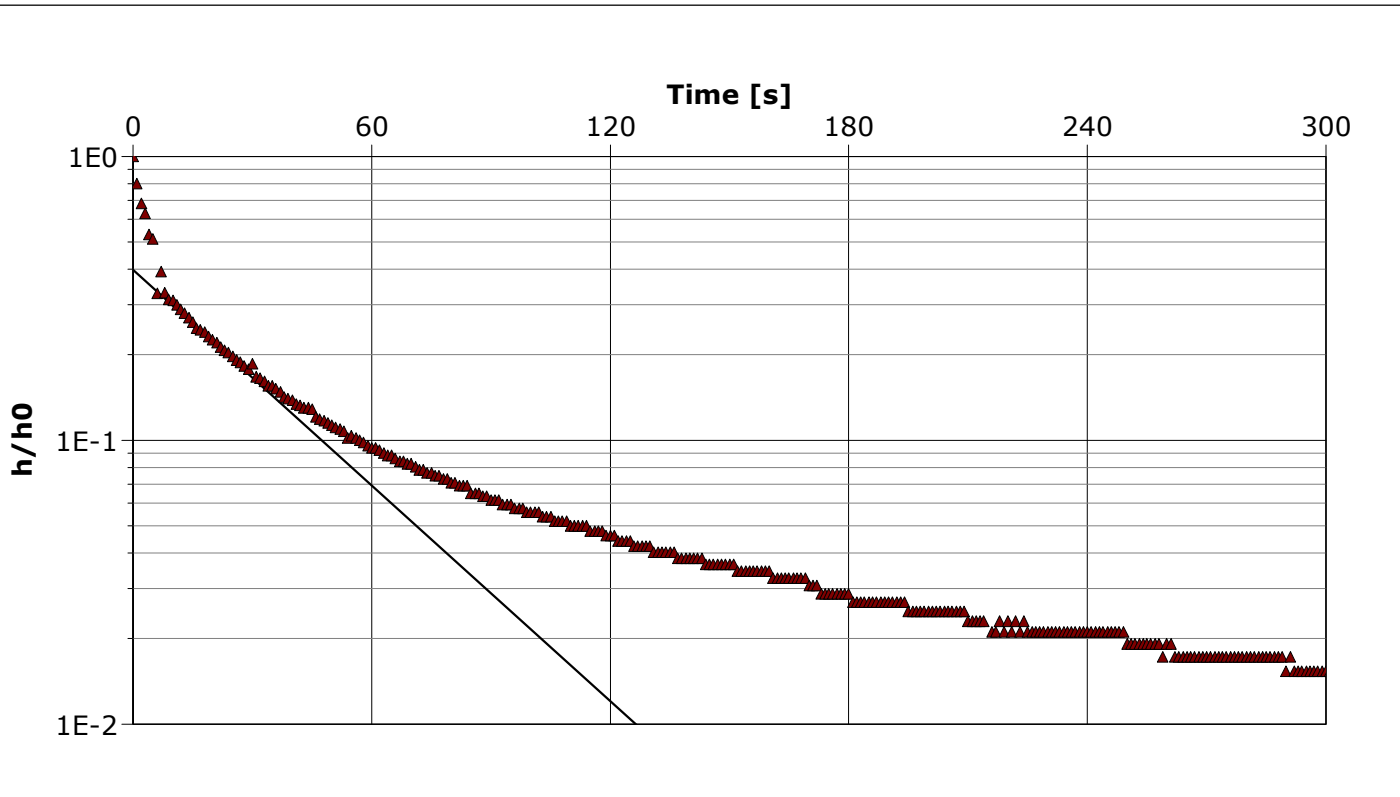
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-07S Slug Test 1	Test Well: MW15-07S
Test Conducted by: ER/KRR		Test Date: 9/6/2015
Analysis Performed by:	New analysis 1	Analysis Date: 12/8/2015
Aquifer Thickness: 9.45 m		



Calculation using Bouwer & Rice		
Observation Well	Hydraulic Conductivity [m/s]	
MW15-07S	$5.24 \times 10^{-6}$	



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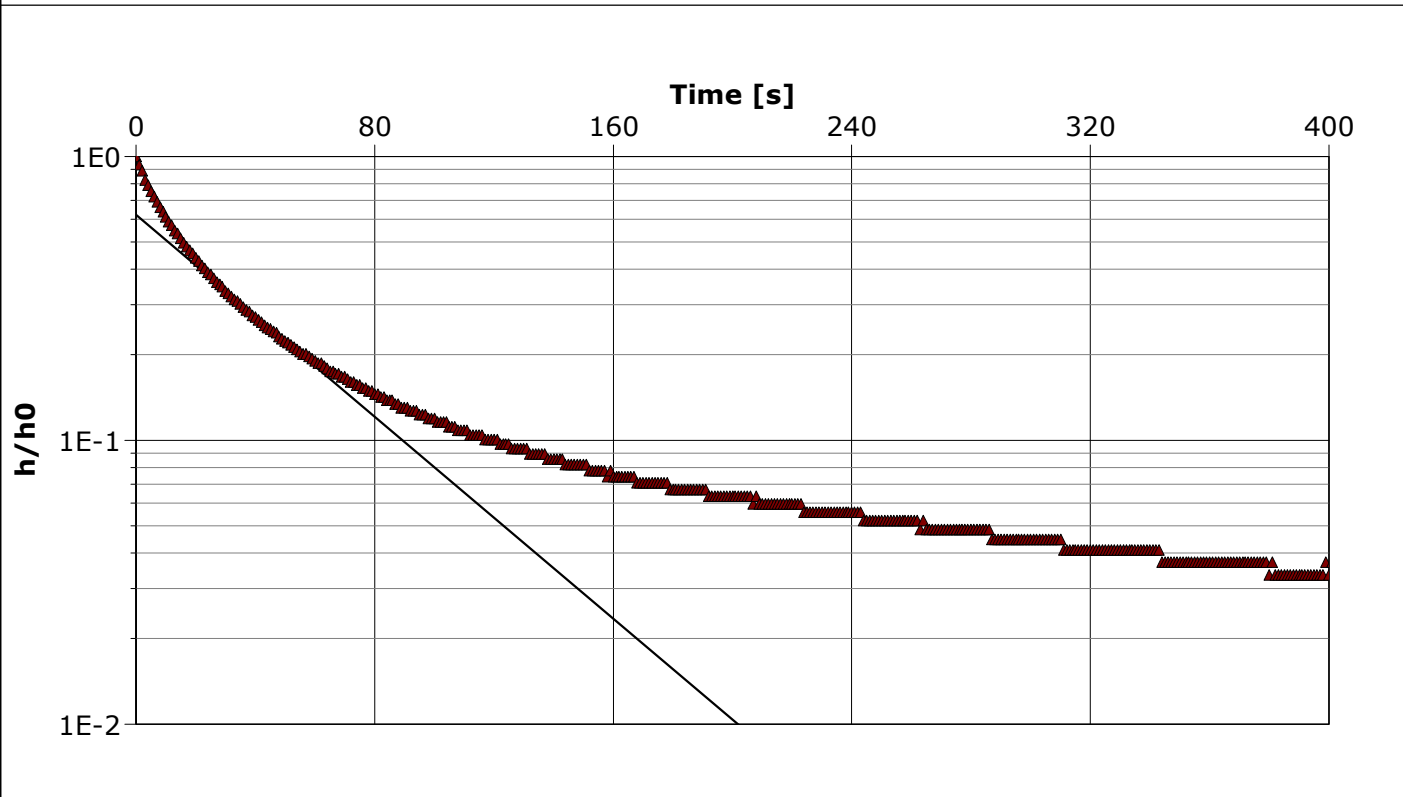
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-07S Slug Test 2	Test Well: MW15-07S
Test Conducted by: ER/KRR		Test Date: 9/6/2015
Analysis Performed by:	New analysis 1	Analysis Date: 12/8/2015
Aquifer Thickness: 9.45 m		



Calculation using Bouwer & Rice		
Observation Well	Hydraulic Conductivity [m/s]	
MW15-07S	$3.68 \times 10^{-6}$	



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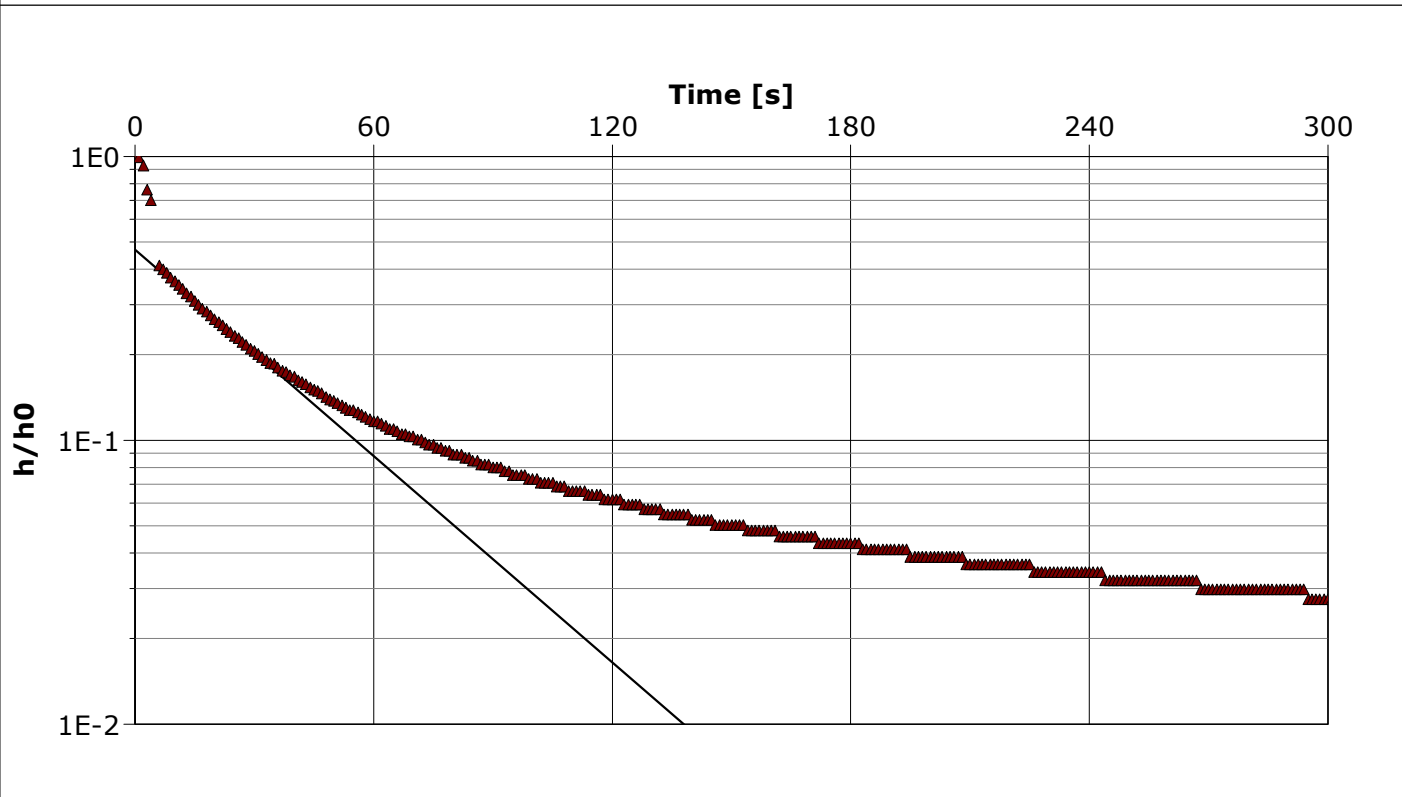
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-07S Slug Test 3	Test Well: MW15-07S
Test Conducted by: ER/KRR		Test Date: 9/6/2015
Analysis Performed by:	New analysis 1	Analysis Date: 12/8/2015
Aquifer Thickness: 9.45 m		



Calculation using Bouwer & Rice		
Observation Well	Hydraulic Conductivity [m/s]	
MW15-07S	$5.01 \times 10^{-6}$	





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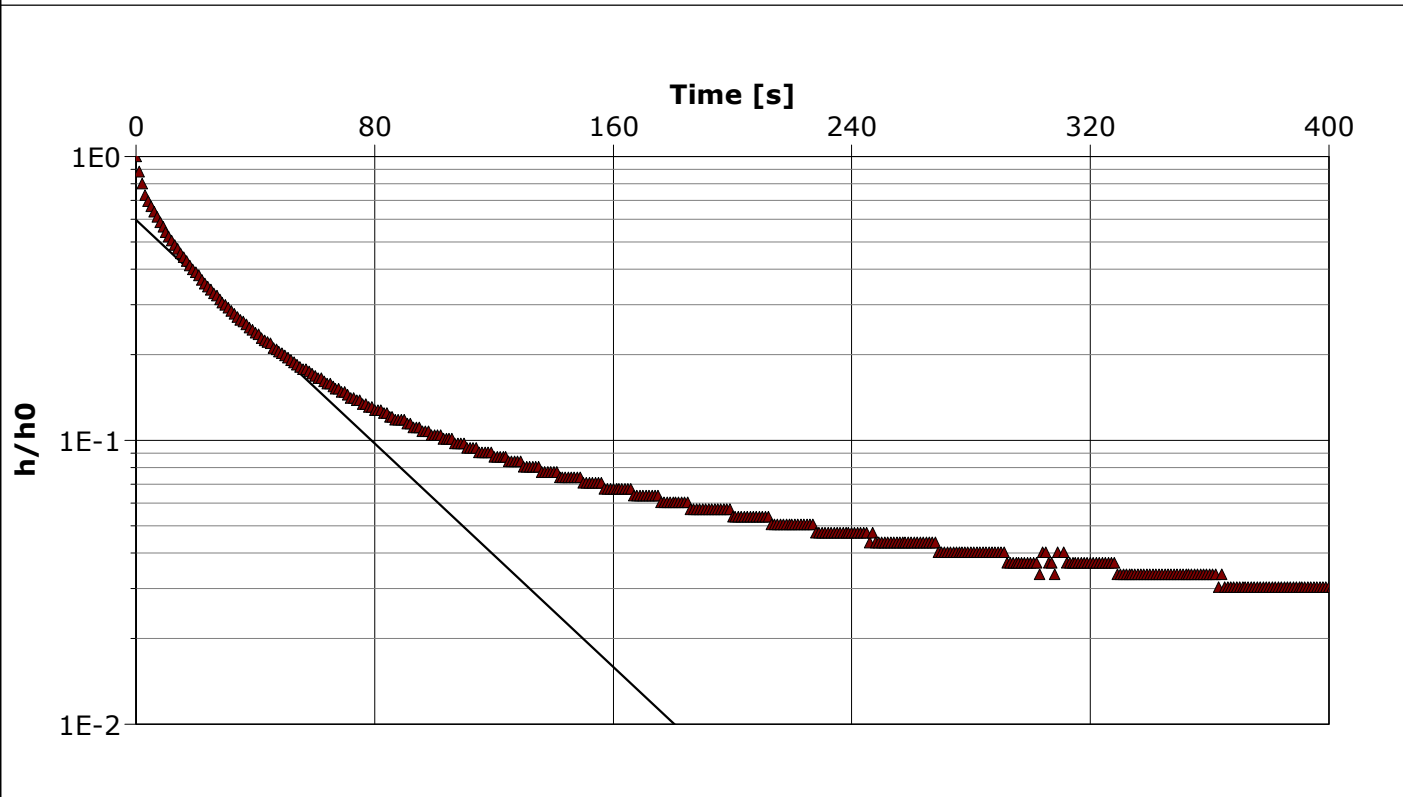
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-07S Slug Test 4	Test Well: MW15-07S
Test Conducted by: ER/KRR		Test Date: 9/6/2015
Analysis Performed by:	New analysis 1	Analysis Date: 12/8/2015
Aquifer Thickness: 9.45 m		



Calculation using Bouwer & Rice		
Observation Well	Hydraulic Conductivity [m/s]	
MW15-07S	$4.07 \times 10^{-6}$	



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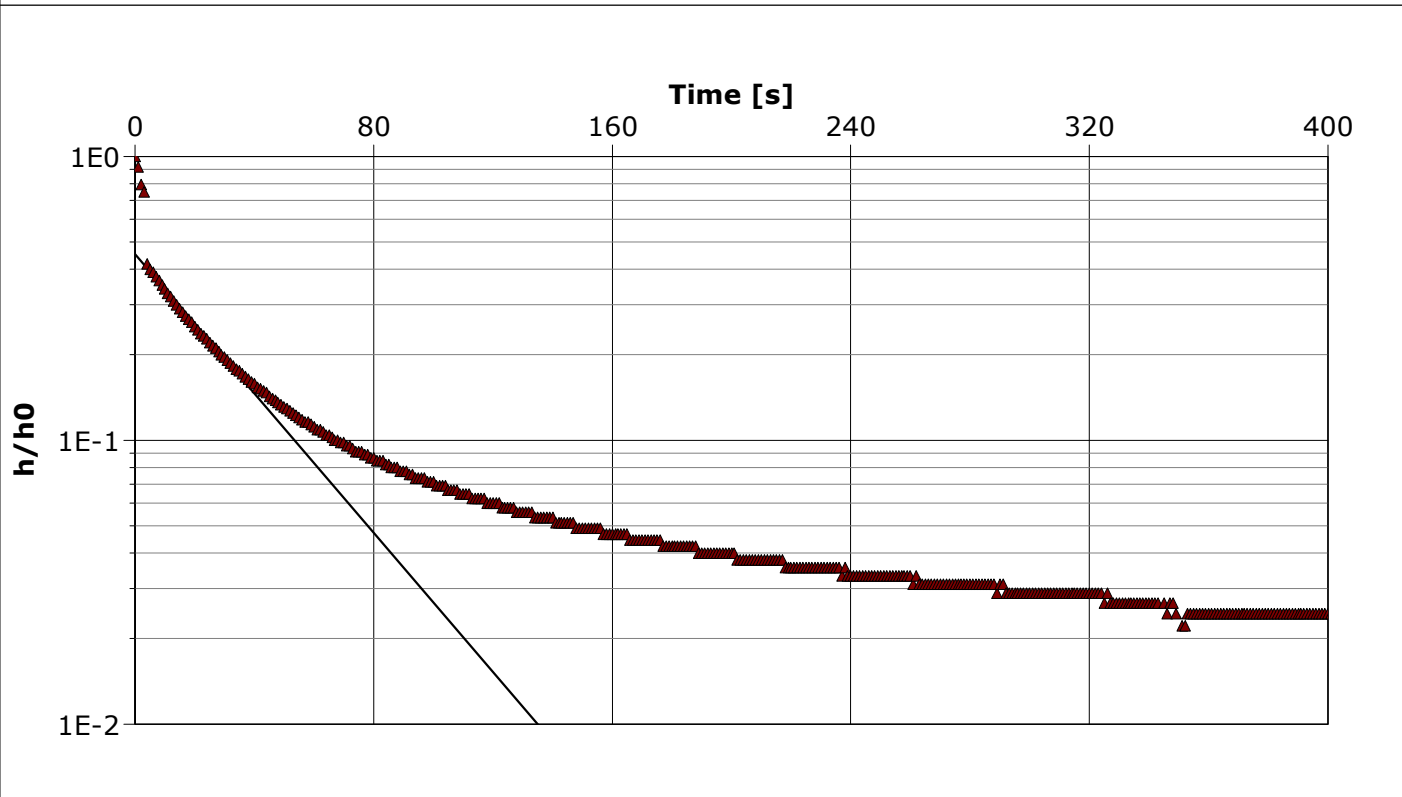
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-07S Slug Test 5	Test Well: MW15-07S
Test Conducted by: ER/KRR		Test Date: 9/6/2015
Analysis Performed by:	New analysis 1	Analysis Date: 12/8/2015
Aquifer Thickness: 9.45 m		



Calculation using Bouwer & Rice		
Observation Well	Hydraulic Conductivity [m/s]	
MW15-07S	$5.08 \times 10^{-6}$	



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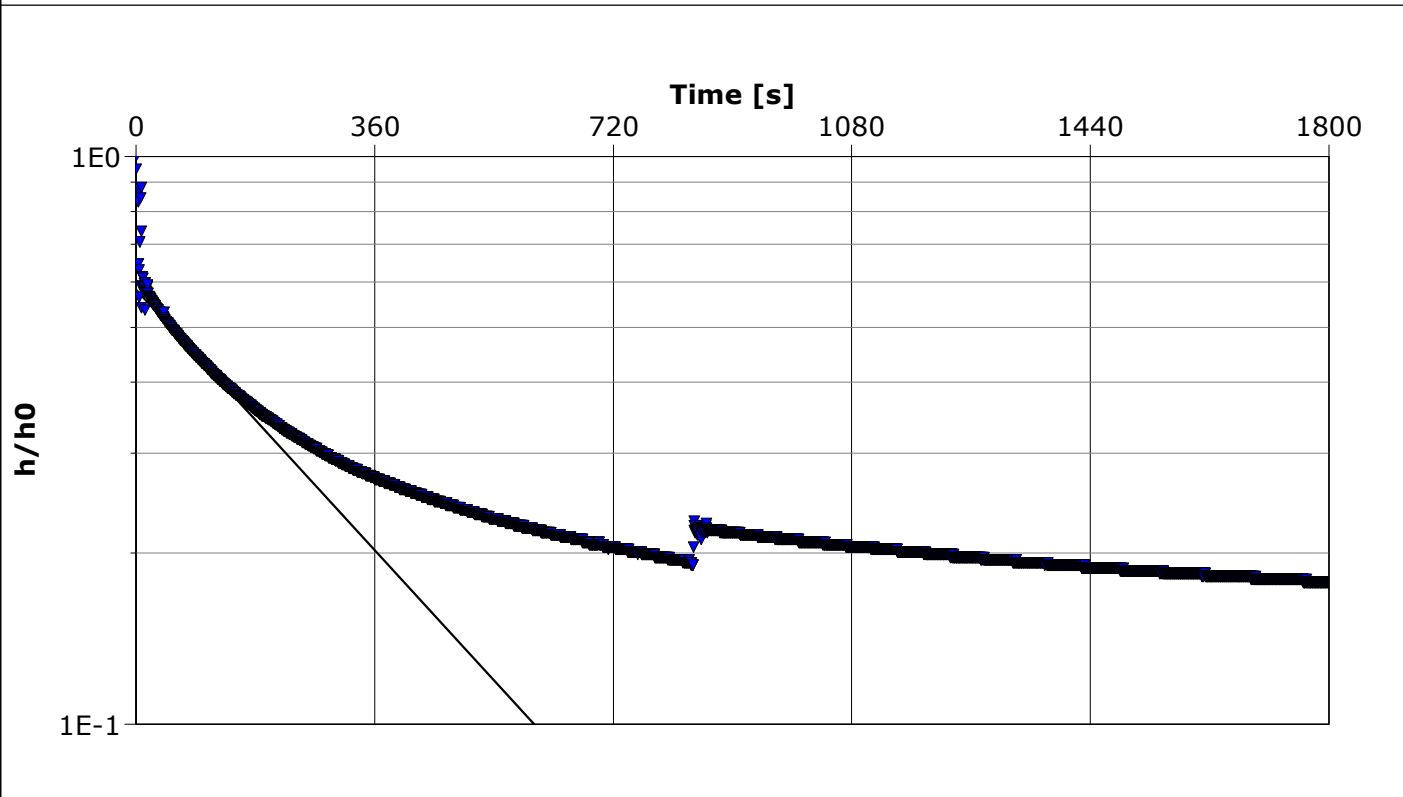
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-08D Slug Test 1	Test Well: MW15-08D
Test Conducted by: ER/KRR		Test Date: 9/2/2015
Analysis Performed by:	New analysis 1	Analysis Date: 12/8/2015
Aquifer Thickness: 35.48 m		



Calculation using Bouwer & Rice		
Observation Well	Hydraulic Conductivity [m/s]	
MW15-08D	$3.06 \times 10^{-7}$	



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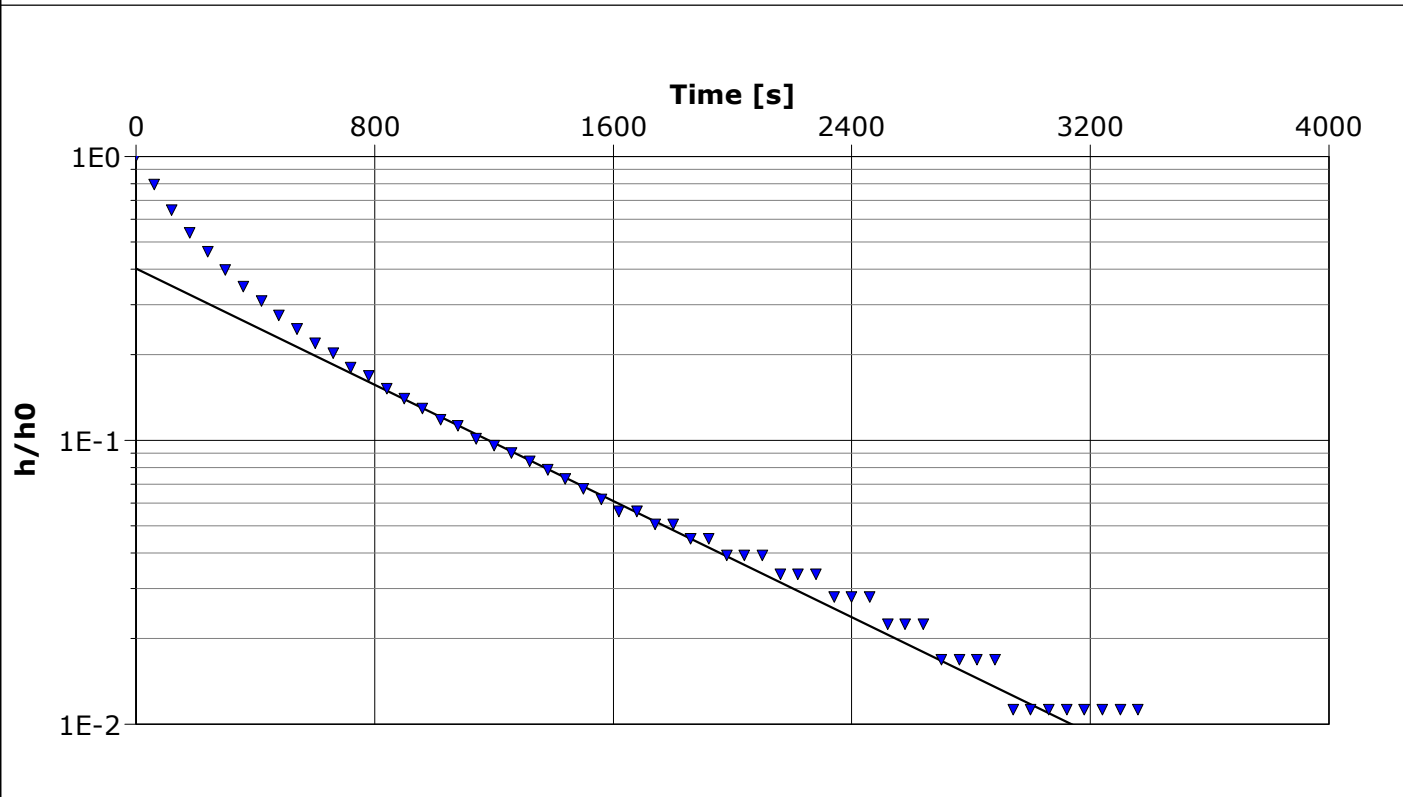
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-08D Slug Test 3	Test Well: MW15-08D
Test Conducted by: ER		Test Date: 9/4/2015
Analysis Performed by:	New analysis 1	Analysis Date: 12/8/2015
Aquifer Thickness: 35.48 m		



Calculation using Bouwer & Rice		
Observation Well	Hydraulic Conductivity [m/s]	
MW15-08D	$1.23 \times 10^{-7}$	



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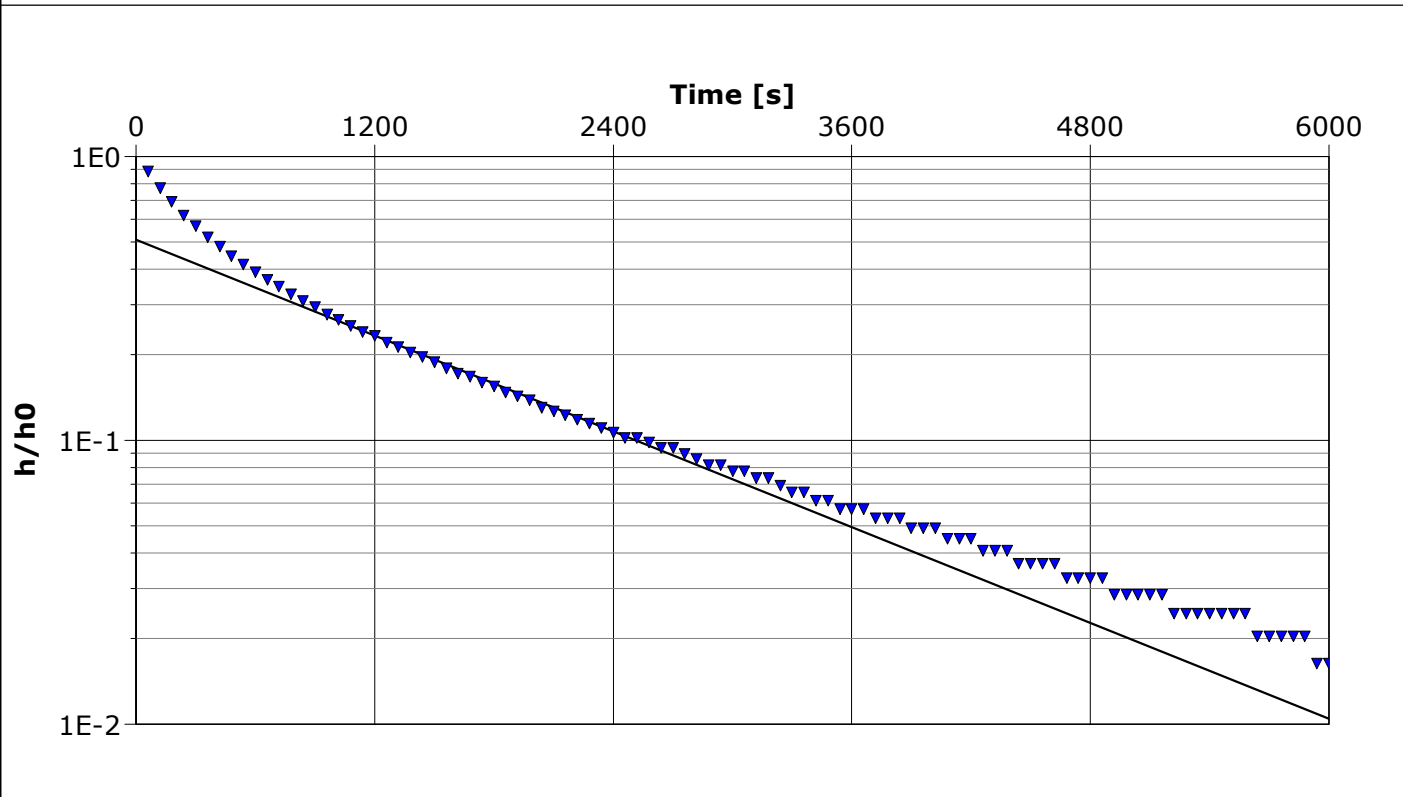
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-08D Slug Test 4	Test Well: MW15-08D
Test Conducted by: KRR		Test Date: 9/4/2015
Analysis Performed by:	New analysis 1	Analysis Date: 12/8/2015
Aquifer Thickness: 35.48 m		



Calculation using Bouwer & Rice		
Observation Well	Hydraulic Conductivity [m/s]	
MW15-08D	$6.76 \times 10^{-8}$	



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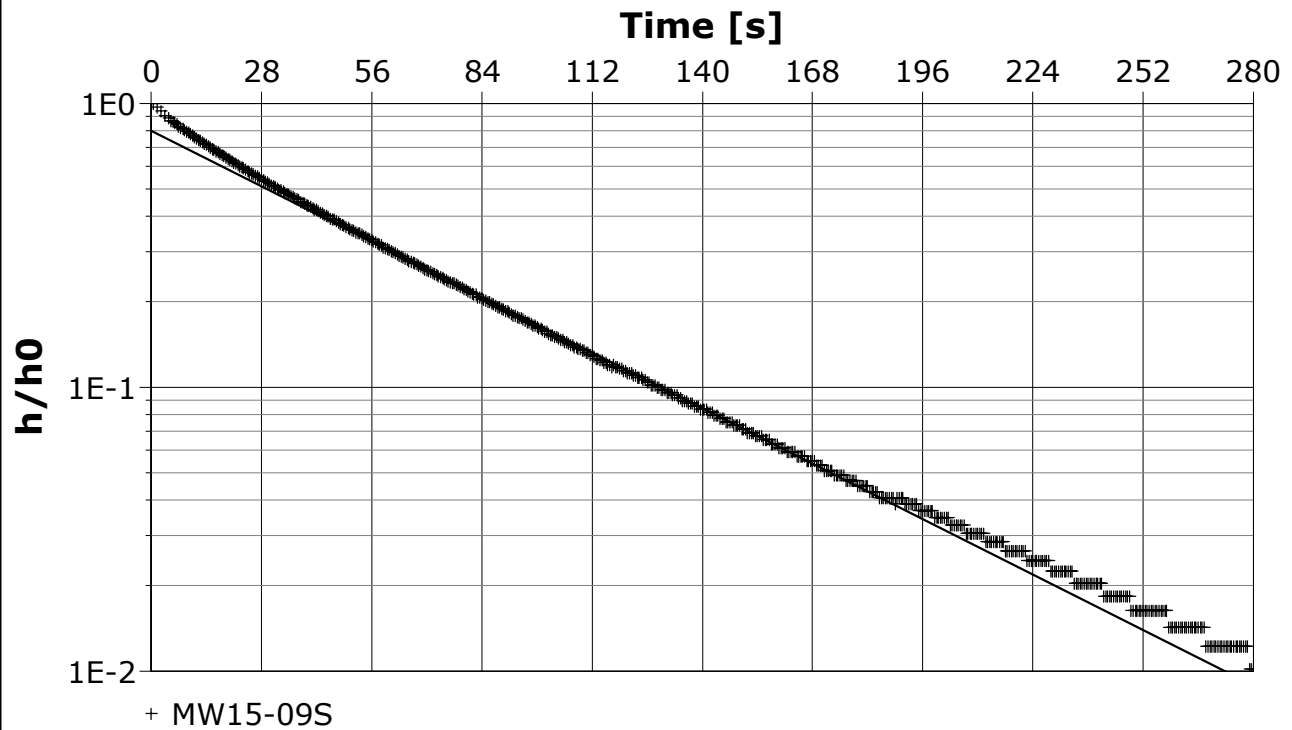
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-09S Slug Test 1	Test Well: MW15-09S
Test Conducted by: ER/KRR		Test Date: 9/5/2015
Analysis Performed by:	New analysis 1	Analysis Date: 12/9/2015
Aquifer Thickness: 18.61 m		



Calculation using Bouwer & Rice		
Observation Well	Hydraulic Conductivity [m/s]	
MW15-09S	$1.68 \times 10^{-6}$	



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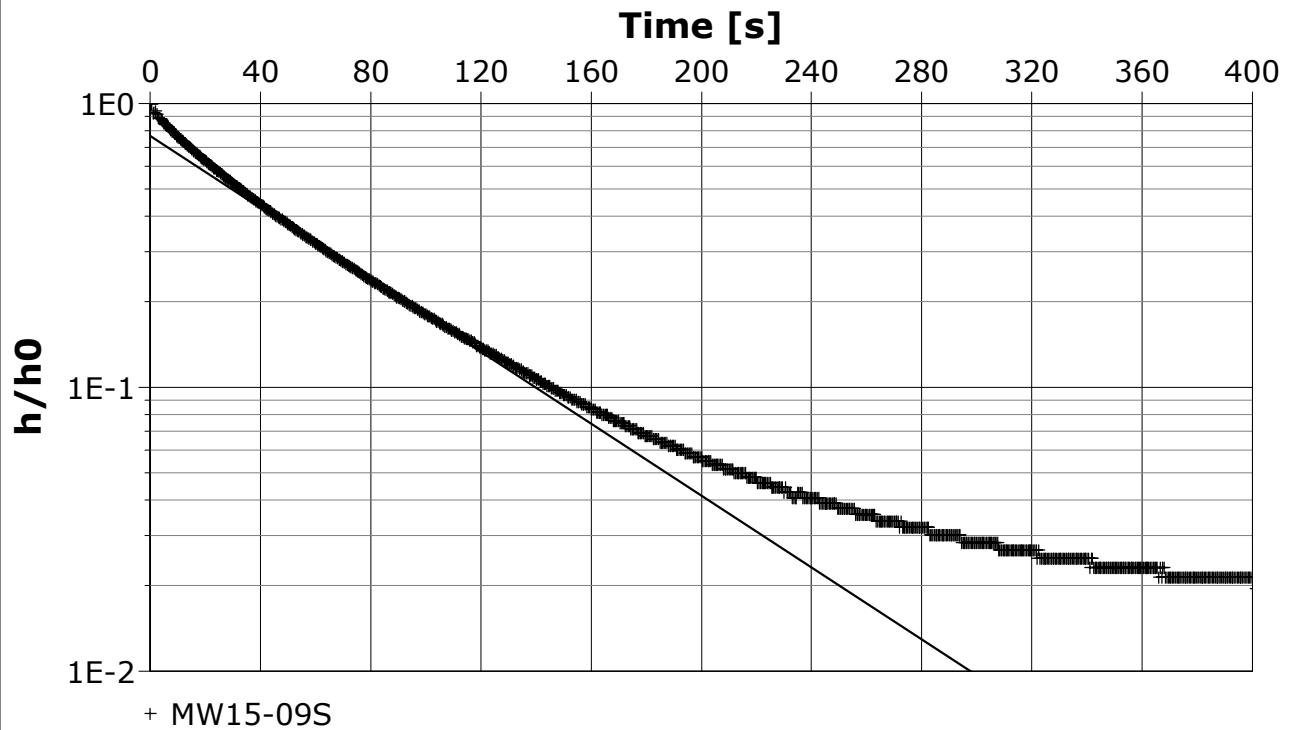
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-09S Slug Test 2	Test Well: MW15-09S
Test Conducted by: ER/KRR		Test Date: 9/5/2015
Analysis Performed by:	New analysis 1	Analysis Date: 12/10/2015
Aquifer Thickness: 18.61 m		



Calculation using Bouwer & Rice		
Observation Well	Hydraulic Conductivity [m/s]	
MW15-09S	$1.52 \times 10^{-6}$	



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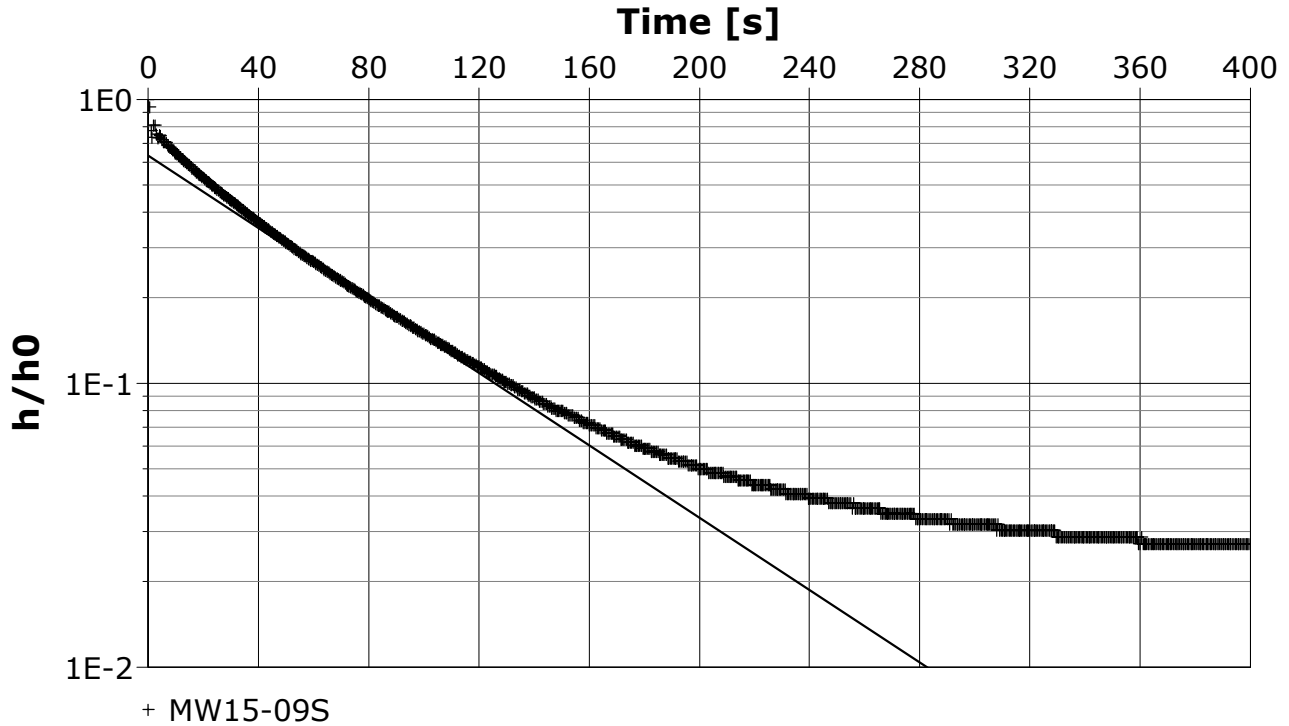
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-09S Slug Test 3	Test Well: MW15-09S
Test Conducted by: ER/KRR		Test Date: 9/5/2015
Analysis Performed by:	New analysis 1	Analysis Date: 12/10/2015
Aquifer Thickness: 18.61 m		



Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]
MW15-09S	$1.53 \times 10^{-6}$





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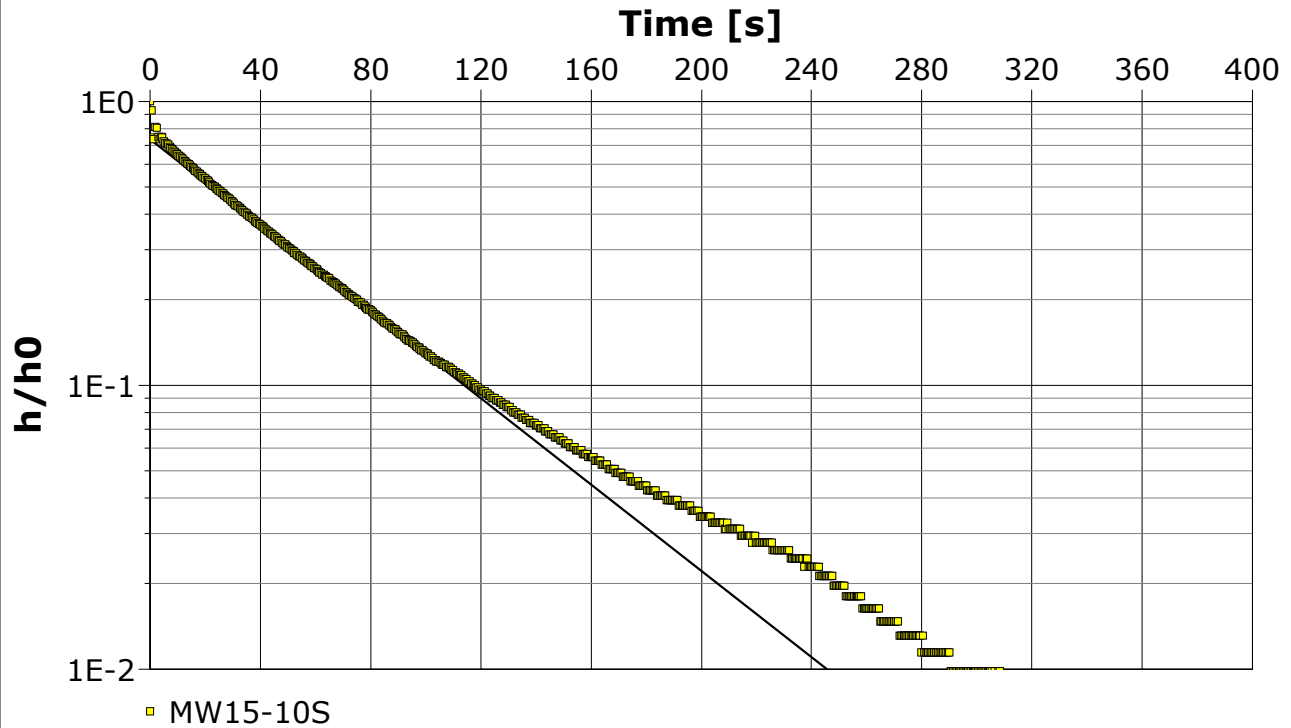
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-10S Slug Test 1	Test Well: MW15-10S
Test Conducted by: ER/KRR		Test Date: 9/4/2015
Analysis Performed by:	New analysis 1	Analysis Date: 12/10/2015
Aquifer Thickness: 10.39 m		



Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]
MW15-10S	$1.83 \times 10^{-6}$



**Tetra Tech**  
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 Vancouver, BC

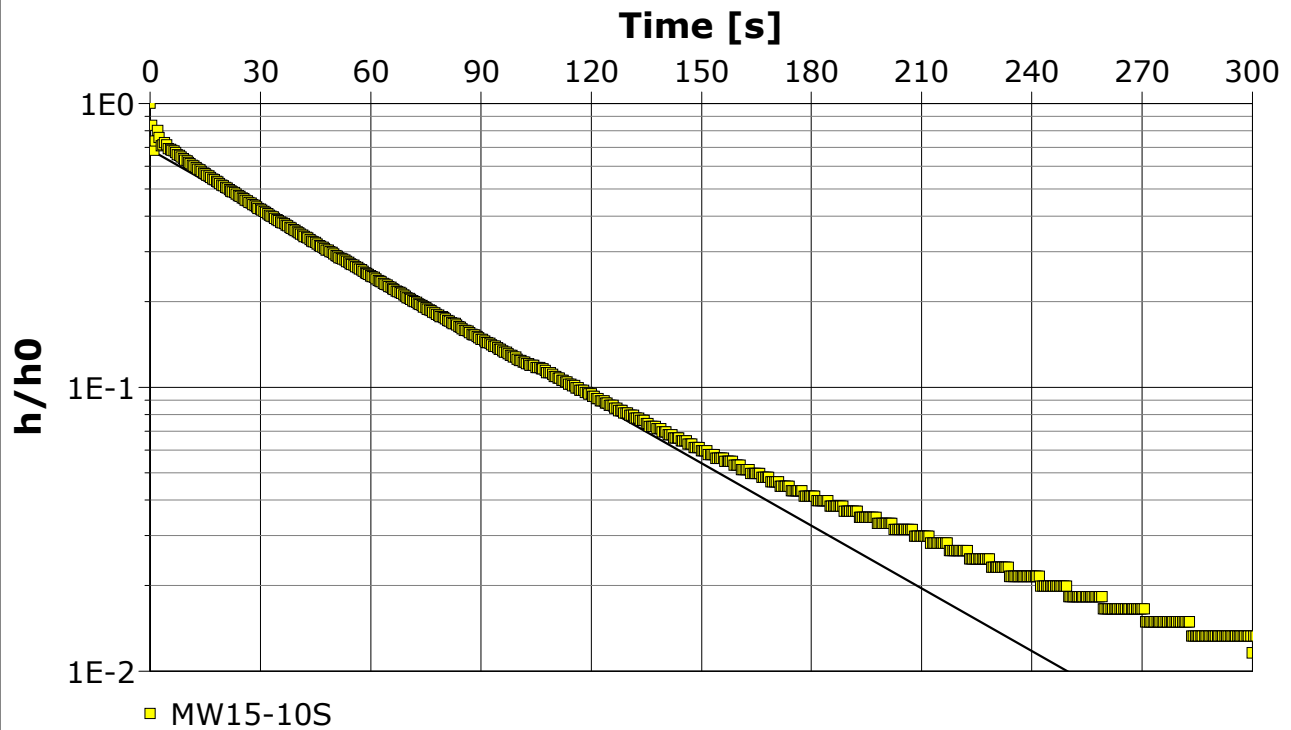
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-10S Slug Test 2	Test Well: MW15-10S
Test Conducted by: ER/KRR		Test Date: 9/4/2015
Analysis Performed by:	New analysis 1	Analysis Date: 12/10/2015
Aquifer Thickness: 10.39 m		



Calculation using Bouwer & Rice		
Observation Well	Hydraulic Conductivity [m/s]	
MW15-10S	$1.77 \times 10^{-6}$	



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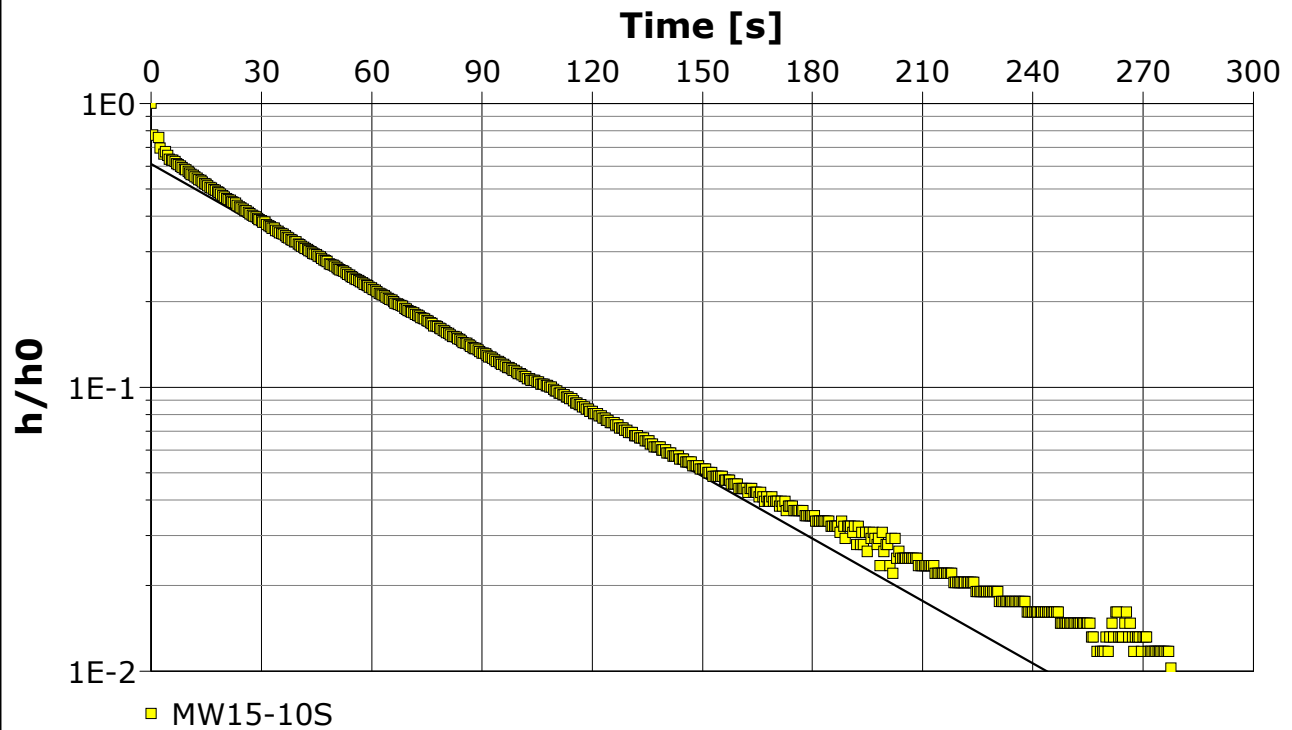
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-10S Slug Test 3	Test Well: MW15-10S
Test Conducted by: ER/KRR		Test Date: 9/4/2015
Analysis Performed by:	New analysis 1	Analysis Date: 12/10/2015
Aquifer Thickness: 10.39 m		



Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]
MW15-10S	$1.76 \times 10^{-6}$



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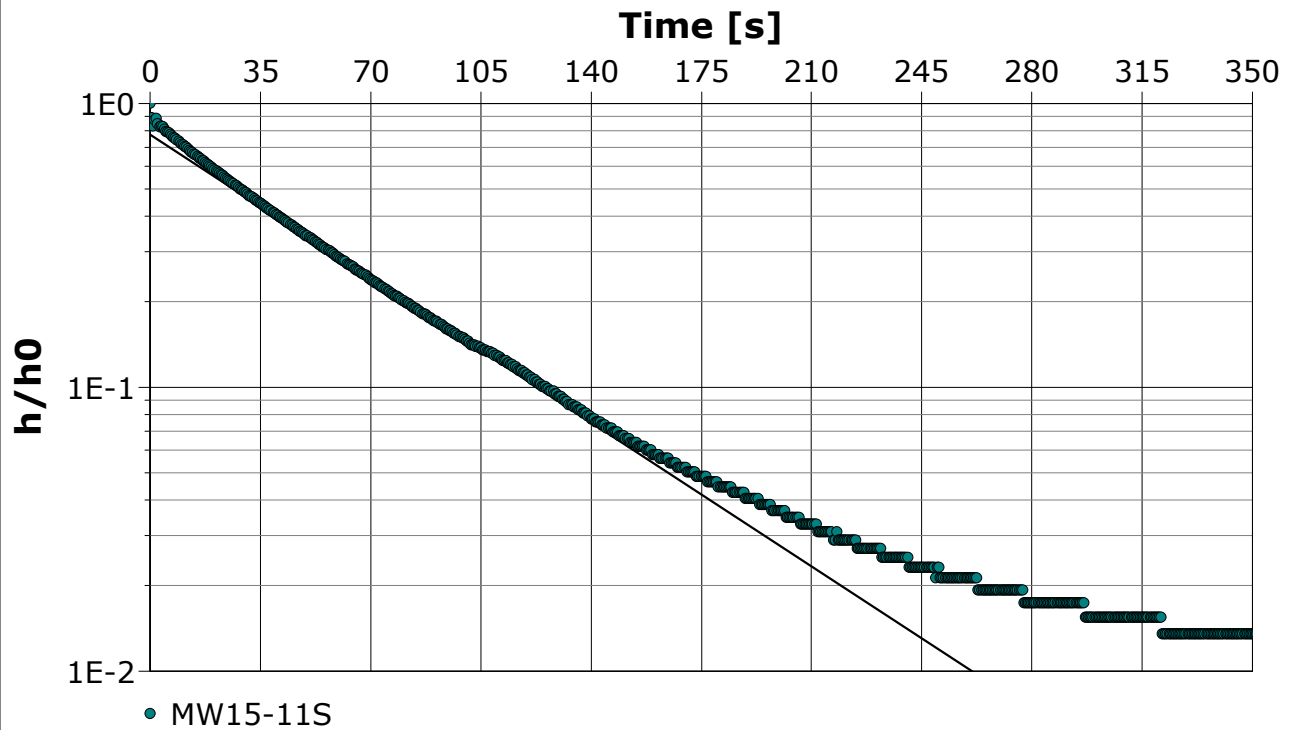
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-10S Slug Test 4	Test Well: MW15-11S
Test Conducted by: ER/KRR		Test Date: 9/4/2015
Analysis Performed by:	New analysis 1	Analysis Date: 12/10/2015
Aquifer Thickness: 10.39 m		



Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]
MW15-11S	$3.00 \times 10^{-6}$



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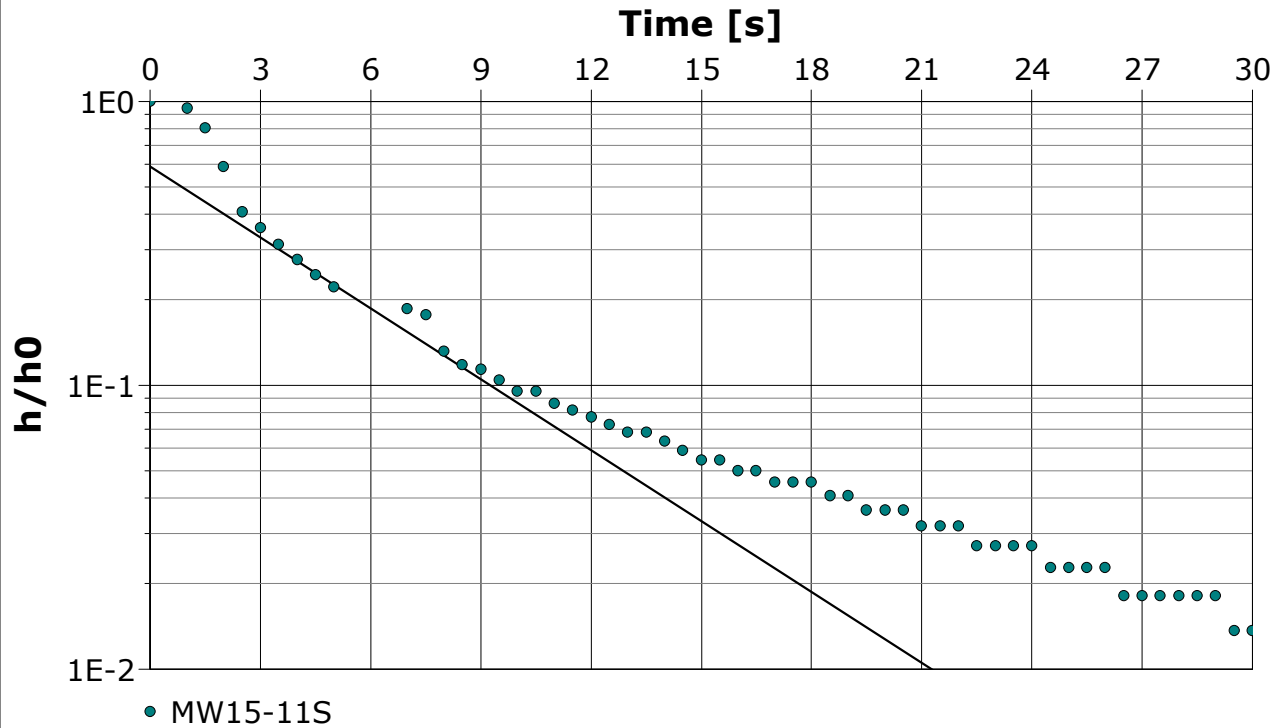
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-11S Slug Test 1	Test Well: MW15-11S
Test Conducted by: ER		Test Date: 11/8/2015
Analysis Performed by: ER	New analysis 1	Analysis Date: 2/2/2016
Aquifer Thickness: 6.01 m		



Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]
MW15-11S	$3.45 \times 10^{-5}$



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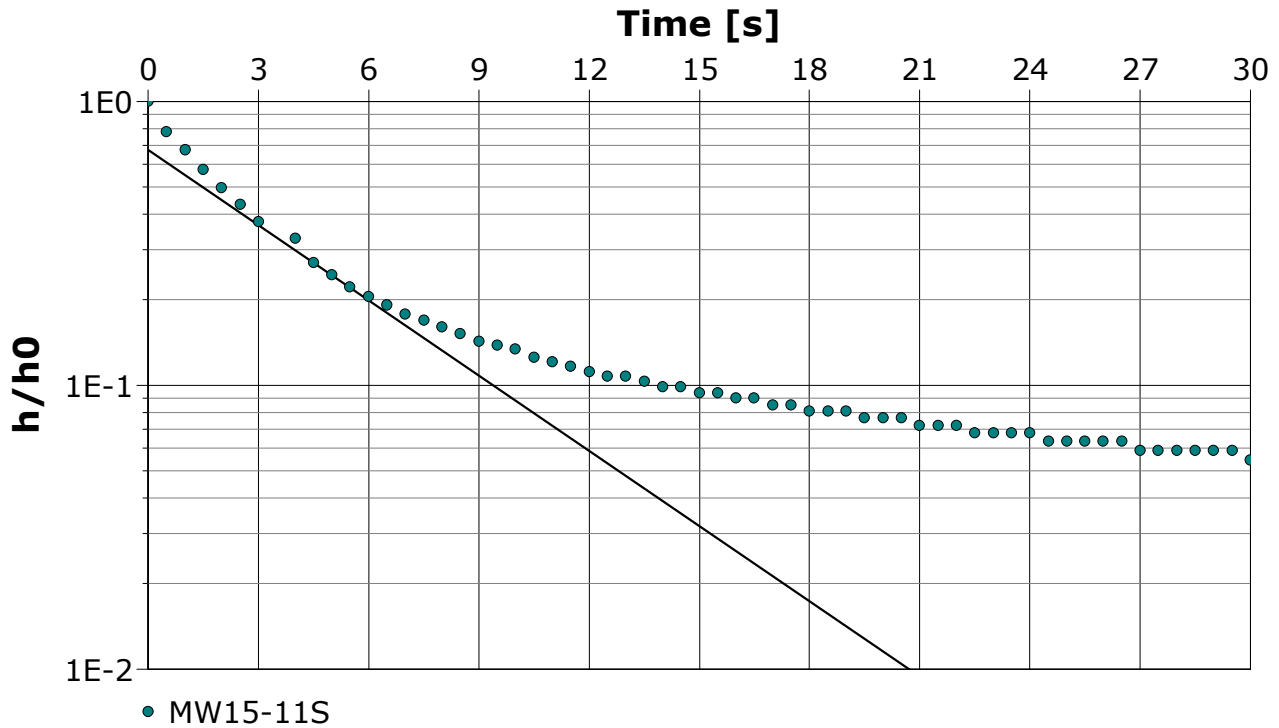
**Slug Test Analysis Report**

Project: Kudz Ze Kayah Hydrogeological Assessment

Number: ENVMIN03071-01

Client: BMC Minerals (No 1)

Location:	Slug Test: MW15-11S Slug Test 3	Test Well: MW15-11S
Test Conducted by: ER		Test Date: 11/8/2015
Analysis Performed by:	New analysis 1	Analysis Date: 2/2/2016
Aquifer Thickness: 6.01 m		

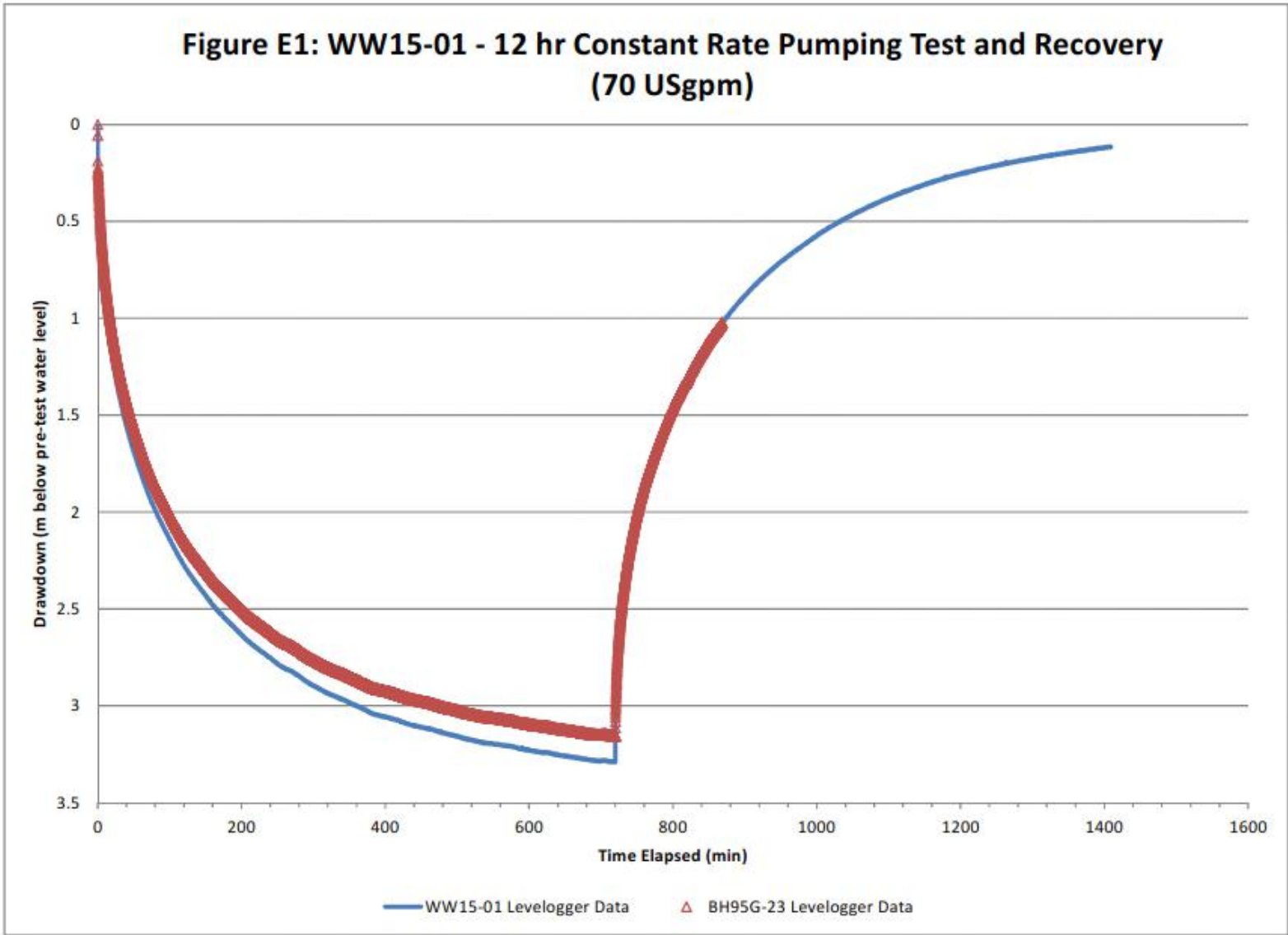


Calculation using Bouwer & Rice		
Observation Well	Hydraulic Conductivity [m/s]	
MW15-11S	$3.66 \times 10^{-5}$	

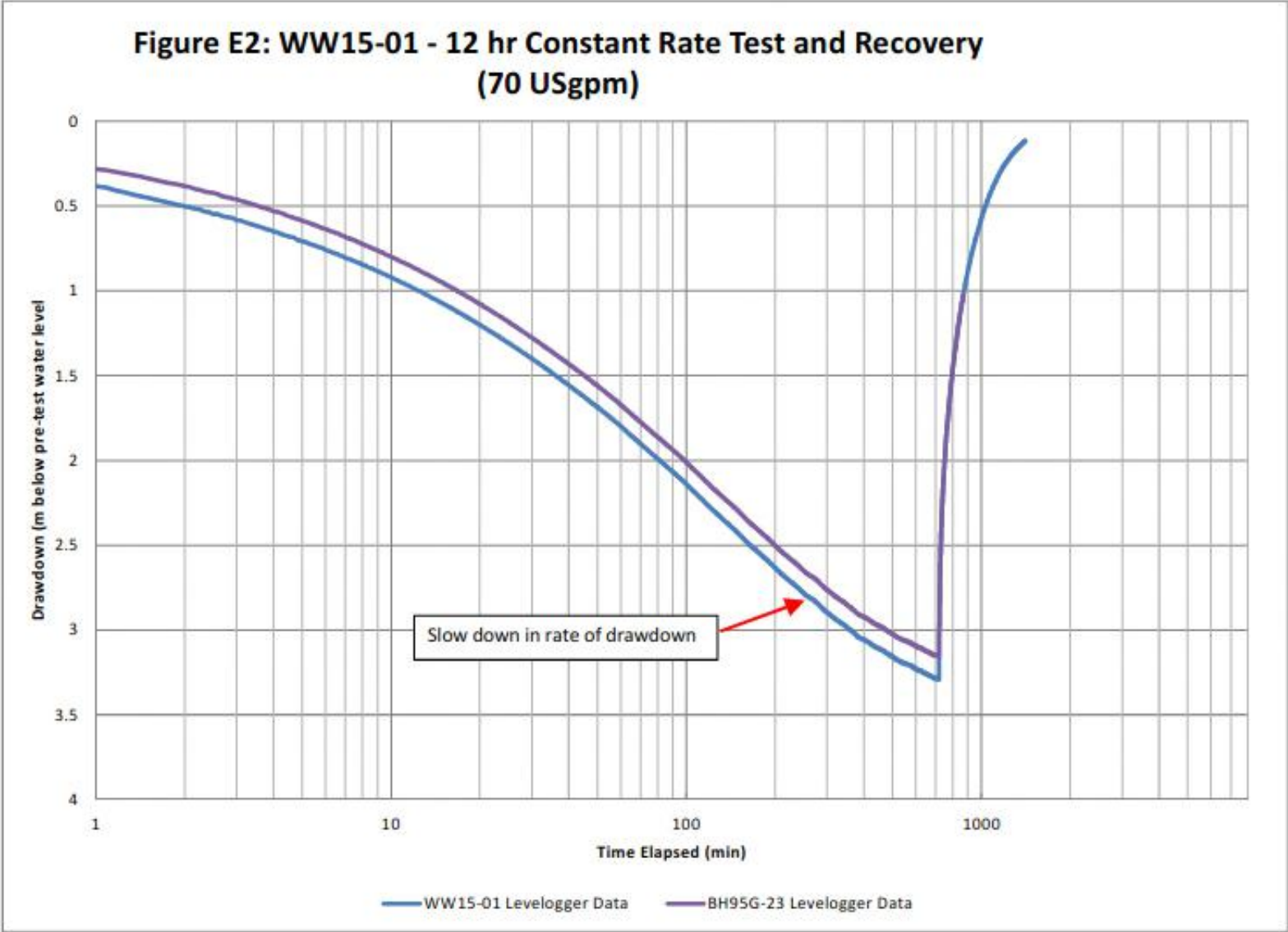
# APPENDIX E

## PUMPING TEST RESULTS

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**Pumping Test Analysis Report**

Project: Kudz Ze Kayah

Number: ENVMIN03071

Client: BMC Minerals (No. 1) Ltd.

Location: Kudz Ze Kayah

Pumping Test: Pumping Test WW15-01

Pumping Well: WW15-01

Test Conducted by: AJS

Test Date: 10/4/2015

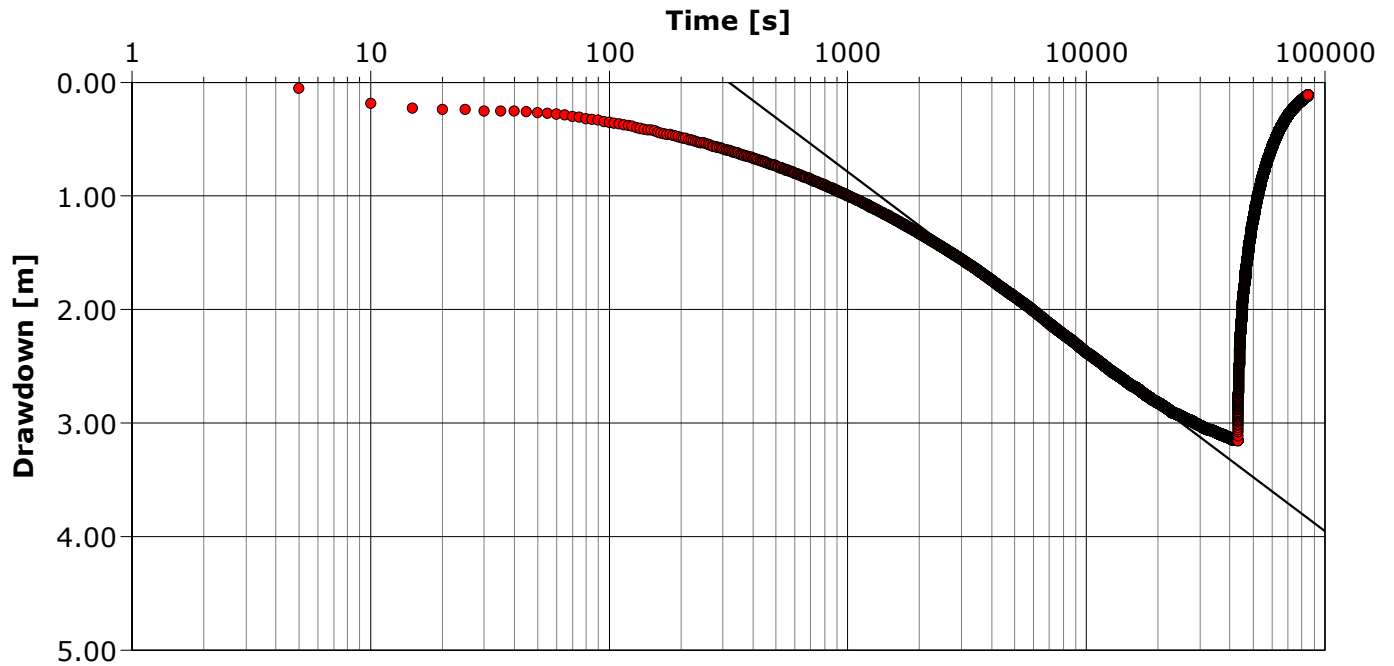
Analysis Performed by: AJS

WW15-01\_Drawdown

Analysis Date: 2/2/2016

Aquifer Thickness: 4.20 m

Discharge: variable, average rate 70 [U.S. gal/min]



Calculation using COOPER & JACOB

Observation Well	Transmissivity [m <sup>2</sup> /s]	Hydraulic Conductivity [m/s]	Storage coefficient	Radial Distance to PW [m]
BH95G-23	$5.11 \times 10^{-4}$	$1.22 \times 10^{-4}$	$6.32 \times 10^{-4}$	24.0

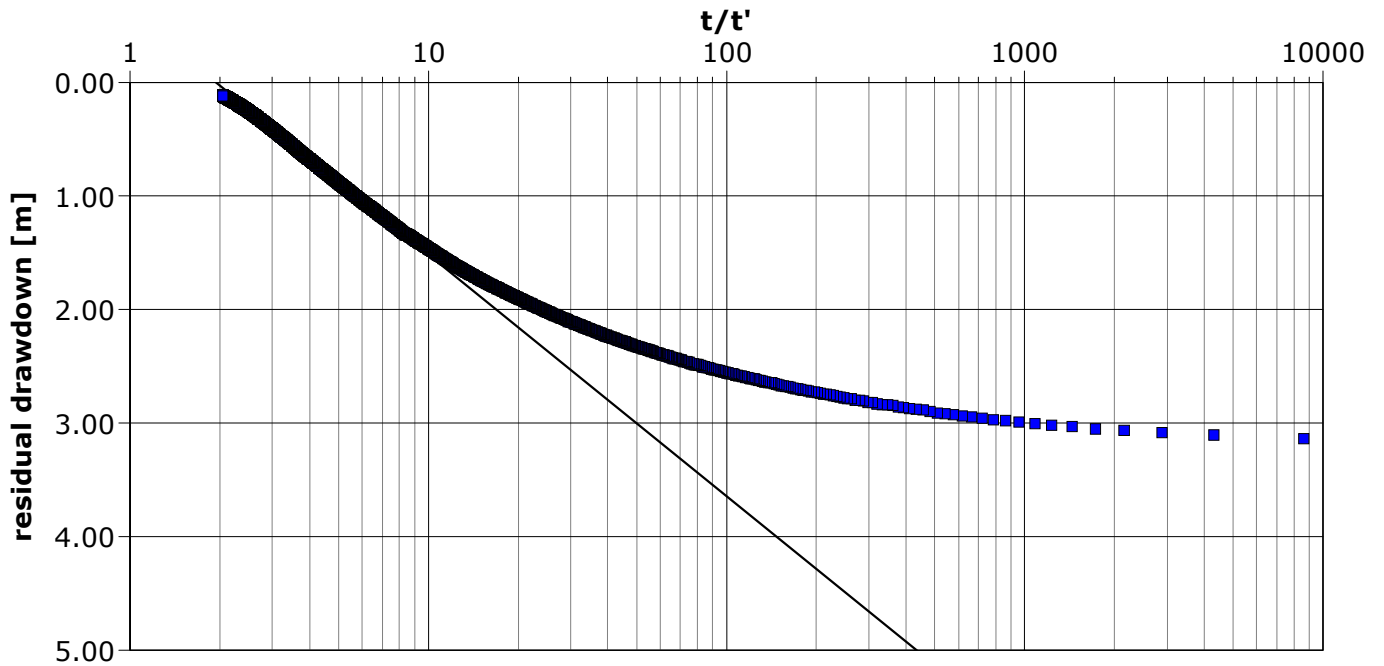
**Pumping Test Analysis Report**

Project: Kudz Ze Kayah

Number: ENVMIN03071

Client: BMC Minerals (No. 1) Ltd.

Location: Kudz Ze Kayah	Pumping Test: Pumping Test WW15-01	Pumping Well: WW15-01
Test Conducted by: AJS		Test Date: 10/4/2015
Analysis Performed by: AJS	WW15-01_Residual Drawdown	Analysis Date: 10/30/2015
Aquifer Thickness: 4.20 m	Discharge: variable, average rate 70 [U.S. gal/min]	



Calculation using THEIS & JACOB

Observation Well	Transmissivity [m <sup>2</sup> /s]	Hydraulic Conductivity [m/s]	Radial Distance to PW [m]
WW15-01	$3.80 \times 10^{-4}$	$9.04 \times 10^{-5}$	0.18

**Pumping Test Analysis Report**

Project: Kudz Ze Kayah

Number: ENVMIN03071

Client: BMC Minerals (No. 1) Ltd.

Location: Kudz Ze Kayah

Pumping Test: Pumping Test WW15-01

Pumping Well: WW15-01

Test Conducted by: AJS

Test Date: 10/4/2015

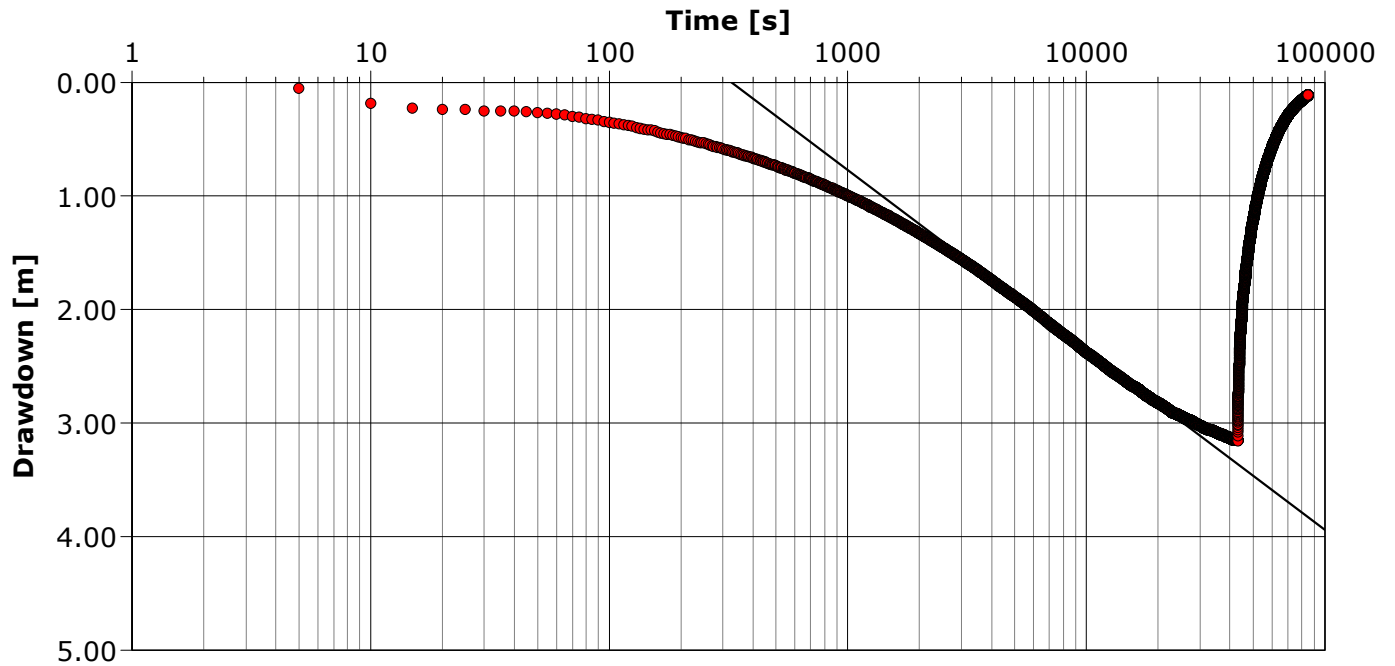
Analysis Performed by: AJS

BH95G-23\_Drawdown

Analysis Date: 1/29/2016

Aquifer Thickness: 4.20 m

Discharge: variable, average rate 70 [U.S. gal/min]



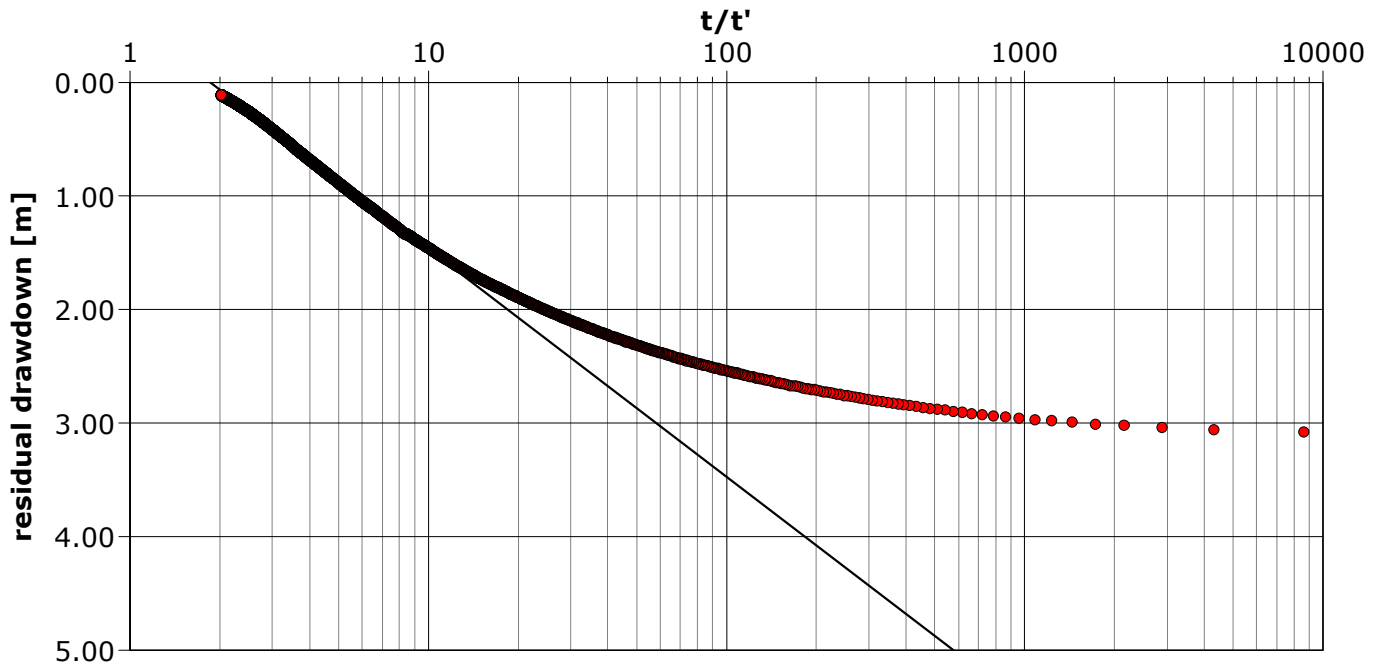
**Pumping Test Analysis Report**

Project: Kudz Ze Kayah

Number: ENVMIN03071

Client: BMC Minerals (No. 1) Ltd.

Location: Kudz Ze Kayah	Pumping Test: Pumping Test WW15-01	Pumping Well: WW15-01
Test Conducted by: AJS		Test Date: 10/4/2015
Analysis Performed by: AJS	BH95G-23_Residual Drawdown	Analysis Date: 1/29/2016
Aquifer Thickness: 4.20 m	Discharge: variable, average rate 70 [U.S. gal/min]	



Calculation using THEIS & JACOB

Observation Well	Transmissivity [m <sup>2</sup> /s]	Hydraulic Conductivity [m/s]	Radial Distance to PW [m]
BH95G-23	$4.03 \times 10^{-4}$	$9.60 \times 10^{-5}$	24.0

		<b>Pumping Test Analysis Report</b>	
		Project: Kudz Ze Kayah	
		Number: ENVMIN03071	
		Client: BMC Minerals (No. 1) Ltd.	

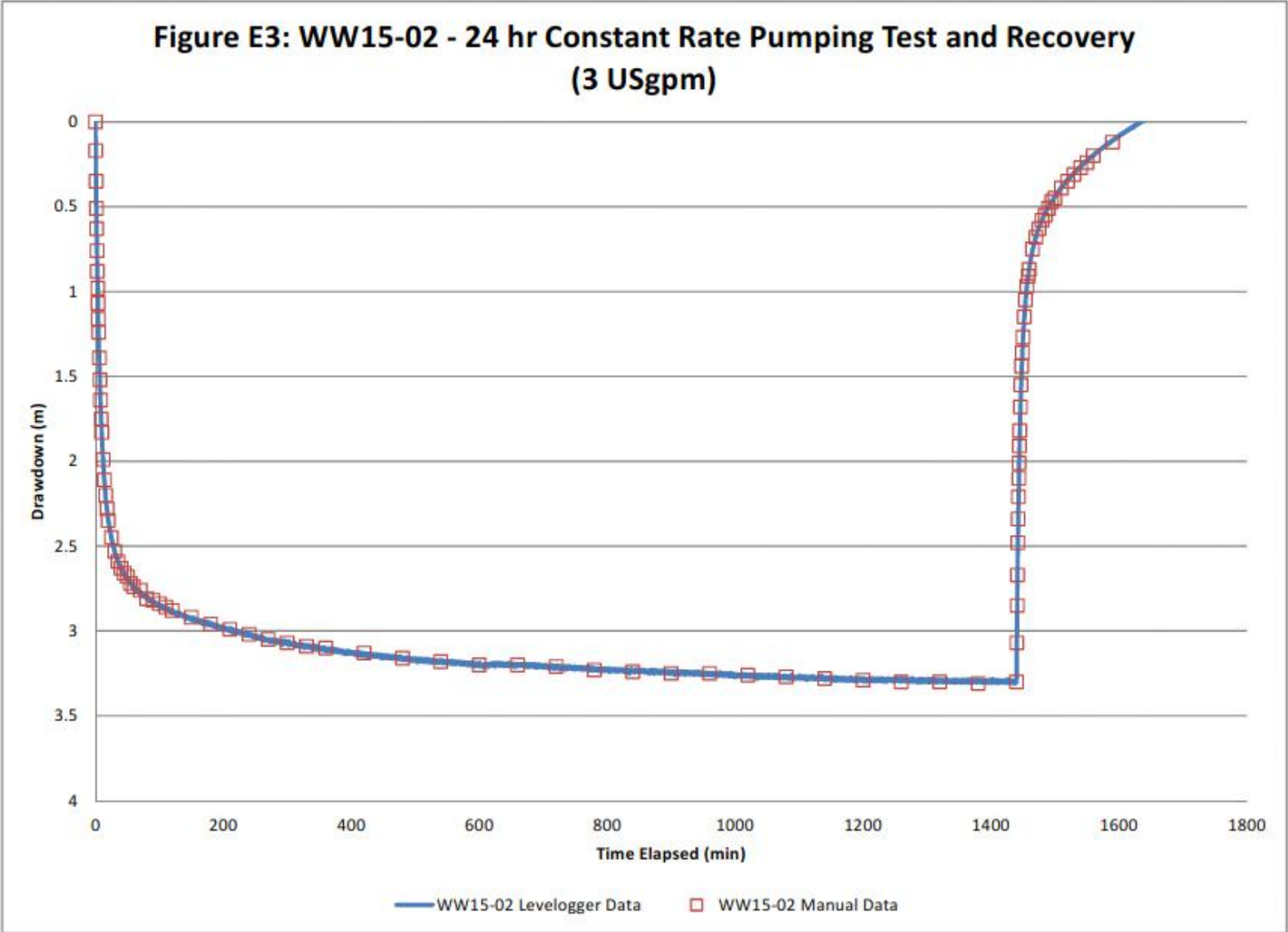
Location: Kudz Ze Kayah	Pumping Test: Pumping Test WW15-01	Pumping Well: WW15-01
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Test Conducted by: AJS	Test Date: 10/4/2015
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Aquifer Thickness: 4.20 m	Discharge: variable, average rate 70 [U.S. gal/min]
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	Analysis Name	Analysis Performed	Analysis Date	Method name	Well	T [m <sup>2</sup> /s]	K [m/s]	S
1	WW15-01_Drawdown	AJS	2/2/2016	Cooper & Jacob I	BH95G-23	$5.11 \times 10^{-4}$	$1.22 \times 10^{-4}$	$6.32 \times 10^{-4}$
2	WW15-01_Residual	AJS/down	10/30/2015	Theis Recovery	WW15-01	$3.80 \times 10^{-4}$	$9.04 \times 10^{-5}$	
3	BH95G-23_Drawdown	AJS	1/29/2016	Cooper & Jacob I	BH95G-23	$5.10 \times 10^{-4}$	$1.22 \times 10^{-4}$	$6.47 \times 10^{-4}$
4	BH95G-23_Residual	AJS/down	1/29/2016	Theis Recovery	BH95G-23	$4.03 \times 10^{-4}$	$9.60 \times 10^{-5}$	

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**Pumping Test Analysis Report**

Project: Kudz Ze Kayah

Number: ENVMIN03071

Client: BMC Minerals (No. 1) Ltd.

Location: Kudz Ze Kayah

Pumping Test: Pumping Test WW15-02

Pumping Well: WW15-02

Test Conducted by: AJS

Test Date: 10/8/2015

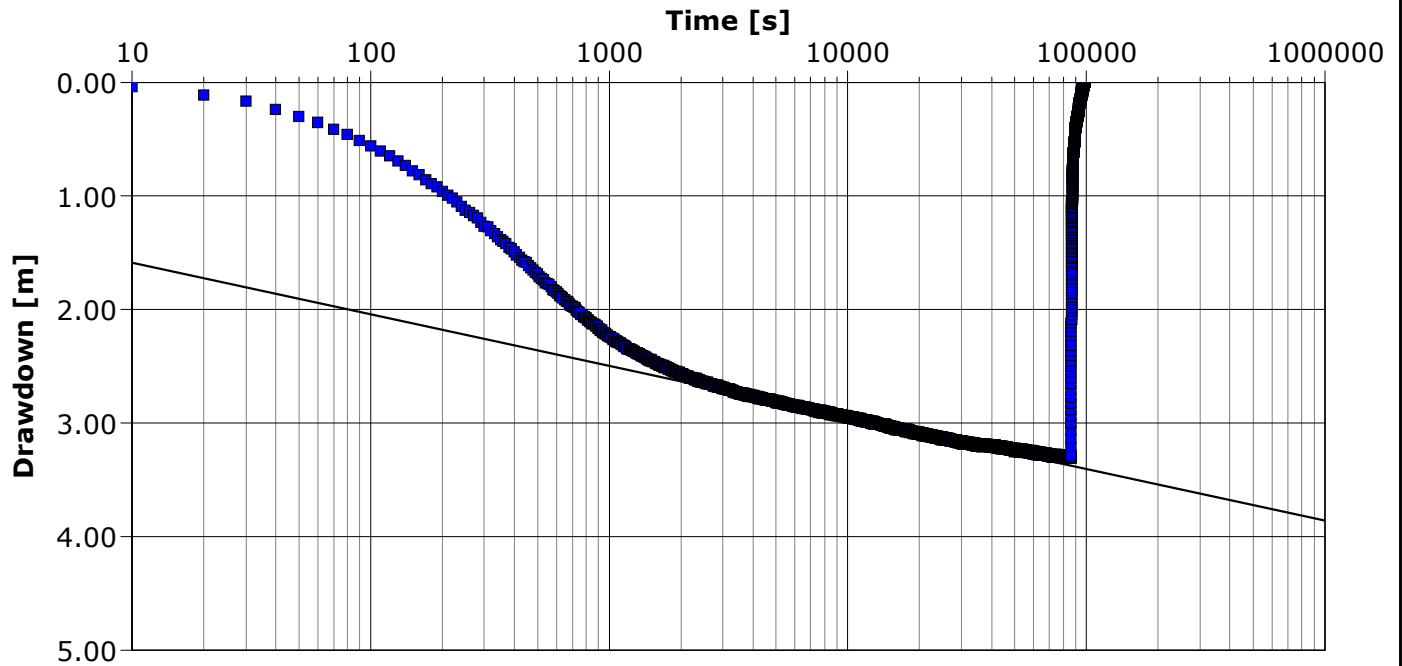
Analysis Performed by:

New analysis 1

Analysis Date: 11/2/2015

Aquifer Thickness: 34.70 m

Discharge: variable, average rate 3 [U.S. gal/min]



Calculation using COOPER & JACOB

Observation Well	Transmissivity [m <sup>2</sup> /s]	Hydraulic Conductivity [m/s]	Well-bore storage coefficient	Radial Distance to PW [m]
WW15-02	$7.63 \times 10^{-5}$	$2.20 \times 10^{-6}$	$1.32 \times 10^{-5}$	0.2



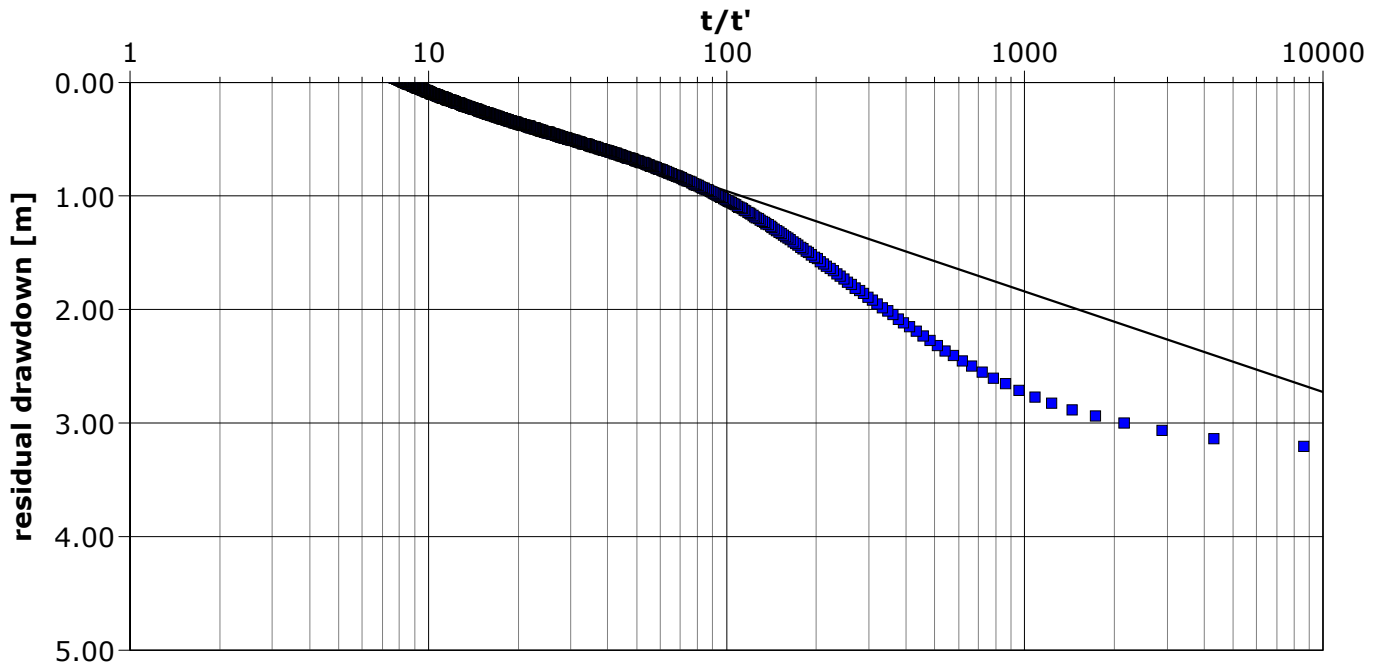
**Pumping Test Analysis Report**

Project: Kudz Ze Kayah

Number: ENVMIN03071

Client: BMC Minerals (No. 1) Ltd.

Location: Kudz Ze Kayah	Pumping Test: Pumping Test WW15-02	Pumping Well: WW15-02
Test Conducted by: AJS		Test Date: 10/8/2015
Analysis Performed by:	New analysis 1	Analysis Date: 11/2/2015
Aquifer Thickness: 34.70 m	Discharge: variable, average rate 3 [U.S. gal/min]	



Calculation using THEIS & JACOB

Observation Well	Transmissivity [m <sup>2</sup> /s]	Hydraulic Conductivity [m/s]	Radial Distance to PW [m]
WW15-02	$3.91 \times 10^{-5}$	$1.13 \times 10^{-6}$	0.2

---

<b>To:</b>	Kelli Bergh	<b>Date:</b>	November 9, 2015
<b>c:</b>		<b>Memo No.:</b>	
<b>From:</b>	Adam Seeley, Stephan Klump	<b>File:</b>	ENVMIN03071-01
<b>Subject:</b>	Pumping Test Program – WW15-01 and WW15-02, Kudz Ze Kayah, October 2015.		

---

## 1.0 INTRODUCTION

This technical memo presents the scope of work, methodology and results of the pumping test program conducted on the groundwater test wells WW15-01 and WW15-02 at Kudz Ze Kayah in October 2015.

Long-term pumping tests (12 hours in overburden, 24 hours in shallow bedrock) were undertaken in order to determine the bulk hydraulic conductivities of the different hydrostratigraphic units (permeable overburden and shallow fractured bedrock) to better determine anticipated dewatering rates for a possible future open pit.

The pumping tests also provided the opportunity to identify aquifer boundaries that may be present given the topography in the vicinity of the proposed open pit and collect groundwater quality samples.

## 2.0 SCOPE OF WORK

The scope of work undertaken for the pumping test program included:

- Review regulatory and permit requirements to design and conduct the pumping test program in consideration of these requirements;
- Conduct step drawdown pumping tests at WW15-01 and WW15-02 in order to estimate a pumping rate for the constant rate pumping tests;
- Monitor recovery of water levels following the step drawdown tests;
- Conduct constant rate pumping tests at WW15-01 and WW15-02;
- Monitor recovery of water levels following the constant rate test;
- Monitor response of water levels in observation wells during the pumping test program;
- Monitor discharge and ensure water did not flow directly into surface water bodies.

## 3.0 REGULATIONS

BMC Minerals (No. 1) Ltd. (BMC) currently hold a Type A Water Licence No. QZ97-026 (the Licence) for the Kudz Ze Kayah project that was issued on November 2, 1999 and expires on September 28, 2018. Under this Licence, the licensee is authorized to dewater the overburden and bedrock in the area of the proposed open pit and discharge the water to Geona Creek (Part D.43, p. 10).

Both test wells WW15-01 and WW15-02 are located in the area of the proposed open pit and were completed so they can potentially be used as future dewatering wells. Tetra Tech EBA, in consultation with BMC, therefore determined that the pumping tests can be completed under the existing Type A Water Licence.

Even though the Licence permits direct discharge of groundwater from the overburden and bedrock aquifers within the open pit area into Geona Creek, all groundwater produced during the pumping tests was discharged to ground and returned to the same aquifers it was extracted from to minimize or eliminate any potential environmental impact.

The pumping tests were also designed to minimize the amount of groundwater extracted during each of the pumping tests. The total extraction rate was below 300 m<sup>3</sup>/day for all pumping tests conducted, i.e., below the threshold for the requirement of a water licence for water use associated with a quartz mining undertaking. However, a Schedule 3 notice (Notification of Water Use Without a Licence) was not required because BMC holds a valid Type A Water Licence for the project which allows the overburden and bedrock aquifers in the area of the proposed open pit to be dewatered.

## 4.0 WELL SUMMARY

### 4.1 Pumping Wells

Pumping tests were conducted on test wells WW15-01 and WW15-02 (200 mm / 8" diameter). These two wells were drilled, installed and developed under the direction of Tetra Tech EBA in July and August 2015. A summary of well construction details is provided in Table 1.

**Table 1: Well Construction Summary**

Well ID	Unit Completed In	Total Depth (m bg)	Aquifer Thickness (m)	Screen Location (m bg)	Notes
WW15-01	Overburden (Sandy GRAVEL)	15.2	4.2	11.9 - 15.2	<ul style="list-style-type: none"> <li>Drilled to the top of bedrock.</li> <li>Screened (80-slot) in permeable sand and gravel unit overlying bedrock.</li> </ul>
WW15-02	Bedrock (fractured schist)	38.1	35.1	22.9 - 35.0	<ul style="list-style-type: none"> <li>Open hole from 3.4 to 38.1 mbg.</li> <li>PVC liner installed with 20-slot screen from 22.9 to 35 mbg.</li> </ul>

### 4.2 Observation Wells

Wells in the vicinity of WW15-01 and WW15-02 were identified as observation wells and groundwater elevations in these wells measured over the course of the pumping test program. A summary of wells used as observation wells is provided in Table 2.

**Table 2: Observation Wells**

Pumping Well ID	Observation Well	Unit Observation Well Completed In	Distance From Pumping Well (m)	Direction From Pumping Well
WW15-01	BH95-23	Overburden	24	SE
WW15-02	BH95-21	Bedrock	132	SSW
	BH95-22	Bedrock	97	ESE

## 5.0 PUMPING TEST PROGRAM

### 5.1 WW15-01

#### 5.1.1 Step drawdown Pumping Test

A step drawdown pumping test consisting of four 1 hour steps of 37.5, 75, 150 and 250 USgpm was undertaken at WW15-01 on October 4, 2015. The maximum drawdown during the 250 USgpm step was 5.09 m (16.7 ft) below the static water level, at which point the water level was drawn down to the pump inlet. This occurred approximately two minutes into the 250 USgpm step and the test was halted at this point.

After completing the step drawdown test, Tetra Tech EBA determined that the well could be pumped at 70 USgpm for a 12 hour constant rate test.

#### 5.1.2 Constant Rate Pumping Test

A constant rate pumping test was conducted on October 5, 2015 after the well had recovered to 96% of the pre-test water level (see Figure 2). The well was pumped at 70 USgpm for 12 hours and the maximum drawdown during this test was 3.29 m (10.8 ft).

The groundwater level had recovered to 91 percent of drawdown (from static) after 11.5 hours, at which point the pump and associated pipework was removed from the well.

#### 5.1.3 Water Discharge

Water pumped from the well during the pumping test program was directed to ground approximately 40 m from WW15-01 via lay flat hosing to a vegetated and low lying area to the north of WW15-01 (Figure 1, Photos 1-4). This was considered far enough from the pumping and observation wells for re-circulation of the pumped water into the aquifer not to be of concern. This location also maximised the distance to nearby surface water bodies (the closest a lake approximately 200 m north of WW15-01), allowing for higher pumping rates with less chance of overland flow reaching the lake.

The discharge area sloped gently to the north and discharged water was observed to flow in a generally northerly direction away from WW15-01 and BH95G-23. The extent of the discharged water and potential for environmental impact was closely monitored over the course of the pumping test program. The maximum extent of water flow on surface after the cessation of the constant rate test was approximately 150 m to the north of WW15-01, within the footprint of a former drill pad. There was no evidence of water discharged during the pumping test program directly or indirectly migrating to the closest nearby surface water body, the lake approximately 50 m to the north of the maximum water extent (Figure 1, Photo 4).

Overland flow was noted to be passive and there was no observable transportation of particulate matter (i.e. silt, sand, organic matter) between the discharge point and the maximum extent of flow.

Table 3 details the volumes discharged from WW15-01 during the pumping test program.

**Table 3: Pumping Test Program Discharge Volumes – WW15-01**

Date	Test Type	Volume Discharged (L)	Total Volume Discharged in Day (m3)
4-Oct-15	Step Drawdown Test	8,517	66
		17,034	
		34,069	
		6,624	
5-Oct-15	Constant Rate Test	190,784	191

## 5.2 Pumping Test Results

Water levels were recorded during the step drawdown and constant rate tests at WW15-01. Observed drawdown and recovery in WW15-01 during the constant rate pumping test is shown in Figure 2. The maximum drawdown observed in WW15-01 during the constant rate pumping test was 3.49 m (11.5 ft). As shown in Figure 2, the water level continued to fall throughout the 12-hour pumping test, although the data indicated the level was close to stabilising when the test was completed.

A datalogger was installed in nearby groundwater monitoring well BH95G-23 during the pumping test conducted on WW15-01. BH95G-23 is a small diameter (32 mm) well which is screened in the same aquifer as WW15-01. The data recorded at this well (presented in Figure 2) shows a direct and rapid hydraulic connection between the two wells.

Tetra Tech EBA completed a preliminary analysis of the pumping test data. The full data analysis will be included with the hydrogeological baseline report. The preliminary inferred aquifer transmissivity and hydraulic conductivity for the overburden aquifer in the area of the test well WW15-01 and observation well BH95G-23 are shown in Table 4.

**Table 4: Pumping Test Results WW15-01**

Well	Method	Transmissivity T	Hydraulic Conductivity K
		[m <sup>2</sup> /s]	[m/s]
WW15-01	Cooper-Jacob	5E-04	1E-04

## 5.3 WW15-02

### 5.3.1 Step drawdown Pumping Test

A step drawdown pumping test consisting of four 1-hour steps of 2, 4, 12 and 30 USgpm was undertaken at WW15-02 on October 9, 2015. The maximum drawdown during the 30 USgpm step was 24.4 m (80 ft) below the static water level. At approximately 3.5 minutes into the fourth step (30 USgpm), the drawdown increased rapidly

and the pumping rate dropped, even with the discharge valve fully open. As the water level dropped, the pumping rate also dropped as the pump worked harder to overcome the increasing head. The step drawdown test was halted after 18 min in the fourth step as useful data was no longer being collected.

After completing the step drawdown, Tetra Tech EBA determined that the well could be pumped at 11 USgpm for the 24-hour constant rate test.

### 5.3.2 Constant Rate Pumping Test

A constant rate pumping test was conducted on October 9, 2015 after the well had recovered to 94% of the pre-test water level (see Figure 3). The well was pumped at 11 USgpm for 2 hours, at which point the water level had drawn down approximately 28 m (92 ft), which was a markedly different response to being pumped at this rate to what had been observed during the step drawdown test. With drawdown showing no signs of levelling out and the water level nearing the pump inlet, the test was halted at this point.

The well was left to recover to 95% of the pre-test water level and a second constant rate test commenced on October 10, 2015. The well was pumped at 3 USgpm for a 24 hour period and the maximum drawdown during this test was 3.30 m (10.8 ft).

The groundwater level had recovered to 75 percent of drawdown (from static) after 6 hours, at which point the pump and associated pipework was removed from the well.

### 5.3.3 Water Discharge

Water pumped from the well during the pumping test program was directed via lay flat hosing to a vegetated area approximately 60 m to the southeast of WW15-02 (Figure 1, Photos 5 and 6). This was considered far enough from the pumping and observation wells for re-circulation of the pumped water into the aquifer not to be of concern. This location also maximised the distance to nearby surface water bodies (the closest a creek on the valley floor approximately 200 m east of WW15-02), allowing for higher pumping rates with less chance of overland flow reaching the creek.

At the point of discharge, the ground sloped gently to the east towards the creek. Discharged water was observed to flow in a generally easterly direction for several metres prior to flowing beneath thick vegetation. The extent of the discharged water was monitored over the course of the pumping test program. Over the length of the pumping test program, discharge water was not observed to daylight within 200 m downslope of the point where it entered the vegetation. There was no evidence of discharged water directly or indirectly migrating and discharging to the creek.

Overland flow was noted to be passive and there was no observable transportation of particulate matter (i.e. silt, sand, organic matter) between the discharge point and the maximum observed extent of flow.

Table 5 details the volumes discharged from WW15-02 during the pumping test program.

**Table 5: Pumping Test Program Discharge Volumes - WW15-02**

Date	Test Type	Volume Discharged (L)	Total Volume Discharged in Day (m3)
7-Oct-15	Step Drawdown Test	1,703	1.7
9-Oct-15	Step Drawdown Test	454	8.1
		908	
		2,725	
		2,044	
	Constant Rate Test	1,999	
10-Oct-15	Constant Rate Test	2,998	14.7
	Constant Rate Test	11,663	
11-Oct-15	Constant Rate Test	4,690	4.7

## 5.4 Pumping Test Results

Water levels were recorded during the step drawdown and constant rate tests at WW15-02. Observed drawdown and recovery in WW15-02 during the constant rate pumping test is shown in Figure 3. The maximum drawdown observed during the constant rate pumping test was 3.30 m (10.8 ft) below the static water level. As shown in Figure 3, the water level continued to fall throughout the 24-hour pumping test, although the data shows there was very little change in level during the last 14 hours of the test (< 0.1 m).

Dataloggers were installed in nearby groundwater wells BH95G-21 and BH95G-22 during the pumping test program conducted on WW15-02. Both of these wells are small diameter (32 mm) monitoring wells. BH95G-21 is screened in bedrock from approximately 6 to 9 m bg while BH95G-22 is screened across the overburden and bedrock aquifers. The data recorded from these two wells showed no response to the pumping of WW15-02 during the step drawdown or constant rate tests. While this infers there may not be a hydraulic connection between these wells, the pumping rates during the program, particularly during the 24-hour constant rate test (3 USgpm) may not have been sufficient to induce a response in the observation wells.

Tetra Tech EBA completed a preliminary analysis of the pumping test data. The full data analysis will be included with the hydrogeological baseline report. The preliminary inferred aquifer transmissivity and hydraulic conductivity for the overburden aquifer in the area of the test well WW15-01 and observation well BH95G-23 are shown in Table 6.

**Table 6: Pumping Test Results WW15-02**

Well	Method	Transmissivity T	Hydraulic Conductivity K
		[m <sup>2</sup> /s]	[m/s]
WW15-02	Cooper-Jacob	8E-5	2E-6

## 6.0 CONCLUSIONS

The pumping test program at WW15-01 and WW15-02 was successfully completed by Tetra Tech EBA in October 2015. To minimize any potential for environmental damage, groundwater was discharged to ground and returned to the same aquifer that it originated from. The discharge was monitored closely during the pumping tests to verify that the discharge water did not directly or indirectly migrate into nearby surface water bodies.

The following conclusions are based on the data collected during this program:

- Pumping test results from WW15-01 indicates the overburden aquifer at this location has a transmissivity in the order of  $5 \times 10^{-4}$  m<sup>2</sup>/s and a hydraulic conductivity in the order of  $1 \times 10^{-4}$  m/s which are typical values for a highly permeable sand and gravel aquifer.
- Pumping test results from WW15-02 indicates the overburden aquifer at this location has a transmissivity in the order of  $8 \times 10^{-5}$  m<sup>2</sup>/s and a hydraulic conductivity in the order of  $2 \times 10^{-6}$  m/s which are typical values for a fractured bedrock aquifer.



## 7.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of BMC Minerals (No. 1) Ltd. and their agents. Tetra Tech EBA Inc. does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than BMC Minerals (No. 1) Ltd., or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this report is subject to the terms and conditions stated in Tetra Tech EBA's General Conditions that are attached to this memo.

### Attachments:

- Tetra Tech EBA's General Conditions
- Figure 1: Test and Observation Wells for Pumping Test Program
- Figure 2: WW15-01 Constant Rate Pumping Test and Recovery
- Figure 3: WW15-02 Constant Rate Pumping Test and Recovery
- Appendix A – Photographs

# GENERAL CONDITIONS

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## GEOENVIRONMENTAL REPORT

This report incorporates and is subject to these “General Conditions”.

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### 1.0 USE OF REPORT AND OWNERSHIP

This report pertains to a specific site, a specific development, and a specific scope of work. It is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site or proposed development would necessitate a supplementary investigation and assessment.

This report and the assessments and recommendations contained in it are intended for the sole use of Tetra Tech EBA's client. Tetra Tech EBA does not accept any responsibility for the accuracy of any of the data, the analysis or the recommendations contained or referenced in the report when the report is used or relied upon by any party other than Tetra Tech EBA's Client unless otherwise authorized in writing by Tetra Tech EBA. Any unauthorized use of the report is at the sole risk of the user.

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### 2.0 ALTERNATE REPORT FORMAT

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Both electronic file and hard copy versions of Tetra Tech EBA's instruments of professional service shall not, under any circumstances, no matter who owns or uses them, be altered by any party except Tetra Tech EBA. The Client warrants that Tetra Tech EBA's instruments of professional service will be used only and exactly as submitted by Tetra Tech EBA.

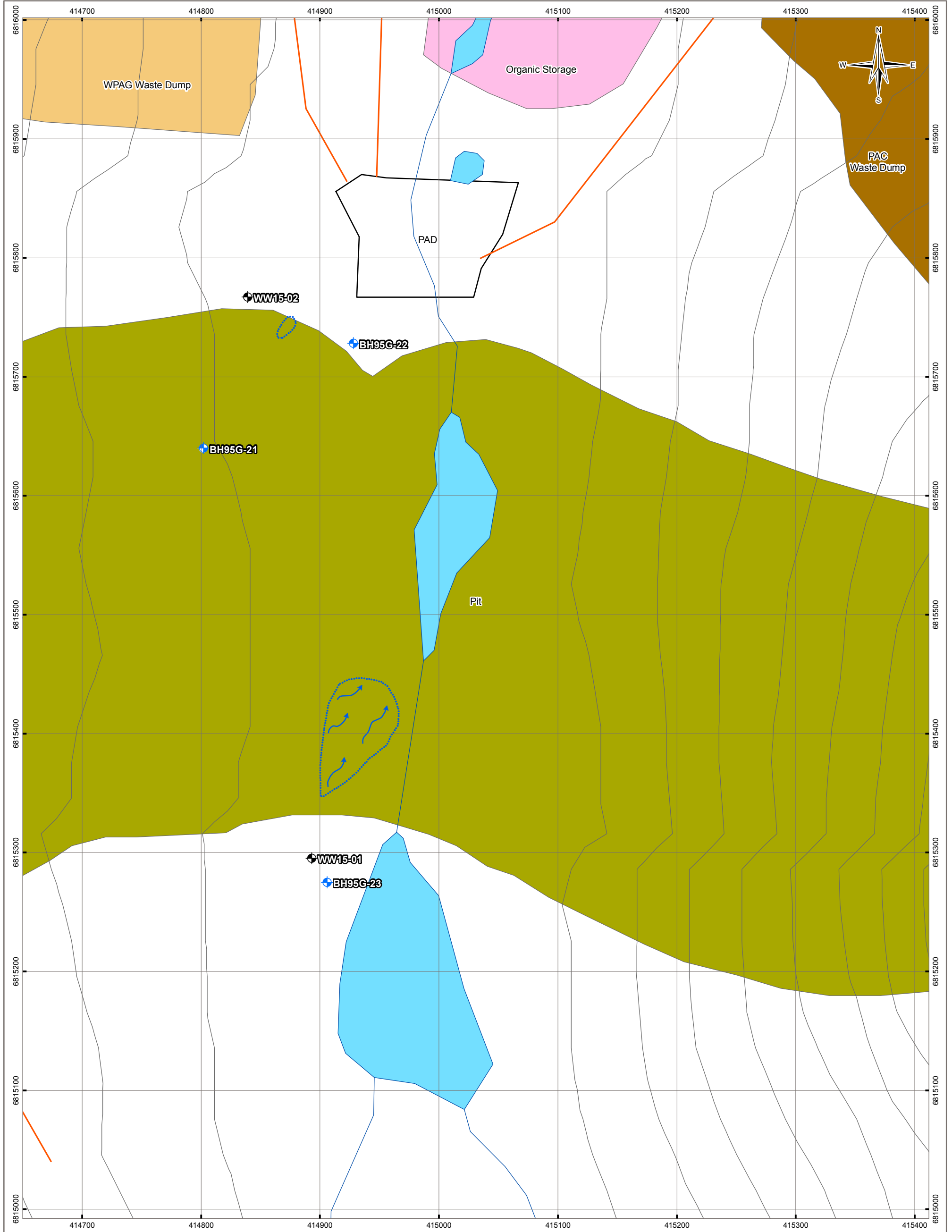
Electronic files submitted by Tetra Tech EBA have been prepared and submitted using specific software and hardware systems. Tetra Tech EBA makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

### 3.0 NOTIFICATION OF AUTHORITIES

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### 4.0 INFORMATION PROVIDED TO TETRA TECH EBA BY OTHERS

During the performance of the work and the preparation of the report, Tetra Tech EBA may rely on information provided by persons other than the Client. While Tetra Tech EBA endeavours to verify the accuracy of such information when instructed to do so by the Client, Tetra Tech EBA accepts no responsibility for the accuracy or the reliability of such information which may affect the report.



**LEGEND**

- Maximum Observed Extent of Overland Flow of Discharge Water
- General Flow Direction
- New Monitoring Well
- Existing Monitoring Well

**Proposed Mining Infrastructure**

- PAC Waste Dump
- WPAG Waste Dump
- Organic Storage
- Pit
- Building/Structure
- Road

Contour (20 m)

- Watercourse
- Waterbody

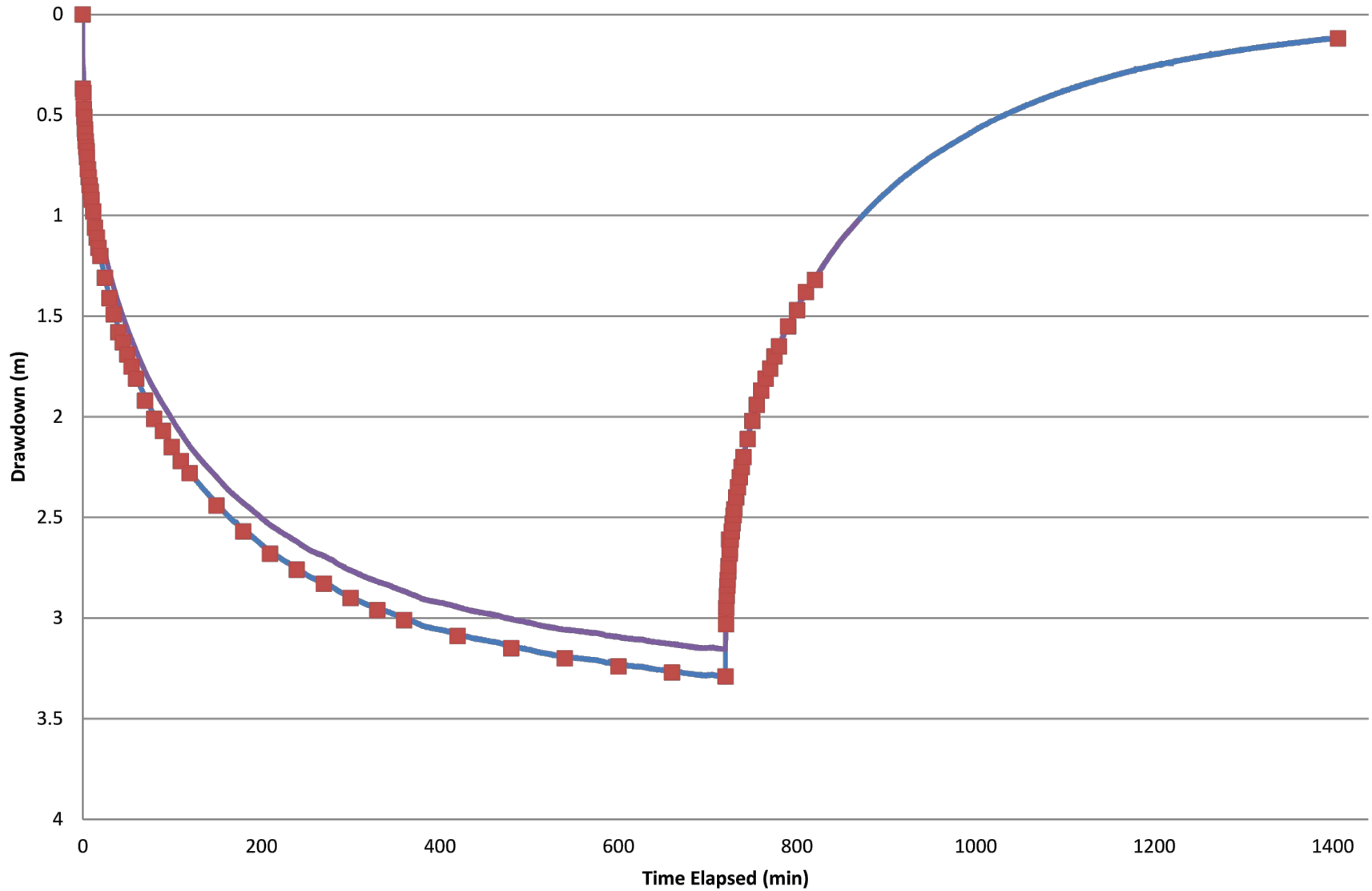
**NOTES**  
 1. Base data source: CanVec 1:50,000  
 2. Some locations are approximate

**ENVIRONMENTAL BASELINE AND PERMITTING  
 KUDZ ZE KAYAH, YK**

**Test and Observation Wells  
 for Pumping Test Program**

<b>PROJECTION</b> UTM Zone 9		<b>DATUM</b> NAD83		<b>CLIENT</b> <b>BMC Minerals (No.1) Ltd.</b>	
Scale: 1:3,000					
<b>FILE NO.</b> MIN03071-01_Figure01_PumpTest.mxd					
<b>PROJECT NO.</b> ENVMIN03071-01	<b>DWN</b> MEZ	<b>CKD</b> SL	<b>APVD</b> SK	<b>REV</b> 0	<b>Figure 1</b>
<b>OFFICE</b> TLEBA-VANC	<b>DATE</b> November 9, 2015				


**STATUS**  
ISSUED FOR USE



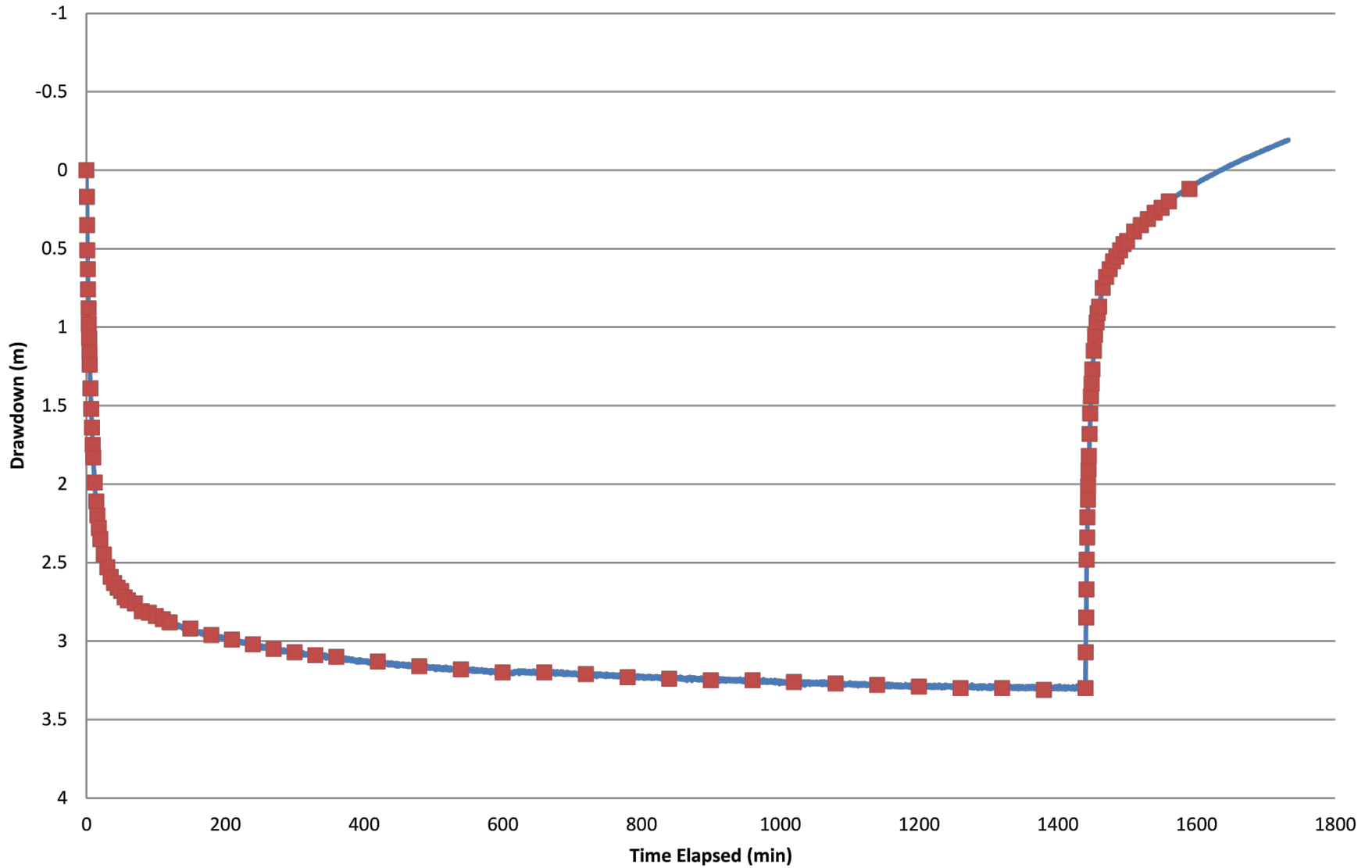
- LEGEND**
- WW15-01 Levellogger Data
  - WW15-01 Manual Data
  - BH95G-23 Levellogger Data

CLIENT

**BMC MINERALS (No. 1)**



KUDZ ZE KAYAH PRELIMINARY HYDROGEOLOGICAL ASSESSMENT				
WW15-01 CONSTANT RATE PUMPING TEST AND RECOVERY				
PROJECT NO. ENVMIN03071-01	DWN CB	CKD AJS	REV 0	<b>Figure 2</b>
OFFICE EBA-WHSE	DATE November 4, 2015			



**LEGEND**

- WW15-02 Levellogger Data
- WW15-02 Manual Data

**CLIENT**

**BMC MINERALS (No. 1)**

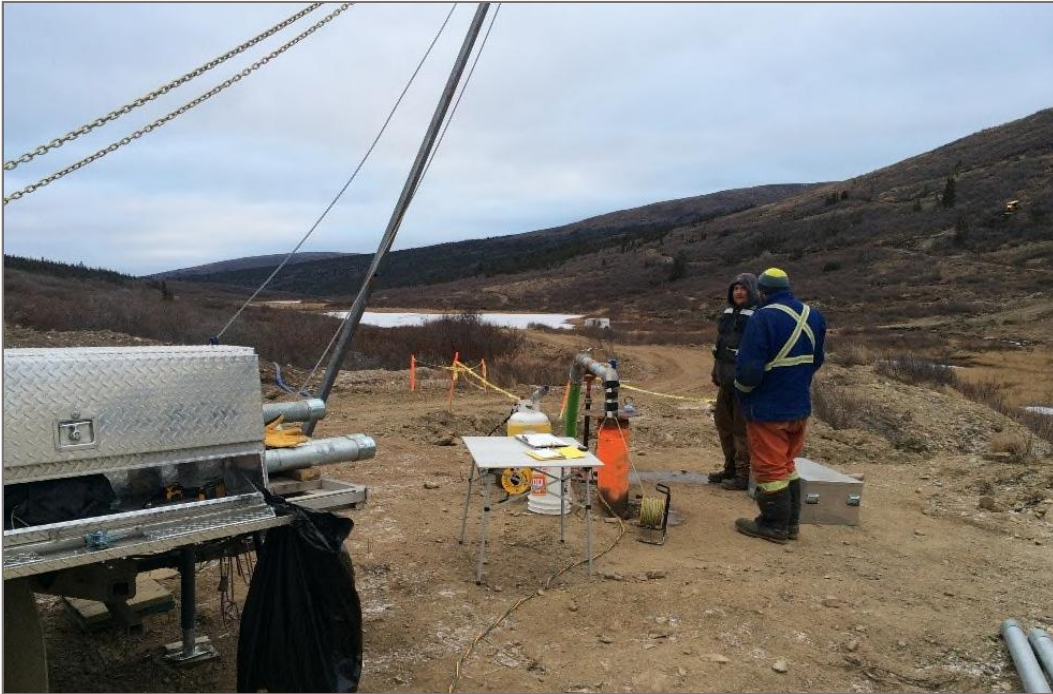


**KUDZ ZE KAYAH PRELIMINARY  
HYDROGEOLOGICAL ASSESSMENT**

**WW15-02 CONSTANT RATE  
PUMPING TEST AND RECOVERY**

<b>PROJECT NO.</b> ENVMIN03071-01	<b>DWN</b> CB	<b>CKD</b> AJS	<b>REV</b> 0
<b>OFFICE</b> EBA-WHSE	<b>DATE</b> November 4, 2015		

**Figure 3**



**Photo 1:** WW15-01 (view north) Pumping test setup, view towards closest applicable surface waterbody, lake approximately 200 m away.



**Photo 2:** WW15-01 (view north) discharge hose laid out to the north of WW15-01





**Photo 3:** WW15-01 - Discharge to ground



**Photo 4:** WW15-01 (view north) Maximum extent of overland flow (red line; approximately 50 m from surface waterbody). Water observable next to drill pipe (pipe with orange tip in centre of photograph) believed to be artesian flow from borehole and not related to pumping test program.





**Photo 5:** WW15-02 (view east) Pumping test setup, nearest surface waterbody (creek on the valley floor) is visible at the top of photograph. The red line shows the approximate extent of overland flow during water discharge.



**Photo 6:** WW15-02, discharge to ground. After discharged water flowed under the vegetation seen at the top of this photograph, it did not daylight between this point and the creek to the east (about 200 m away).



# APPENDIX F

## PACKER TEST DATA

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## Constant Head (CH) and Falling/Rising Head (F/RH) Packer Test - Field Form

**Client:** BMC / Equity  
**Project:** Kudz Ze Kayah  
**Project #:** ENVMIN03071-01  
**Personnel:** Eliane Roy

**Collar El.:** 1491 m  
**Trend:** 180 deg  
**Plunge:** -90 deg  
**Date:** 11-Aug-15

**Hole #:** MW15-01  
**Hole Size:** HQ  
**Design Test Interval:** 12.5 to 20 m  
**Test #:** 1

**Packer Setup Type: Single**

Pressure Interval 1	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	60.0	102.4935	-
1	60.0	102.5005	0.0070
2	60.0	102.5020	0.0015
3	60.0	102.5125	0.0105
4	60.0	102.5185	0.0060
5	60.0	102.5240	0.0055
6	60.0	102.5305	0.0065
7			
8			
9			
10			

Stable Ave. 60.0 0.0062

Pressure Interval 2	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	100.0	102.5400	-
1	100.0	102.5485	0.0085
2	100.0	102.5555	0.0070
3	100.0	102.5635	0.0080
4	100.0	102.5705	0.0070
5	100.0	102.5780	0.0075
6	100.0	102.5857	
7			
8			
9			
10			

Stable Ave. 100.0 0.0076

Pressure Interval 3	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	150	102.5932	-
1	150	102.6050	0.0118
2	150	102.6265	0.0215
3	150	102.6362	0.0097
4	150	102.6460	0.0098
5	150	102.6570	0.0110
6			
7			
8			
9			
10			

Stable Ave. 150.0 0.0128

Pressure Interval 4	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	100	102.6680	-
1	100	102.6775	0.0095
2	100	102.6850	0.0075
3	100	102.6935	0.0085
4	100	102.7020	0.0085
5	100	102.7097	0.0077
6			
7			
8			
9			
10			

Stable Ave. 100.0 0.0083

Pressure Interval 5	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	60	102.7155	-
1	60	102.7220	0.0065
2	60	102.7282	0.0062
3	60	102.7347	0.0065
4	60	102.7400	0.0053
5	60	102.7455	0.0055
6			
7			
8			
9			
10			

Stable Ave. 60.0 0.0060

Pressure Interval 6	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

**Measurements**

Depth to Water from Top of Stickup: 9.3 m toc  
 Top of Packer Interval: 12.50 m ah\*  
 Bottom of Packer Interval (or Bottom of Hole): 20.00 m ah  
 Packer Inflation Pressure: 590 psi  
 Rod Stickup Height: 2.00 m ags  
 Water Flushed (Vol./Time/Until Clean):  
 Packer Pipe ID/ or Drill Rod ID (circle one):  
 Borehole Outside Diameter: 96 mm  
 Vertical height of gauge above ground: 1.50 m ags  
 \* m ah - metres along hole

**Measurement Units**

Volume: m<sup>3</sup>  
 Pressure: kPa (psi for packer inflation)  
 Length: m

**Time**

Start Flushing: -  
 End Flushing: -  
 Start Packer Testing: -  
 End Packer Testing: 9:10 PM

**FALLING HEAD TEST or RISING HEAD TEST**

Time (Min)	Depth to H2O (m)	Δ Depth/Min
0		-
1		
2		
4		
6		
8		
10		
15		
20		
25		
30		
40		
50		
60		

**Additional Comments:** Packer test on potential screen interval

Hole #: MW15-01  
 Test #: 1



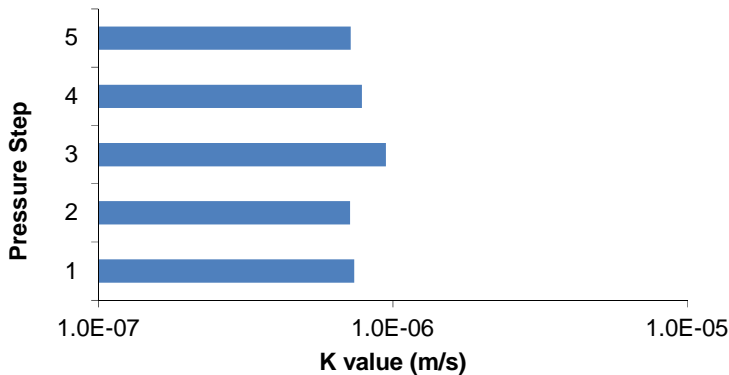
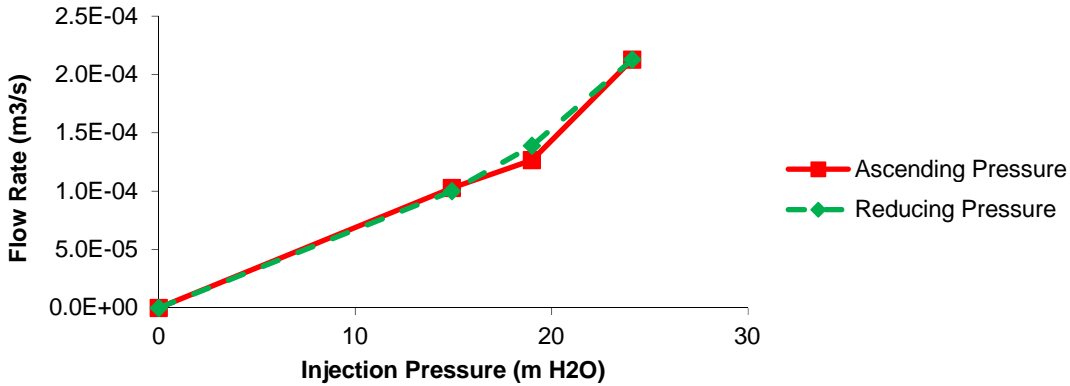
**Calculation Input Parameters**

Top of Packer Test Interval (mah): 12.5  
 Bottom of Packer Test Interval (mah): 20.0  
 L: Length of Test Interval (mah): 7.5  
 Test Interval Midpoint (mah): 16.3  
 Stickup Height (mah): 2.00  
 Pressure Gauge Height (m above ground): 1.50  
 Depth to Water Table (mah): 9.30  
 Borehole Diameter (mm): 96.000  
 r: Borehole Radius (m): 0.048  
 A: Angle From Horizontal (deg): -90  
 \* mah indicates "meters along hole"

$$K = \frac{Q \times \ln\left(\frac{L \sin(A)}{r}\right)}{2 \times \pi \times L \sin(A) \times dH}$$

Pressure Step	Pressure (psi)	Pressure (kPa)	Pressure (m of water)	Head Differential dH (m)	Flowrate Q (m <sup>3</sup> /s):	Hydraulic Conductivity K (m/s)
1	8.7	60.0	6.1	14.9	1.0E-04	7.4E-07
2	14.5	100.0	10.2	19.0	1.3E-04	7.1E-07
3	21.8	150.0	15.3	24.1	2.1E-04	9.5E-07
4	14.5	100.0	10.2	19.0	1.4E-04	7.8E-07
5	8.7	60.0	6.1	14.9	1.0E-04	7.2E-07
<b>Geometric Mean:</b>						<b>7.8E-07</b>

**Diagnostic Plots**



## Constant Head (CH) and Falling/Rising Head (F/RH) Packer Test - Field Form

**Client:** BMC / Equity  
**Project:** Kudz Ze Kayah  
**Project #:** ENVMIN03071-01  
**Personnel:** KRR

**Collar El.:** 1430 m  
**Trend:** 180 deg  
**Plunge:** -90 deg  
**Date:** 12-Aug-15

**Hole #:** MW15-02  
**Hole Size:** HQ  
**Design Test Interval:** 12.5 to 32 m  
**Test #:** 1

### Packer Setup Type: Single

Pressure Interval 1	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	60.0	100.8820	-
1	60.0	100.8820	0.0000
2*	60.0	100.8820	0.0000
3	60.0	100.8820	0.0000
4			
5			
6			
7			
8			
9			
10			

Stable Ave. 60.0 0.0000

Pressure Interval 2	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	100.0	100.8830	-
1	100.0	100.8890	0.0060
2	100.0	100.8930	0.0040
3	100.0	100.8970	0.0040
4	100.0	100.9010	0.0040
5	100.0	100.9055	0.0045
6			
7			
8			
9			
10			

Stable Ave. 100.0 0.0045

Pressure Interval 3	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	150	100.9100	-
1	140	100.9180	0.0080
2	150	100.9225	0.0045
3	150	100.9290	0.0065
4	150	100.9350	0.0060
5	150	100.9410	0.0060
6			
7			
8			
9			
10			

Stable Ave. 148.0 0.0062

Pressure Interval 4	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	90	100.9430	-
1	90	100.9440	0.0010
2	90		
3	90	100.9490	0.0025
4	100	100.9520	0.0030
5	100	100.9550	0.0030
6			
7			
8			
9			
10			

Stable Ave. 94.0 0.0024

Pressure Interval 5	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			0.0000
2	No flow at lower pressure, cut test off		0.0000
3			0.0000
4			0.0000
5			
6			
7			
8			
9			
10			

Stable Ave. #DIV/0! 0.0000

Pressure Interval 6	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

### Measurements

Depth to Water from Top of Stickup: 0.0 m toc  
 Top of Packer Interval: 12.50 m ah\*  
 Bottom of Packer Interval (or Bottom of Hole): 32.00 m ah  
 Packer Inflation Pressure: 300 psi  
 Rod Stickup Height: 2.50 m ags  
 Water Flushed (Vol./Time/Until Clean):  
 Packer Pipe ID/ or Drill Rod ID (circle one):  
 Borehole Outside Diameter: 96 mm  
 Vertical height of gauge above ground: 2.00 m ags  
 \* m ah - metres along hole

### Measurement Units

Volume: m<sup>3</sup>  
 Pressure: kPa (psi for packer inflation)  
 Length: m

### Time

No flushing, setup @  
 Start Flushing:  
 End Flushing: 6:20 PM  
 Start Packer Testing:  
 End Packer Testing:

### FALLING HEAD TEST or RISING HEAD TEST

Time (Min)	Depth to H2O (m)	Δ Depth/Min
0		-
1		
2		
4		
6		
8		
10		
15		
20		
25		
30		
40		
50		
60		

**Additional Comments:** No leaks from stuffing box - nevermind, very small leak (1 drip every 3 seconds)

\* Very very little flow, no return.

Hole #: MW15-02  
 Test #: 1



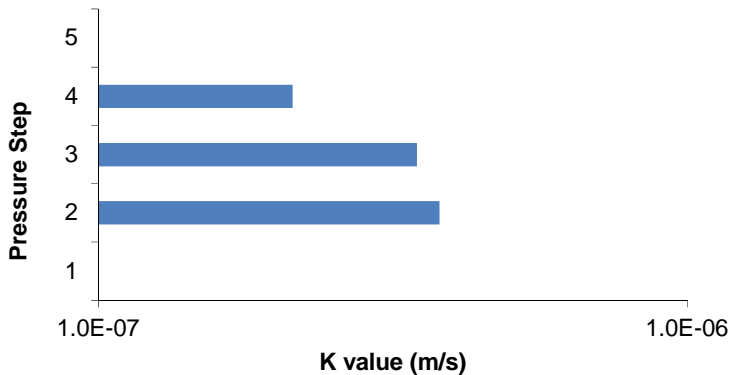
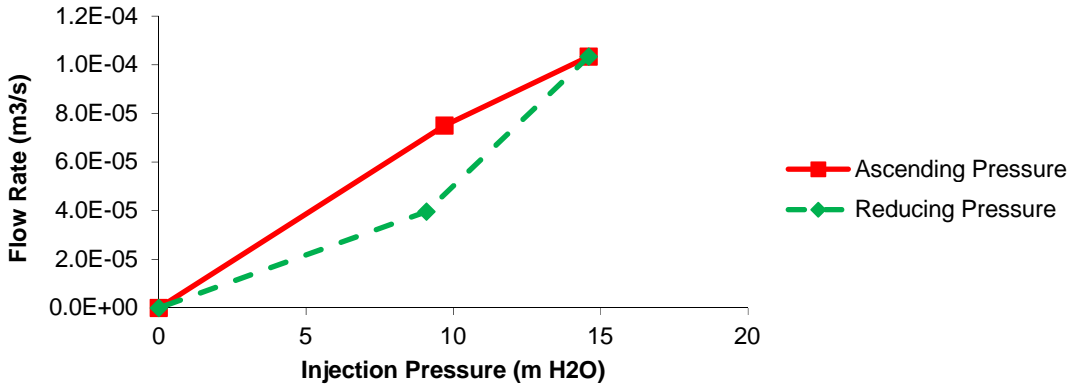
**Calculation Input Parameters**

Top of Packer Test Interval (mah): 12.5  
 Bottom of Packer Test Interval (mah): 32.0  
 L: Length of Test Interval (mah): 19.5  
 Test Interval Midpoint (mah): 22.3  
 Stickup Height (mah): 2.50  
 Pressure Gauge Height (m above ground): 2.00  
 Depth to Water Table (mah): 0.00  
 Borehole Diameter (mm): 96.000  
 r: Borehole Radius (m): 0.048  
 A: Angle From Horizontal (deg): -90  
 \* mah indicates "meters along hole"

$$K = \frac{Q \times \ln\left(\frac{L \sin(A)}{r}\right)}{2 \times \pi \times L \sin(A) \times dH}$$

Pressure Step	Pressure (psi)	Pressure (kPa)	Pressure (m of water)	Head Differential dH (m)	Flowrate Q (m <sup>3</sup> /s):	Hydraulic Conductivity K (m/s)
1						
2	14.5	100.0	10.2	9.7	7.5E-05	3.8E-07
3	21.5	148.0	15.1	14.6	1.0E-04	3.5E-07
4	13.6	94.0	9.6	9.1	4.0E-05	2.1E-07
5						
<b>Geometric Mean:</b>						<b>3.0E-07</b>

**Diagnostic Plots**



## Constant Head (CH) and Falling/Rising Head (F/RH) Packer Test - Field Form

**Client:** BMC / Equity  
**Project:** Kudz Ze Kayah  
**Project #:** ENVMIN03071-01  
**Personnel:** Eliane Roy

**Collar El.:** 1464 m  
**Trend:** 180 deg  
**Plunge:** -90 deg  
**Date:** 14-Aug-15

**Hole #:** MW15-05D  
**Hole Size:** HQ  
**Design Test Interval:** 22.5 to 30.0 m  
**Test #:** 1

**Packer Setup Type: Single**

Pressure Interval 1		Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3	
0	55.0	103.1970	-	
1	55.0	103.1972	0.0002	
2	55.0	103.1972	0.0000	
3	55.0	103.1975	0.0003	
4	55.0	103.1977	0.0002	
5	55.0	103.1980	0.0003	
6				
7				
8				
9				
10				

Stable Ave. 55.0 0.0002

Pressure Interval 2		Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3	
0	100.0	103.1990	-	
1	100.0	103.2010	0.0020	
2	100.0	103.2010	0.0000	
3	100.0	103.2020	0.0010	
4	100.0	103.2030	0.0010	
5	100.0	103.2040	0.0010	
6				
7				
8				
9				
10				

Stable Ave. 100.0 0.0010

Pressure Interval 3		Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3	
0	150	103.2057	-	
1	150	103.2067	0.0010	
2	-			
3	150	103.2082	0.0008	
4	150	103.2090	0.0008	
5	150	103.2097	0.0007	
6	150	103.2105	0.0008	
7				
8				
9				
10				

Stable Ave. 150.0 0.0008

Pressure Interval 4		Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3	
0	100	103.2120	-	
1	100	103.2132	0.0012	
2	100	103.2140	0.0008	
3	100	103.2145	0.0005	
4	100	103.2152	0.0007	
5	100	103.2160	0.0008	
6	100	103.2172	0.0012	
7	100	103.218	0.0008	
8				
9				
10				

Stable Ave. 100.0 0.0008

Pressure Interval 5		Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3	
0	50	103.2195	-	
1	55	103.2200	0.0005	
2	55	103.2210	0.0010	
3	55	103.2222	0.0012	
4	55	103.2225	0.0003	
5	55	103.2240	0.0015	
6	55	103.2242	0.0002	
7				
8				
9				
10				

Stable Ave. 55.0 0.0008

Pressure Interval 6		Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3	
0			-	
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

**Measurements**

Depth to Water from Top of Stickup: 11.3 m toc  
 Top of Packer Interval: 22.50 m ah\*  
 Bottom of Packer Interval (or Bottom of Hole): 30.00 m ah  
 Packer Inflation Pressure: 290 psi  
 Rod Stickup Height: 1.50 m ags  
 Water Flushed (Vol./Time/Until Clean):  
 Packer Pipe ID/ or Drill Rod ID (circle one):  
 Borehole Outside Diameter: 96 mm  
 Vertical height of gauge above ground: 1.00 m ags  
 \* m ah - metres along hole

**Measurement Units**

Volume: m<sup>3</sup>  
 Pressure: kPa (psi for packer inflation)  
 Length: m

**Time**

No mud used, just flushing cuttings  
 Start Flushing: -  
 End Flushing: 10 minutes  
 Start Packer Testing: 11:32 PM  
 End Packer Testing: 12:08 AM

**FALLING HEAD TEST or RISING HEAD TEST**

Time (Min)	Depth to H2O (m)	Δ Depth/Min
0		-
1		
2		
4		
6		
8		
10		
15		
20		
25		
30		
40		
50		
60		

**Additional Comments:** 21 to 24 m not crumbly, obvious layer in rock, but competent.

Hole #: MW15-05D  
 Test #: 1



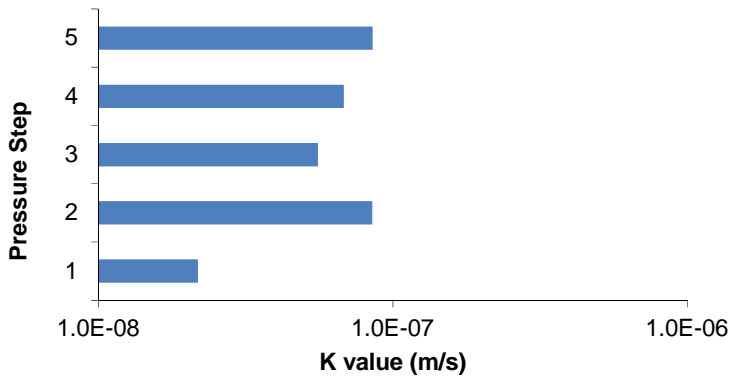
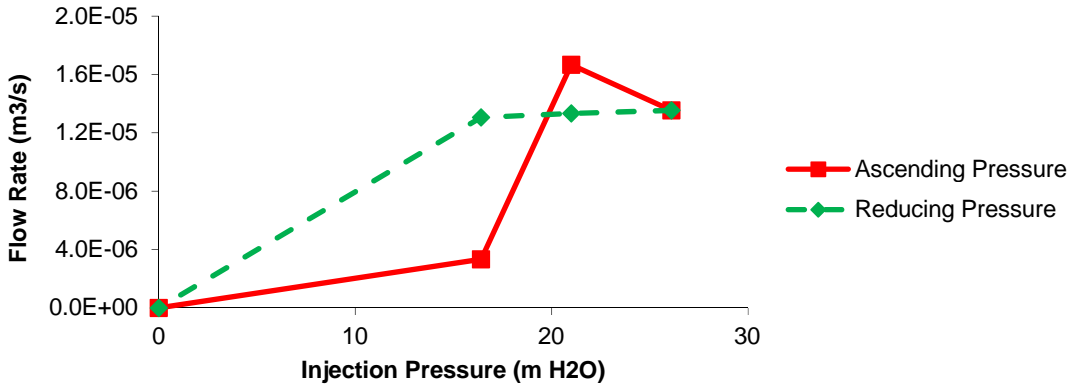
**Calculation Input Parameters**

Top of Packer Test Interval (mah): 22.5  
 Bottom of Packer Test Interval (mah): 30.0  
 L: Length of Test Interval (mah): 7.5  
 Test Interval Midpoint (mah): 26.3  
 Stickup Height (mah): 1.50  
 Pressure Gauge Height (m above ground): 1.00  
 Depth to Water Table (mah): 11.30  
 Borehole Diameter (mm): 96.000  
 r: Borehole Radius (m): 0.048  
 A: Angle From Horizontal (deg): -90  
 \* mah indicates "meters along hole"

$$K = \frac{Q \times \ln\left(\frac{L \sin(A)}{r}\right)}{2 \times \pi \times L \sin(A) \times dH}$$

Pressure Step	Pressure (psi)	Pressure (kPa)	Pressure (m of water)	Head Differential dH (m)	Flowrate Q (m <sup>3</sup> /s):	Hydraulic Conductivity K (m/s)
1	8.0	55.0	5.6	16.4	3.3E-06	2.2E-08
2	14.5	100.0	10.2	21.0	1.7E-05	8.5E-08
3	21.8	150.0	15.3	26.1	1.4E-05	5.6E-08
4	14.5	100.0	10.2	21.0	1.3E-05	6.8E-08
5	8.0	55.0	5.6	16.4	1.3E-05	8.5E-08
<b>Geometric Mean:</b>						<b>5.7E-08</b>

**Diagnostic Plots**



## Constant Head (CH) and Falling/Rising Head (F/RH) Packer Test - Field Form

**Client:** BMC / Equity  
**Project:** Kudz Ze Kayah  
**Project #:** ENVMIN03071-01  
**Personnel:** KRR

**Collar El.:** 1362 m  
**Trend:** 180 deg  
**Plunge:** -90 deg  
**Date:** 15-Aug-15

**Hole #:** MW15-07D  
**Hole Size:** HQ  
**Design Test Interval:** 16.5 to 33  
**Test #:** 1

**Packer Setup Type: Single**

Pressure Interval 1	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	65.0	103.0130	-
1	65.0	103.0155	0.0025
2	65.0	103.0160	0.0005
3	65.0	103.0160	0.0000
4	65.0	103.0170	0.0010
5	65.0	103.0170	0.0000
6			
7			
8			
9			
10			

Stable Ave. 65.0 0.0008

Pressure Interval 2	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	120.0	103.1180	-
1	120.0	103.1230	0.0050
2	120.0	103.1270	0.0040
3	120.0	103.1310	0.0040
4	200.0	103.1380	0.0070
5	200.0	103.1430	0.0050
6	120.0	103.1470	0.0040
7			
8	Hit release valve with shoe		
9			
10			

Stable Ave. 146.7 0.0050

Pressure Interval 3	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	180	103.1500	-
1	185	103.1570	0.0070
2	185	103.1630	0.0060
3	185	103.1680	0.0050
4	185	103.1740	0.0060
5	185	103.1800	0.0060
6			
7			
8			
9			
10			

Stable Ave. 185.0 0.0060

Pressure Interval 4	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	110	103.1820	-
1	110	103.1850	0.0030
2	120	103.1880	0.0030
3	120	103.1910	0.0030
4	120	103.1940	0.0030
5	120	103.1970	0.0030
6			
7			
8			
9			
10			

Stable Ave. 118.0 0.0030

Pressure Interval 5	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	70	103.1975	-
1	70	103.1985	0.0010
2	70	103.1995	0.0010
3	70	103.2010	0.0015
4	70	103.2025	0.0015
5	70	103.2040	0.0015
6			
7			
8			
9			
10			

Stable Ave. 70.0 0.0013

Pressure Interval 6	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

**Measurements**

Depth to Water from Top of Stickup: 0.0 m toc  
 Top of Packer Interval: 16.50 m ah\*  
 Bottom of Packer Interval (or Bottom of Hole): 33.00 m ah  
 Packer Inflation Pressure: 300 psi  
 Rod Stickup Height: 2.00 m ags  
 Water Flushed (Vol./Time/Until Clean):  
 Packer Pipe ID/ or Drill Rod ID (circle one):  
 Borehole Outside Diameter: 96 mm  
 Vertical height of gauge above ground: 1.00 m ags  
 \* m ah - metres along hole

**Measurement Units**

Volume: m<sup>3</sup>  
 Pressure: kPa (psi for packer inflation)  
 Length: m

**Time**

No mud used  
 Start Flushing: -  
 End Flushing: -  
 Start Packer Testing: 9:20 AM  
 End Packer Testing: -

**FALLING HEAD TEST or RISING HEAD TEST**

Time (Min)	Depth to H2O (m)	Δ Depth/Min
0		-
1		
2		
4		
6		
8		
10		
15		
20		
25		
30		
40		
50		
60		

**Additional Comments:** At 65kPa very low flow. No return through casing. Computer dead. Estimated pressures based on calculations at MW15-08. Bedrock interface at about 13.5 m.



Hole #: MW15-07D  
 Test #: 1



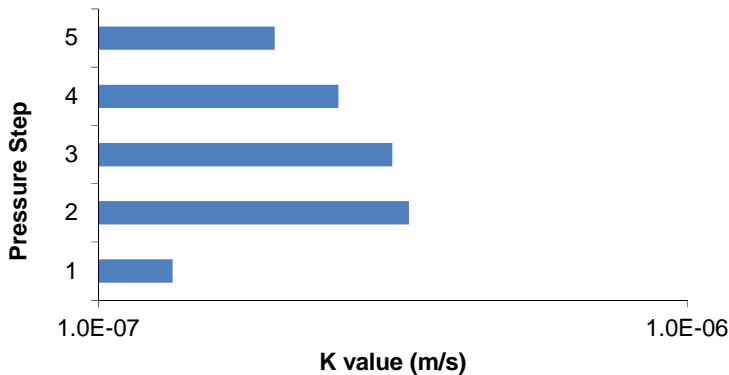
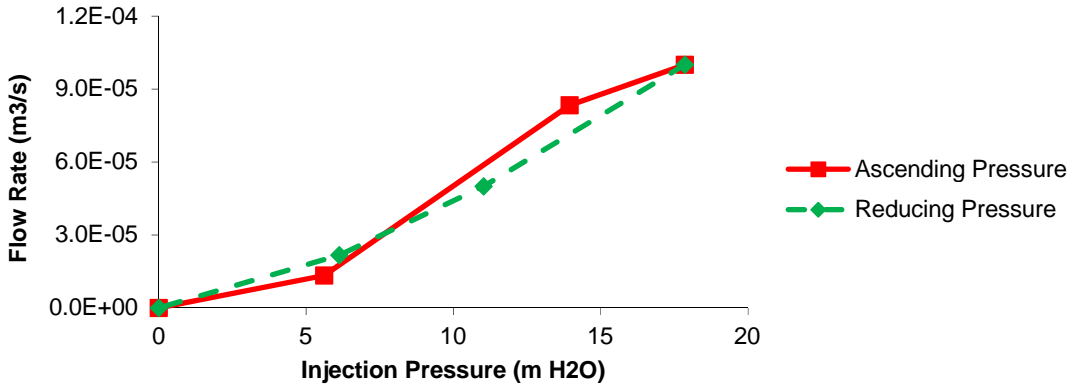
**Calculation Input Parameters**

Top of Packer Test Interval (mah): 16.5  
 Bottom of Packer Test Interval (mah): 33.0  
 L: Length of Test Interval (mah): 16.5  
 Test Interval Midpoint (mah): 24.8  
 Stickup Height (mah): 2.00  
 Pressure Gauge Height (m above ground): 1.00  
 Depth to Water Table (mah): -0.01  
 Borehole Diameter (mm): 96.000  
 r: Borehole Radius (m): 0.048  
 A: Angle From Horizontal (deg): -90  
 \* mah indicates "meters along hole"

$$K = \frac{Q \times \ln\left(\frac{L \sin(A)}{r}\right)}{2 \times \pi \times L \sin(A) \times dH}$$

Pressure Step	Pressure (psi)	Pressure (kPa)	Pressure (m of water)	Head Differential dH (m)	Flowrate Q (m <sup>3</sup> /s):	Hydraulic Conductivity K (m/s)
1	9.4	65.0	6.6	5.6	1.3E-05	1.3E-07
2	21.3	146.7	15.0	13.9	8.3E-05	3.4E-07
3	26.8	185.0	18.9	17.9	1.0E-04	3.2E-07
4	17.1	118.0	12.0	11.0	5.0E-05	2.6E-07
5	10.2	70.0	7.1	6.1	2.2E-05	2.0E-07
<b>Geometric Mean:</b>						<b>2.4E-07</b>

**Diagnostic Plots**



## Constant Head (CH) and Falling/Rising Head (F/RH) Packer Test - Field Form

**Client:** BMC / Equity  
**Project:** Kudz Ze Kayah  
**Project #:** ENVMIN03071-01  
**Personnel:** KRR

**Collar El.:** 1332 m  
**Trend:** 180 deg  
**Plunge:** -90 deg  
**Date:** 12-Aug-15

**Hole #:** MW15-08D  
**Hole Size:** HQ  
**Design Test Interval:** 19.5 to 36m  
**Test #:** 1

### Packer Setup Type: Single

Pressure Interval 1	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	70.0	27.1225	-
1	70.0	27.1275	0.0050
2	-	27.1320	0.0045
3	70.0	27.1360	0.0040
4	70.0	27.1400	0.0040
5	70.0	27.1440	0.0040
6			
7			
8			
9			
10			

Stable Ave. 70.0 0.0043

Pressure Interval 2	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	135.0	27.1480	-
1	140.0	27.1560	0.0080
2	140.0	27.1630	0.0070
3	140.0	27.1710	0.0080
4	140.0	27.1790	0.0080
5	140.0	27.1870	0.0080
6			
7			
8			
9			
10			

Stable Ave. 140.0 0.0078

Pressure Interval 3	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	200	27.1900	-
1	-		
2	210	27.2160	0.0130
3	215	27.2280	0.0120
4	215	27.2410	0.0130
5	15	27.2530	0.0120
6	215	27.265	0.0120
7			
8			
9			
10			

Stable Ave. 174.0 0.0125

Pressure Interval 4	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	120	27.2730	-
1	120	27.2780	0.0050
2	120	27.2830	0.0050
3	120	27.2880	0.0050
4	120	27.2930	0.0050
5			
6			
7			
8			
9			
10			

Stable Ave. 120.0 0.0050

Pressure Interval 5	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	75	27.2965	-
1	75	27.2990	0.0025
2	70	27.3025	0.0035
3	70	27.3040	0.0015
4	70	27.3060	0.0020
5			
6			
7			
8			
9			
10			

Stable Ave. 71.3 0.0024

Pressure Interval 6	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

### Measurements

Depth to Water from Top of Stickup: 0.0 m toc  
 Top of Packer Interval: 19.50 m ah\*  
 Bottom of Packer Interval (or Bottom of Hole): 36.00 m ah  
 Packer Inflation Pressure: 300 psi  
 Rod Stickup Height: 1.50 m ags  
 Water Flushed (Vol./Time/Until Clean):  
 Packer Pipe ID/ or Drill Rod ID (circle one):  
 Borehole Outside Diameter: 96 mm  
 Vertical height of gauge above ground: 1.00 m ags  
 \* m ah - metres along hole

### Measurement Units

Volume: m<sup>3</sup>  
 Pressure: kPa (psi for packer inflation)  
 Length: m

### Time

No mud used, just flushing cuttings  
 Start Flushing: Setup time: 11:55 AM  
 End Flushing: -  
 Start Packer Testing: 12:07 PM  
 End Packer Testing: 12:35 PM

### FALLING HEAD TEST or RISING HEAD TEST

Time (Min)	Depth to H2O (m)	Δ Depth/Min
0		-
1		
2		
4		
6		
8		
10		
15		
20		
25		
30		
40		
50		
60		

**Additional Comments:** Drillers had reached target depth by the time I arrived (about 20m) below bedrock interface. Tested longer interval than screen section.

Hole #: MW15-08D  
 Test #: 1



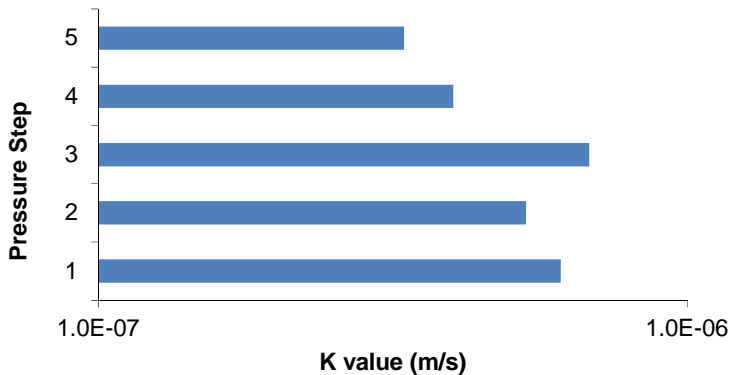
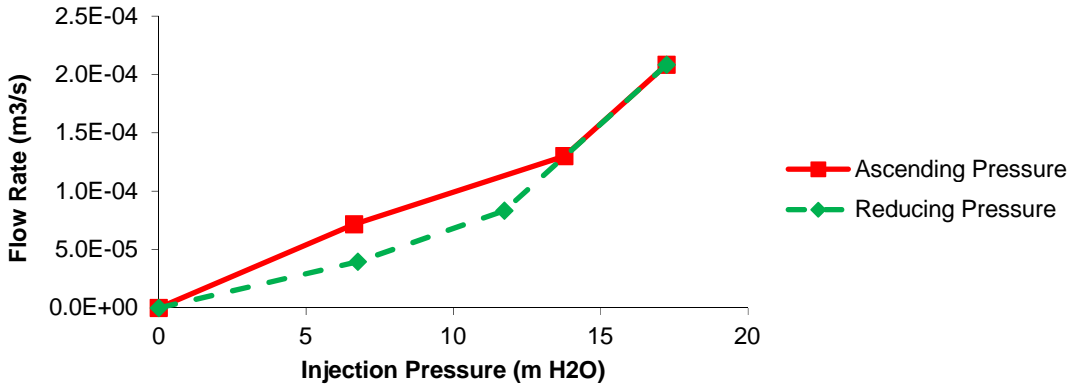
**Calculation Input Parameters**

Top of Packer Test Interval (mah): 19.5  
 Bottom of Packer Test Interval (mah): 36.0  
 L: Length of Test Interval (mah): 16.5  
 Test Interval Midpoint (mah): 27.8  
 Stickup Height (mah): 1.50  
 Pressure Gauge Height (m above ground): 1.00  
 Depth to Water Table (mah): -0.01  
 Borehole Diameter (mm): 96.000  
 r: Borehole Radius (m): 0.048  
 A: Angle From Horizontal (deg): -90  
 \* mah indicates "meters along hole"

$$K = \frac{Q \times \ln\left(\frac{L \sin(A)}{r}\right)}{2 \times \pi \times L \sin(A) \times dH}$$

Pressure Step	Pressure (psi)	Pressure (kPa)	Pressure (m of water)	Head Differential dH (m)	Flowrate Q (m <sup>3</sup> /s):	Hydraulic Conductivity K (m/s)
1	10.2	70.0	7.1	6.6	7.2E-05	6.1E-07
2	20.3	140.0	14.3	13.8	1.3E-04	5.3E-07
3	25.2	174.0	17.7	17.2	2.1E-04	6.8E-07
4	17.4	120.0	12.2	11.7	8.3E-05	4.0E-07
5	10.3	71.3	7.3	6.8	4.0E-05	3.3E-07
<b>Geometric Mean:</b>						<b>4.9E-07</b>

**Diagnostic Plots**



## Constant Head (CH) and Falling/Rising Head (F/RH) Packer Test - Field Form

**Client:** BMC / Equity  
**Project:** Kudz Ze Kayah  
**Project #:** ENVMIN03071-01  
**Personnel:** KRR

**Collar El.:** 1318 m  
**Trend:** 180 deg  
**Plunge:** -90 deg  
**Date:** 10-Aug-15

**Hole #:** MW15-09D  
**Hole Size:** HQ  
**Design Test Interval:** 34.5 to 39 m  
**Test #:** 1

### Packer Setup Type: Single

Pressure Interval 1	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	13.8	26.0070	-
1	13.8	26.0220	0.0150
2 *	15.0	26.0580	0.0360
3	15.0	26.0750	0.0170
4	15.0	26.0920	0.0170
5	15.0	26.1080	0.0160
6			
7			
8	* maybe I skipped a minute, unusual		
9			
10			

Stable Ave. 14.8 0.0202

Pressure Interval 2	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	30.0		-
1	30.0	26.2440	
2	30.0	26.2590	0.0150
3	30.0	26.2770	0.0180
4	30.0	26.2940	0.0170
5	30.0	26.3100	0.0160
6			
7			
8			
9			
10			

Stable Ave. 30.0 0.0165

Pressure Interval 3	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	40	26.3180	-
1	40	26.3360	0.0180
2	40	26.3530	0.0170
3	40		
4	40	26.3870	0.0170
5	40	26.4040	0.0170
6			
7	Oscillating between 30 and 50 Kpa		
8			
9			
10			

Stable Ave. 40.0 0.0172

Pressure Interval 4	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	30	26.4140	-
1	30	26.4300	0.0160
2	30	26.4460	0.0160
3	30	26.4640	0.0180
4	30	26.4810	0.0170
5	30		
6			
7			
8			
9			
10			

Stable Ave. 30.0 0.0168

Pressure Interval 5	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	15	26.5040	-
1	15	26.5190	0.0150
2	15	26.5350	0.0160
3	15	26.5490	0.0140
4	15	26.5640	0.0150
5			
6			
7			
8			
9			
10			

Stable Ave. 15.0 0.0150

Pressure Interval 6	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

### Measurements

Depth to Water from Top of Stickup: 0.0 m toc  
 Top of Packer Interval: 34.50 m ah\*  
 Bottom of Packer Interval (or Bottom of Hole): 39.00 m ah  
 Packer Inflation Pressure: 400 psi  
 Rod Stickup Height: 2.00 m ags  
 Water Flushed (Vol./Time/Until Clean): 15 min  
 Packer Pipe ID/ or Drill Rod ID (circle one):  
 Borehole Outside Diameter: 96 mm  
 Vertical height of gauge above ground: 2.00 m ags  
 \* m ah - metres along hole

### Measurement Units

Volume: m<sup>3</sup>  
 Pressure: kPa (psi for packer inflation)  
 Length: m

### Time

Start Flushing: 7:15 AM  
 End Flushing: 7:30 AM  
 Start Packer Testing: 8:05 AM  
 End Packer Testing: 8:30 AM

### FALLING HEAD TEST or RISING HEAD TEST

Time (Min)	Depth to H2O (m)	Δ Depth/Min
0		-
1		
2		
4		
6		
8		
10		
15		
20		
25		
30		
40		
50		
60		

**Additional Comments:** Very difficult to achieve such low pressure. Minimum Kpa on gauge is 30. Calculated Kpa were 12, 24 and 36 Kpa. Release valve completely closed on flowmeter @ 40 Kpa.

Hole #: MW15-09D  
 Test #: 1



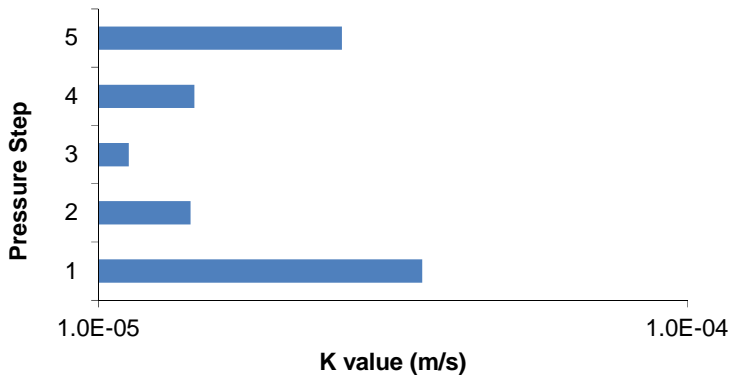
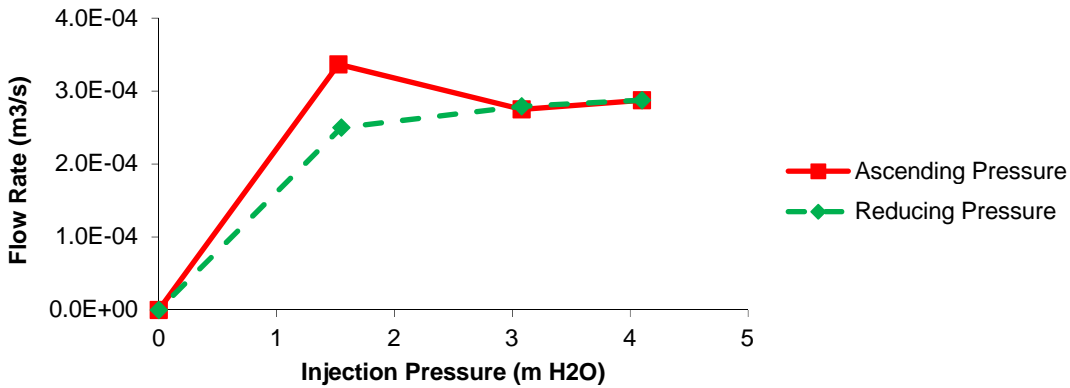
**Calculation Input Parameters**

Top of Packer Test Interval (mah): 34.5  
 Bottom of Packer Test Interval (mah): 39.0  
 L: Length of Test Interval (mah) 4.5  
 Test Interval Midpoint (mah): 36.8  
 Stickup Height (mah): 2.00  
 Pressure Gauge Height (m above ground): 2.00  
 Depth to Water Table (mah): 0.02  
 Borehole Diameter (mm): 96.000  
 r: Borehole Radius (m): 0.048  
 A: Angle From Horizontal (deg): -90  
 \* mah indicates "meters along hole"

$$K = \frac{Q \times \ln\left(\frac{L \sin(A)}{r}\right)}{2 \times \pi \times L \sin(A) \times dH}$$

Pressure Step	Pressure (psi)	Pressure (kPa)	Pressure (m of water)	Head Differential dH (m)	Flowrate Q (m <sup>3</sup> /s):	Hydraulic Conductivity K (m/s)
1	2.1	14.8	1.5	1.5	3.4E-04	3.5E-05
2	4.4	30.0	3.1	3.1	2.7E-04	1.4E-05
3	5.8	40.0	4.1	4.1	2.9E-04	1.1E-05
4	4.4	30.0	3.1	3.1	2.8E-04	1.5E-05
5	2.2	15.0	1.5	1.5	2.5E-04	2.6E-05
<b>Geometric Mean:</b>						<b>1.8E-05</b>

**Diagnostic Plots**



## Constant Head (CH) and Falling/Rising Head (F/RH) Packer Test - Field Form

**Client:** BMC / Equity  
**Project:** Kudz Ze Kayah  
**Project #:** ENVMIN03071-01  
**Personnel:** KRR

**Collar El.:** 1320 m  
**Trend:** 180 deg  
**Plunge:** -90 deg  
**Date:** 11-Aug-15

**Hole #:** MW15-10D  
**Hole Size:** HQ  
**Design Test Interval:** 28.5 to 33.0 m  
**Test #:** 1

### Packer Setup Type: Single

Pressure Interval 1	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	30.0	26.6290	-
1	30.0	26.6330	0.0040
2	30.0	26.6400	0.0070
3	30.0	26.6470	0.0070
4	30.0	26.6540	0.0070
5	30.0	26.6620	0.0080
6			
7			
8			
9			
10			

Stable Ave. 30.0 0.0066

Pressure Interval 2	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	45.0	26.6700	-
1	50.0	26.6880	0.0180
2	50.0	26.7050	0.0170
3	52.0	26.7220	0.0170
4	53.0	26.7390	0.0170
5	53.0	26.7550	0.0160
6			
7			
8			
9			
10			

Stable Ave. 51.6 0.0170

Pressure Interval 3	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	75	26.7705	-
1	75	26.7930	0.0225
2	70	26.8150	0.0220
3	70	26.8365	0.0215
4	72	26.8590	0.0225
5	72	26.8810	0.0220
6			
7			
8			
9			
10			

Stable Ave. 71.8 0.0221

Pressure Interval 4	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	50	26.8890	-
1	50	26.9020	0.0130
2	45	26.9155	0.0135
3	50	26.9285	0.0130
4	45	26.9410	0.0125
5	45	26.9540	0.0130
6			
7			
8			
9			
10			

Stable Ave. 47.0 0.0130

Pressure Interval 5	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	30	26.9580	-
1	-		
2	30	26.9660	0.0040
3	30	26.9700	0.0040
4	30	26.9750	0.0050
5	30	26.9790	0.0040
6	30	26.9840	0.0050
7			
8			
9			
10			

Stable Ave. 30.0 0.0044

Pressure Interval 6	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

### Measurements

Depth to Water from Top of Stickup: -0.2 m toc  
 Top of Packer Interval: 28.50 m ah\*  
 Bottom of Packer Interval (or Bottom of Hole): 33.00 m ah  
 Packer Inflation Pressure: 350 psi  
 Rod Stickup Height: 2.00 m ags  
 Water Flushed (Vol./Time/Until Clean):  
 Packer Pipe ID/ or Drill Rod ID (circle one):  
 Borehole Outside Diameter: 96 mm  
 Vertical height of gauge above ground: 1.50 m ags  
 \* m ah - metres along hole

### Measurement Units

Volume: m<sup>3</sup>  
 Pressure: kPa (psi for packer inflation)  
 Length: m

### Time

No mud used, no flushing required  
 Start Flushing: -  
 End Flushing: -  
 Start Packer Testing: 9:00 AM  
 End Packer Testing: -

### FALLING HEAD TEST or RISING HEAD TEST

Time (Min)	Depth to H2O (m)	Δ Depth/Min
0		-
1		
2		
4		
6		
8		
10		
15		
20		
25		
30		
40		
50		
60		

**Additional Comments:** Recovery of rock very poor. Difficult to tell if rock is stable enough to hold packer. Asked driller to change configuration of flowmeter. Test has improved.

Hole #: MW15-10D  
 Test #: 1



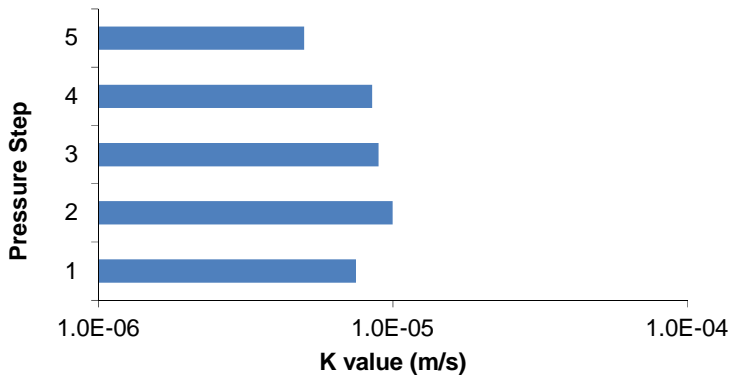
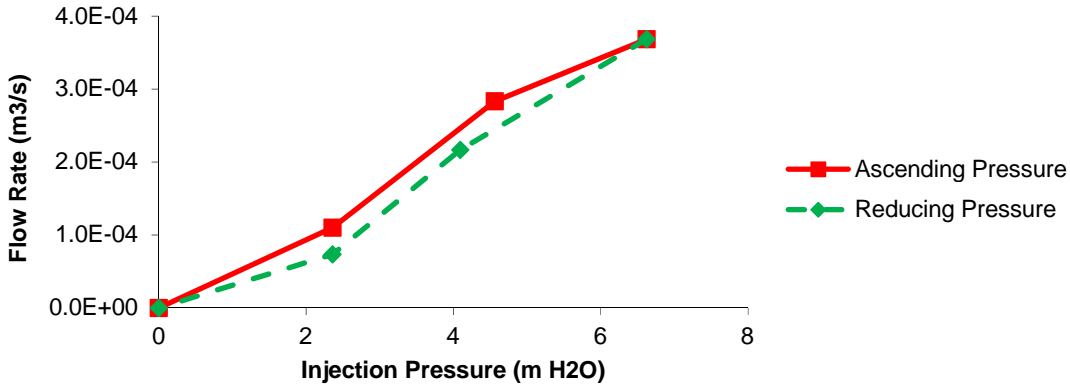
**Calculation Input Parameters**

Top of Packer Test Interval (mah): 28.5  
 Bottom of Packer Test Interval (mah): 33.0  
 L: Length of Test Interval (mah): 4.5  
 Test Interval Midpoint (mah): 30.8  
 Stickup Height (mah): 2.00  
 Pressure Gauge Height (m above ground): 1.50  
 Depth to Water Table (mah): -0.20  
 Borehole Diameter (mm): 96.000  
 r: Borehole Radius (m): 0.048  
 A: Angle From Horizontal (deg): -90  
 \* mah indicates "meters along hole"

$$K = \frac{Q \times \ln\left(\frac{L \sin(A)}{r}\right)}{2 \times \pi \times L \sin(A) \times dH}$$

Pressure Step	Pressure (psi)	Pressure (kPa)	Pressure (m of water)	Head Differential dH (m)	Flowrate Q (m <sup>3</sup> /s):	Hydraulic Conductivity K (m/s)
1	4.4	30.0	3.1	2.4	1.1E-04	7.5E-06
2	7.5	51.6	5.3	4.6	2.8E-04	1.0E-05
3	10.4	71.8	7.3	6.6	3.7E-04	8.9E-06
4	6.8	47.0	4.8	4.1	2.2E-04	8.5E-06
5	4.4	30.0	3.1	2.4	7.3E-05	5.0E-06
<b>Geometric Mean:</b>						<b>7.8E-06</b>

**Diagnostic Plots**



## Constant Head (CH) and Falling/Rising Head (F/RH) Packer Test - Field Form

**Client:** BMC / Equity  
**Project:** Kudz Ze Kayah  
**Project #:** ENVMIN03071-01  
**Personnel:** KRR

**Collar El.:** 1458 m  
**Trend:** 180 deg  
**Plunge:** -60 deg  
**Date:** 6-Aug-15

**Hole #:** ABM2 / K15-204  
**Hole Size:** NQ  
**Design Test Interval:** 21.5 to 35 m  
**Test #:** 1

**Packer Setup Type: Single**

Pressure Interval 1	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	80.0	99.6085	-
1	80.0	99.6085	0.0000
2	80.0	99.6085	0.0000
3	80.0	99.6085	0.0000
4			
5			
6	Not flowing, moved on to next interval		
7			
8			
9			
10			

Stable Ave. 80.0 0.0000

Pressure Interval 2	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	120.0	99.6085	-
1	100.0	99.6085	0.0000
2	110.0	99.6085	0.0000
3	110.0	99.6085	0.0000
4			
5	No flow		
6			
7			
8			
9			
10			

Stable Ave. 106.7 0.0000

Pressure Interval 3	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	190	99.6085	-
1	195	99.6085	0.0000
2	195	99.6085	0.0000
3	195	99.6085	0.0000
4			
5			
6			
7			
8			
9			
10			

Stable Ave. 195.0 0.0000

Pressure Interval 4	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			0.0000
2			0.0000
3	Terminated test due to no flow.		0.0000
4			
5			
6			
7			
8			
9			
10			

Stable Ave. 0.0000

Pressure Interval 5	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Stable Ave.

Pressure Interval 6	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

**Measurements**

Depth to Water from Top of Stickup: 20.0 m toc  
 Top of Packer Interval: 21.50 m ah\*  
 Bottom of Packer Interval (or Bottom of Hole): 35.00 m ah  
 Packer Inflation Pressure: 400 psi  
 Rod Stickup Height: 2.00 m ags  
 Water Flushed (Vol./Time/Until Clean): \_\_\_\_\_  
 Packer Pipe ID/ or Drill Rod ID (circle one): \_\_\_\_\_  
 Borehole Outside Diameter: 76 mm  
 Vertical height of gauge above ground: 1.50 m ags  
 \* m ah - metres along hole

**Measurement Units**

Volume: m<sup>3</sup>  
 Pressure: kPa (psi for packer inflation)  
 Length: m

**Time**

Start Flushing: 10:00 AM  
 End Flushing: 10:36 AM  
 Start Packer Testing: -  
 End Packer Testing: -

**FALLING HEAD TEST or RISING HEAD TEST**

Time (Min)	Depth to H2O (m)	Δ Depth/Min
0		-
1		
2		
4		
6		
8		
10		
15		
20		
25		
30		
40		
50		
60		

**Additional Comments:** No flow. However rock above is fractured and incompetent. Would likely get flow, but may also damage packers as it is broken oxidized bedrock with many fractures from 14 to 17 m.



Hole #: ABM2 / K15-204  
 Test #: 1



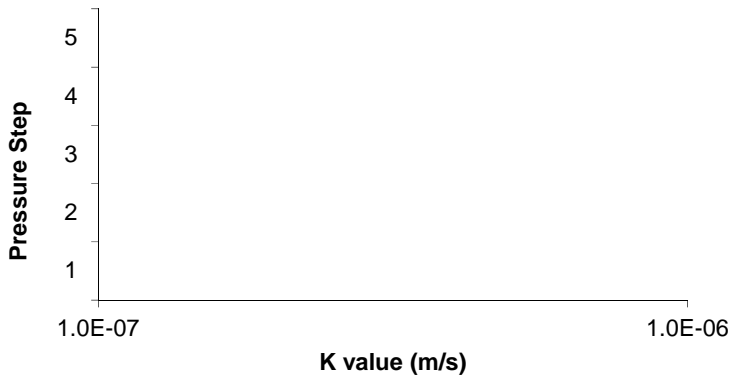
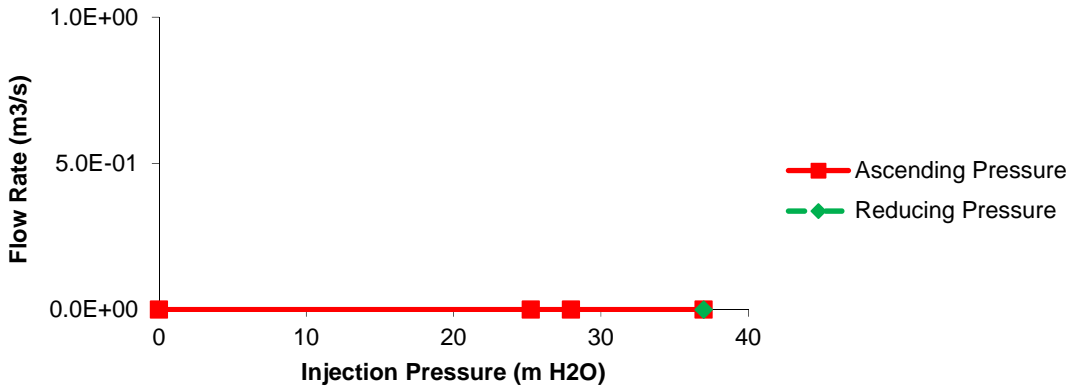
**Calculation Input Parameters**

Top of Packer Test Interval (mah): 21.5  
 Bottom of Packer Test Interval (mah): 35.0  
 L: Length of Test Interval (mah): 13.5  
 Test Interval Midpoint (mah): 28.3  
 Stickup Height (mah): 2.00  
 Pressure Gauge Height (m above ground): 1.50  
 Depth to Water Table (mah): 20.00  
 Borehole Diameter (mm): 76.000  
 r: Borehole Radius (m): 0.038  
 A: Angle From Horizontal (deg): -60  
 \* mah indicates "meters along hole"

$$K = \frac{Q \times \ln\left(\frac{L \sin(A)}{r}\right)}{2 \times \pi \times L \sin(A) \times dH}$$

Pressure Step	Pressure (psi)	Pressure (kPa)	Pressure (m of water)	Head Differential dH (m)	Flowrate Q (m <sup>3</sup> /s):	Hydraulic Conductivity K (m/s)
1	11.6	80.0	8.2	25.2	0.0E+00	0.0E+00
2	15.5	106.7	10.9	28.0	0.0E+00	0.0E+00
3	28.3	195.0	19.9	37.0	0.0E+00	0.0E+00
4						
5						
<b>Geometric Mean:</b>						<b>#NUM!</b>

**Diagnostic Plots**



## Constant Head (CH) and Falling/Rising Head (F/RH) Packer Test - Field Form

**Client:** BMC / Equity  
**Project:** Kudz Ze Kayah  
**Project #:** ENVMIN03071-01  
**Personnel:** Eliane Roy

**Collar El.:** 1458 m  
**Trend:** 180 deg  
**Plunge:** -60 deg  
**Date:** 7-Aug-15

**Hole #:** ABM2 / K15-204  
**Hole Size:** NQ  
**Design Test Interval:** 72.5 to 95  
**Test #:** 2

### Packer Setup Type: Single

Pressure Interval 1	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	150.0	99.6220	-
1	150.0	99.6235	0.0015
2	150.0	99.6245	0.0010
3	160.0	-	-
4	145.0	99.6257	0.0006
5	150.0	99.6265	0.0008
6			
7			
8			
9			
10			

Stable Ave. 151.0 0.0010

Pressure Interval 2	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	280.0	99.6290	-
1	280.0	-	-
2	280.0	99.6317	0.0013
3	280.0	99.6330	0.0013
4	280.0	99.6337	0.0007
5	280.0	99.6347	0.0010
6	280.0	99.6357	0.0010
7			
8			
9			
10			

Stable Ave. 280.0 0.0011

Pressure Interval 3	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	430	99.6402	-
1	420	99.6412	0.0010
2	420	99.6425	0.0013
3	420	99.6440	0.0015
4	420	99.6450	0.0010
5	425	99.6462	0.0012
6	425	99.6475	0.0013
7	425	99.6490	0.0015
8			
9			
10			

Stable Ave. 422.1 0.0012

Pressure Interval 4	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	300	99.6490	-
1	305	99.6497	0.0007
2	305	99.6500	0.0003
3	305	99.6502	0.0002
4	305	99.6510	0.0008
5	310	99.6520	0.0010
6	310	99.6530	0.0010
7	310	99.6535	0.0005
8			
9			
10			

Stable Ave. 307.1 0.0006

Pressure Interval 5	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	150	99.6535	-
1	155	99.6530	-0.0005
2	155	99.6530	0.0000
3	155	99.6530	0.0000
4	155	99.6530	0.0000
5			
6			
7			
8			
9			
10			

Stable Ave. 155.0 0.0000

Pressure Interval 6	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

### Measurements

rising  
 Depth to Water from Top of Stickup: -0.1 m toc  
 Top of Packer Interval: 72.50 m ah\*  
 Bottom of Packer Interval (or Bottom of Hole): 95.00 m ah  
 Packer Inflation Pressure: 425 psi  
 Rod Stickup Height: 2.00 m ags  
 Water Flushed (Vol./Time/Until Clean):  
 Packer Pipe ID/ or Drill Rod ID (circle one):  
 Borehole Outside Diameter: 76 mm  
 Vertical height of gauge above ground: 1.50 m ags

\* m ah - metres along hole

### Measurement Units

Volume: m<sup>3</sup>  
 Pressure: kPa (psi for packer inflation)  
 Length: m

### Time

No mud used, just washing cuttings  
 Start Flushing: 5:30 AM  
 End Flushing: 5:47 AM  
 Start Packer Testing: -  
 End Packer Testing: 7:12 AM

### FALLING HEAD TEST or RISING HEAD TEST

Time (Min)	Depth to H2O (m)	Δ Depth/Min
0		-
1		
2		
4		
6		
8		
10		
15		
20		
25		
30		
40		
50		
60		

**Additional Comments:** Clay seam about 15 cm thick at 76.5m, otherwise very competent rock to about 85.5m. Lots of thin fractures at about 85.5 to 87m.  
 Small leak at hose adaptor into stuffing box.

Hole #: ABM2 / K15-204  
 Test #: 2



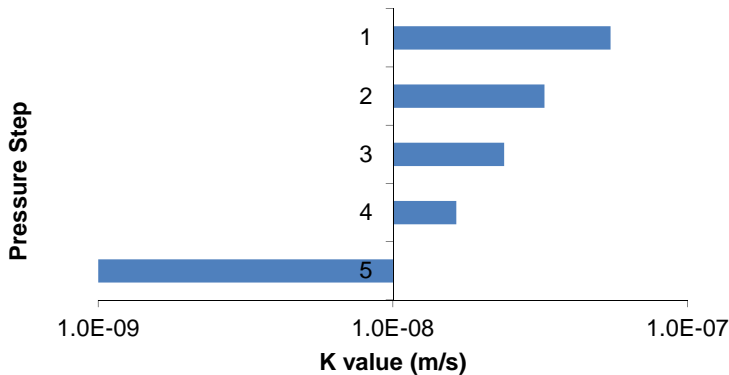
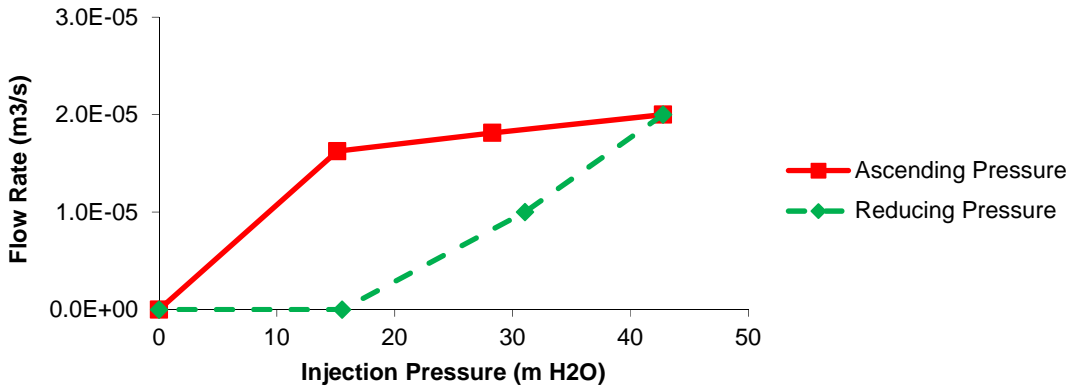
**Calculation Input Parameters**

Top of Packer Test Interval (mah): 72.5  
 Bottom of Packer Test Interval (mah): 95.0  
 L: Length of Test Interval (mah): 22.5  
 Test Interval Midpoint (mah): 83.8  
 Stickup Height (mah): 2.00  
 Pressure Gauge Height (m above ground): 1.50  
 Depth to Water Table (mah): -0.05  
 Borehole Diameter (mm): 76.000  
 r: Borehole Radius (m): 0.038  
 A: Angle From Horizontal (deg): -60  
 \* mah indicates "meters along hole"

$$K = \frac{Q \times \ln\left(\frac{L \sin(A)}{r}\right)}{2 \times \pi \times L \sin(A) \times dH}$$

Pressure Step	Pressure (psi)	Pressure (kPa)	Pressure (m of water)	Head Differential dH (m)	Flowrate Q (m <sup>3</sup> /s):	Hydraulic Conductivity K (m/s)
1	21.9	151.0	15.4	15.1	1.6E-05	5.5E-08
2	40.6	280.0	28.6	28.3	1.8E-05	3.3E-08
3	61.2	422.1	43.0	42.8	2.0E-05	2.4E-08
4	44.5	307.1	31.3	31.0	1.0E-05	1.6E-08
5	22.5	155.0	15.8	15.5	0.0E+00	1.0E-09
<b>Geometric Mean:</b>						<b>1.5E-08</b>

**Diagnostic Plots**



## Constant Head (CH) and Falling/Rising Head (F/RH) Packer Test - Field Form

**Client:** BMC / Equity  
**Project:** Kudz Ze Kayah  
**Project #:** ENVMIN03071-01  
**Personnel:** Eliane Roy

**Collar El.:** 1458 m  
**Trend:** 180 deg  
**Plunge:** -60 deg  
**Date:** 8-Aug-15

**Hole #:** ABM2 / K15-204  
**Hole Size:** NQ  
**Design Test Interval:** 123.5 to 149 m  
**Test #:** 3

### Packer Setup Type: Single

Pressure Interval 1	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	230.0	99.7125	-
1	230.0	99.7132	0.0007
2	230.0	99.7137	0.0005
3	230.0	99.7145	0.0008
4	230.0	99.7150	0.0005
5	230.0	99.7157	0.0007
6	230.0	99.7162	0.0005
7			
8			
9			
10			

Stable Ave. 230.0 0.0006

Pressure Interval 2	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	460.0	99.7177	-
1	460.0	99.7190	0.0013
2	460.0	99.7202	0.0012
3	460.0	99.7215	0.0013
4	460.0	99.7225	0.0010
5	460.0	99.7240	0.0015
6	460.0	99.7250	0.0010
7			
8	Pressure gauge hard to read as it's fluctuating a lot		
9			
10			

Stable Ave. 460.0 0.0013

Pressure Interval 3	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	710	99.7290	-
1	710	99.7310	0.0020
2	720	99.7335	0.0025
3	720	99.7347	0.0012
4	720	99.7357	0.0010
5	720	99.7372	0.0015
6	720	99.7397	0.0025
7			
8			
9			
10			

Stable Ave. 718.3 0.0016

Pressure Interval 4	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	470	99.7410	-
1	470	99.7417	0.0007
2	470	99.7430	0.0013
3	470	99.7445	0.0015
4	470	99.7455	0.0010
5	470	99.7465	0.0010
6	470	99.7475	0.0010
7			
8			
9			
10			

Stable Ave. 470.0 0.0011

Pressure Interval 5	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	250	99.7485	-
1	250	99.7490	0.0005
2	250	99.7497	0.0007
3	250	99.7500	0.0003
4	250	99.7505	0.0005
5	250	99.7510	0.0005
6	250	99.7512	0.0002
7			
8			
9			
10			

Stable Ave. 250.0 0.0005

Pressure Interval 6	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

### Measurements

Depth to Water from Top of Stickup: 30.0 m toc  
 Top of Packer Interval: 123.50 m ah\*  
 Bottom of Packer Interval (or Bottom of Hole): 149.00 m ah  
 Packer Inflation Pressure: 550 psi  
 Rod Stickup Height: 2.00 m ags  
 Water Flushed (Vol./Time/Until Clean):  
 Packer Pipe ID/ or Drill Rod ID (circle one):  
 Borehole Outside Diameter: 76 mm  
 Vertical height of gauge above ground: 1.50 m ags  
 \* m ah - metres along hole

### Measurement Units

Volume: m<sup>3</sup>  
 Pressure: kPa (psi for packer inflation)  
 Length: m

### Time

Start Flushing: 12:30 AM  
 End Flushing: 1:00 AM  
 Start Packer Testing: 1:58 AM  
 End Packer Testing: 2:35 AM

### FALLING HEAD TEST or RISING HEAD TEST

Time (Min)	Depth to H2O (m)	Δ Depth/Min
0		-
1		
2		
4		
6		
8		
10		
15		
20		
25		
30		
40		
50		
60		

**Additional Comments:** Clay seams between 110 to 117m, swelled up and almost lost rods, driller recommended not doing a test in that zone so that they would not have to go through it twice. Very competent beyond that point, no weathered zones or visible fractures. Full return. Little mud used during drilling, however were constrained to recycling the water from the sump, so no clear water for test, murcky. No leaks.

Hole #: ABM2 / K15-204  
 Test #: 3



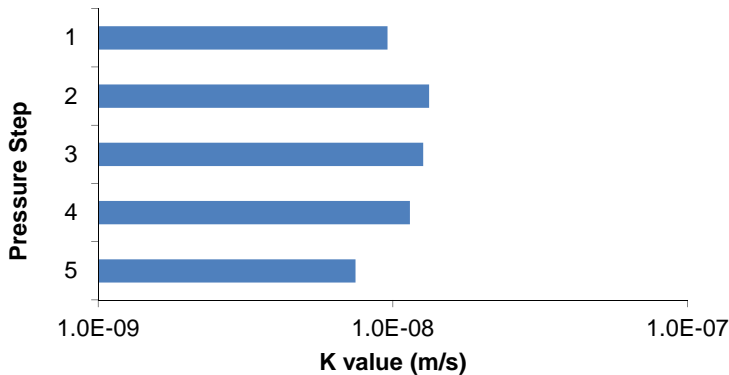
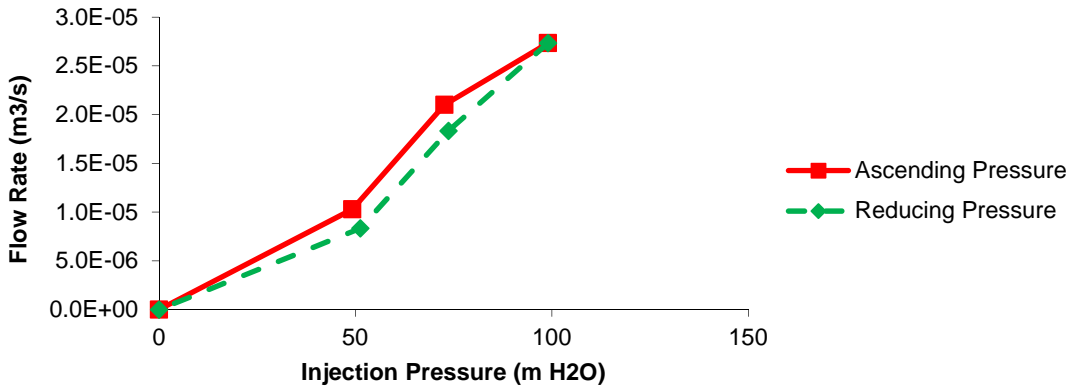
**Calculation Input Parameters**

Top of Packer Test Interval (mah): 123.5  
 Bottom of Packer Test Interval (mah): 149.0  
 L: Length of Test Interval (mah): 25.5  
 Test Interval Midpoint (mah): 136.3  
 Stickup Height (mah): 2.00  
 Pressure Gauge Height (m above ground): 1.50  
 Depth to Water Table (mah): 30.00  
 Borehole Diameter (mm): 76.000  
 r: Borehole Radius (m): 0.038  
 A: Angle From Horizontal (deg): -60  
 \* mah indicates "meters along hole"

$$K = \frac{Q \times \ln\left(\frac{L \sin(A)}{r}\right)}{2 \times \pi \times L \sin(A) \times dH}$$

Pressure Step	Pressure (psi)	Pressure (kPa)	Pressure (m of water)	Head Differential dH (m)	Flowrate Q (m <sup>3</sup> /s):	Hydraulic Conductivity K (m/s)
1	33.4	230.0	23.5	49.2	1.0E-05	9.6E-09
2	66.7	460.0	46.9	72.7	2.1E-05	1.3E-08
3	104.2	718.3	73.3	99.0	2.7E-05	1.3E-08
4	68.2	470.0	47.9	73.7	1.8E-05	1.1E-08
5	36.3	250.0	25.5	51.2	8.3E-06	7.5E-09
<b>Geometric Mean:</b>						<b>1.1E-08</b>

**Diagnostic Plots**



## Constant Head (CH) and Falling/Rising Head (F/RH) Packer Test - Field Form

**Client:** BMC / Equity  
**Project:** Kudz Ze Kayah  
**Project #:** ENVMIN03071-01  
**Personnel:** Eliane Roy

**Collar El.:** 1432 m  
**Trend:** 180 deg  
**Plunge:** -65 deg  
**Date:** 8-Aug-15

**Hole #:** ABM6 / K15-206  
**Hole Size:** NQ  
**Design Test Interval:** 13.5 to 24 m  
**Test #:** 1

**Packer Setup Type: Single**

Pressure Interval 1	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	60.0	99.7925	-
1	60.0	99.7930	0.0005
2	60.0	99.7937	0.0007
3	60.0	99.7945	0.0008
4	60.0	99.7952	0.0007
5	60.0	99.7957	0.0005
6	60.0	99.7967	0.0010
7	60.0	99.7972	0.0005
8			
9			
10			

Stable Ave. 60.0 0.0007

Pressure Interval 2	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	115.0	99.8000	-
1	115.0	99.8005	0.0005
2	115.0	99.8015	0.0010
3	115.0	99.8025	0.0010
4	115.0	99.8032	0.0007
5	115.0	99.8045	0.0013
6			
7			
8			
9			
10			

Stable Ave. 115.0 0.0009

Pressure Interval 3	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	195	99.8062	-
1	195	99.8080	0.0018
2	195	99.8092	0.0012
3	205	99.8105	0.0013
4	210	99.8120	0.0015
5	195	99.8132	0.0012
6	190	99.8142	0.0010
7	190	99.8155	0.0013
8			
9			
10			

Stable Ave. 197.1 0.0013

Pressure Interval 4	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	125	99.8160	-
1	120	99.8175	0.0015
2	120	99.8182	0.0007
3	120	99.8195	0.0013
4	120	99.8200	0.0005
5	120	99.8210	0.0010
6	125	99.8217	0.0007
7			
8			
9			
10			

Stable Ave. 120.8 0.0010

Pressure Interval 5	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	55	99.8220	-
1	55	99.8225	0.0005
2	60	99.8227	0.0002
3	60	99.8230	0.0003
4	60	99.8240	0.0010
5	60	99.8242	0.0002
6	60	99.8247	0.0005
7			
8			
9			
10			

Stable Ave. 59.2 0.0005

Pressure Interval 6	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

**Measurements**

assume  
 Depth to Water from Top of Stickup: 10.0 m toc  
 Top of Packer Interval: 13.50 m ah\*  
 Bottom of Packer Interval (or Bottom of Hole): 24.00 m ah  
 Packer Inflation Pressure: 300 psi  
 Rod Stickup Height: 2.00 m ags  
 Water Flushed (Vol./Time/Until Clean): \_\_\_\_\_  
 Packer Pipe ID/ or Drill Rod ID (circle one): \_\_\_\_\_  
 Borehole Outside Diameter: 76 mm  
 Vertical height of gauge above ground: 1.50 m ags  
 \* m ah - metres along hole

**Measurement Units**

Volume: m<sup>3</sup>  
 Pressure: kPa (psi for packer inflation)  
 Length: m

**Time**

Start Flushing: 3:58 AM  
 End Flushing: 4:20 AM  
 Start Packer Testing: 4:51 AM  
 End Packer Testing: 5:27 AM

**FALLING HEAD TEST or RISING HEAD TEST**

Time (Min)	Depth to H2O (m)	Δ Depth/Min
0		-
1		
2		
4		
6		
8		
10		
15		
20		
25		
30		
40		
50		
60		

**Additional Comments:** Lost return just after 9m, clays seams, rods jammed in, not recommended to pull back past that depth.

Hole #: ABM6 / K15-206  
 Test #: 1



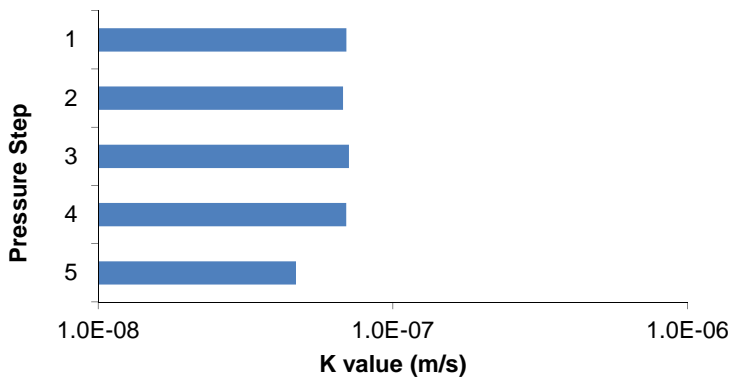
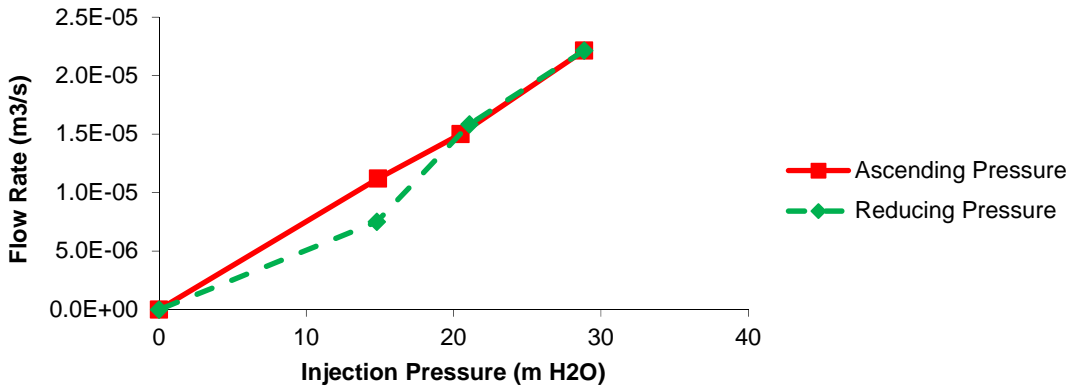
**Calculation Input Parameters**

Top of Packer Test Interval (mah): 13.5  
 Bottom of Packer Test Interval (mah): 24.0  
 L: Length of Test Interval (mah): 10.5  
 Test Interval Midpoint (mah): 18.8  
 Stickup Height (mah): 2.00  
 Pressure Gauge Height (m above ground): 1.50  
 Depth to Water Table (mah): 10.00  
 Borehole Diameter (mm): 76.000  
 r: Borehole Radius (m): 0.038  
 A: Angle From Horizontal (deg): -65  
 \* mah indicates "meters along hole"

$$K = \frac{Q \times \ln\left(\frac{L \sin(A)}{r}\right)}{2 \times \pi \times L \sin(A) \times dH}$$

Pressure Step	Pressure (psi)	Pressure (kPa)	Pressure (m of water)	Head Differential dH (m)	Flowrate Q (m <sup>3</sup> /s):	Hydraulic Conductivity K (m/s)
1	8.7	60.0	6.1	14.9	1.1E-05	7.0E-08
2	16.7	115.0	11.7	20.5	1.5E-05	6.8E-08
3	28.6	197.1	20.1	28.9	2.2E-05	7.1E-08
4	17.5	120.8	12.3	21.1	1.6E-05	6.9E-08
5	8.6	59.2	6.0	14.8	7.5E-06	4.7E-08
<b>Geometric Mean:</b>						<b>6.4E-08</b>

**Diagnostic Plots**



## Constant Head (CH) and Falling/Rising Head (F/RH) Packer Test - Field Form

**Client:** BMC / Equity  
**Project:** Kudz Ze Kayah  
**Project #:** ENV/MIN03071-01  
**Personnel:** KRR

**Collar El.:** 1432 m  
**Trend:** 180 deg  
**Plunge:** -65 deg  
**Date:** 8-Aug-15

**Hole #:** ABM6 / K15-206  
**Hole Size:** NQ  
**Design Test Interval:** 52.5 to 57  
**Test #:** 2

**Packer Setup Type: Single**

Pressure Interval 1	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	110.0	0.0920	-
1	80.0	0.1200	0.0280
2	70.0	0.1540	0.0340
3	70.0	0.1840	0.0300
4	70.0	0.2150	0.0310
5	60.0	0.2460	0.0310
6	60.0	0.2760	0.0300
7			
8			
9			
10			

Stable Ave. 68.3 0.0307

Pressure Interval 2	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	120.0	0.6250	-
1	170.0	0.6780	0.0530
2	200.0	0.7300	0.0520
3	200.0	0.7800	0.0500
4	200.0	0.8400	0.0600
5	200.0	0.8930	0.0530
6	200.0	0.9480	0.0550
7			
8			
9			
10			

Stable Ave. 195.0 0.0538

Pressure Interval 3	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Stable Ave.

Pressure Interval 4	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Stable Ave.

Pressure Interval 5	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Stable Ave.

Pressure Interval 6	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Stable Ave.

**Measurements**

Depth to Water from Top of Stickup: 20.0 m toc  
 Top of Packer Interval: 52.50 m ah\*  
 Bottom of Packer Interval (or Bottom of Hole): 57.00 m ah  
 Packer Inflation Pressure: \_\_\_\_\_ psi  
 Rod Stickup Height: 2.00 m ags  
 Water Flushed (Vol./Time/Until Clean): \_\_\_\_\_  
 Packer Pipe ID/ or Drill Rod ID (circle one): \_\_\_\_\_  
 Borehole Outside Diameter: 76 mm  
 Vertical height of gauge above ground: 1.50 m ags  
 \* m ah - metres along hole

**Measurement Units**

Volume: m<sup>3</sup>  
 Pressure: kPa (psi for packer inflation)  
 Length: m

**Time**

Start Flushing: 1:45 PM  
 End Flushing: 2:00 PM  
 Start Packer Testing: 2:52 PM  
 End Packer Testing: 3:05 PM

**FALLING HEAD TEST or RISING HEAD TEST**

Time (Min)	Depth to H2O (m)	Δ Depth/Min
0		-
1		
2		
4		
6		
8		
10		
15		
20		
25		
30		
40		
50		
60		

**Additional Comments:** Drillers lost return from 54 to 57m. No leaks. Took more than 10 minutes to fill rods (about 700L). Began test. Tried to get to 1st pressure but pump had blockage.  
Bits of cement blocked one piston. Began test at 2:50.  
Not able to reach design pressure; aborted test after 2nd pressure step.



Hole #: ABM6 / K15-206  
 Test #: 2



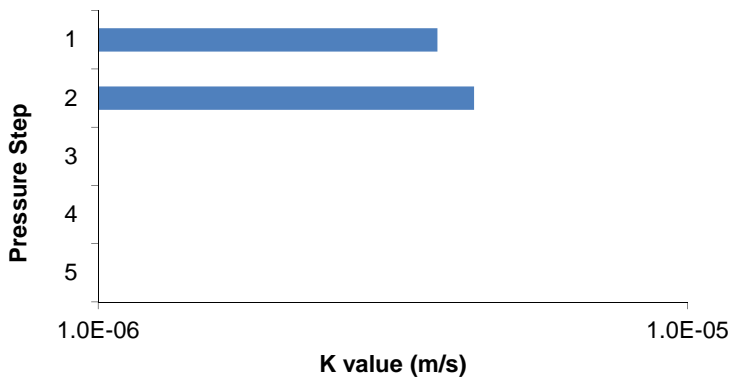
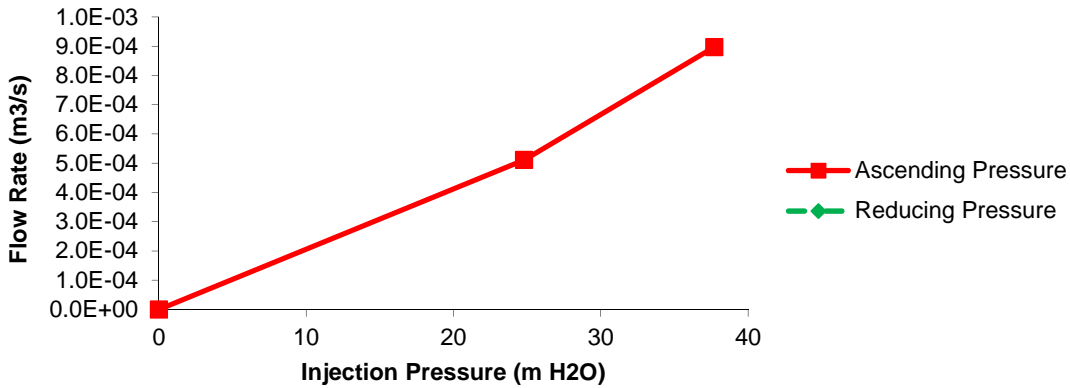
**Calculation Input Parameters**

Top of Packer Test Interval (mah): 52.5  
 Bottom of Packer Test Interval (mah): 57.0  
 L: Length of Test Interval (mah) 4.5  
 Test Interval Midpoint (mah): 54.8  
 Stickup Height (mah): 2.00  
 Pressure Gauge Height (m above ground): 1.50  
 Depth to Water Table (mah): 20.00  
 Borehole Diameter (mm): 76.000  
 r: Borehole Radius (m): 0.038  
 A: Angle From Horizontal (deg): -65  
 \* mah indicates "meters along hole"

$$K = \frac{Q \times \ln\left(\frac{L \sin(A)}{r}\right)}{2 \times \pi \times L \sin(A) \times dH}$$

Pressure Step	Pressure (psi)	Pressure (kPa)	Pressure (m of water)	Head Differential dH (m)	Flowrate Q (m <sup>3</sup> /s):	Hydraulic Conductivity K (m/s)
1	9.9	68.3	7.0	24.8	5.1E-04	3.8E-06
2	28.3	195.0	19.9	37.7	9.0E-04	4.3E-06
3						
4						
5						
<b>Geometric Mean:</b>						<b>4.0E-06</b>

**Diagnostic Plots**



## Constant Head (CH) and Falling/Rising Head (F/RH) Packer Test - Field Form

**Client:** BMC / Equity  
**Project:** Kudz Ze Kayah  
**Project #:** ENVMIN03071-01  
**Personnel:** Eliane Roy

**Collar El.:** 1432 m  
**Trend:** 180 deg  
**Plunge:** -65 deg  
**Date:** 9-Aug-15

**Hole #:** ABM6 / K15-206  
**Hole Size:** NQ  
**Design Test Interval:** 94.5 to 114 m  
**Test #:** 3

### Packer Setup Type: Single

Pressure Interval 1	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	230.0	101.2760	-
1	230.0	101.2760	0.0000
2	230.0	101.2760	0.0000
3	230.0	101.2760	0.0000
4			
5			
6			
7			
8			
9			
10			

Stable Ave. 230.0 0.0000

Pressure Interval 2	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	470.0	101.2770	-
1	470.0	101.2770	0.0000
2	470.0	101.2775	0.0005
3	470.0	101.2777	0.0002
4	470.0	101.2780	0.0003
5	470.0	101.2782	0.0002
6	470.0	101.2790	0.0008
7			
8			
9			
10			

Stable Ave. 470.0 0.0003

Pressure Interval 3	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	710	101.2792	-
1	-	101.2800	0.0008
2	740	101.2805	0.0005
3	710	101.2807	0.0002
4	720	101.2810	0.0003
5	730	101.2815	0.0005
6			
7			
8			
9			
10			

Stable Ave. 725.0 0.0005

Pressure Interval 4	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	460	101.2817	-
1	460	101.2820	0.0003
2	460	101.2822	0.0002
3	465	101.2827	0.0005
4	465	101.2830	0.0003
5			
6			
7			
8			
9			
10			

Stable Ave. 462.5 0.0003

Pressure Interval 5	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	240	101.2835	-
1	240	101.2837	0.0002
2	240	101.2840	0.0003
3	240	101.2845	0.0005
4	240	101.2845	0.0000
5	240	101.2845	0.0000
6			
7			
8			
9			
10			

Stable Ave. 240.0 0.0002

Pressure Interval 6	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

### Measurements

assume  
 Depth to Water from Top of Stickup: 30.0 m toc  
 Top of Packer Interval: 94.50 m ah\*  
 Bottom of Packer Interval (or Bottom of Hole): 114.00 m ah  
 Packer Inflation Pressure: 400 psi  
 Rod Stickup Height: 2.00 m ags  
 Water Flushed (Vol./Time/Until Clean):  
 Packer Pipe ID/ or Drill Rod ID (circle one):  
 Borehole Outside Diameter: 76 mm  
 Vertical height of gauge above ground: 1.50 m ags  
 \* m ah - metres along hole

### Measurement Units

Volume: m<sup>3</sup>  
 Pressure: kPa (psi for packer inflation)  
 Length: m

### Time

Start Flushing: 4:50 AM  
 End Flushing: 5:00 AM  
 Start Packer Testing: 5:46 AM  
 End Packer Testing: 6:15 AM

### FALLING HEAD TEST or RISING HEAD TEST

Time (Min)	Depth to H2O (m)	Δ Depth/Min
0		-
1		
2		
4		
6		
8		
10		
15		
20		
25		
30		
40		
50		
60		

**Additional Comments:** Clay seam about 50 cm thick at 110.5 m. Few other clay rich fractures throughout (ranging from a few mm to a cm thick). Took over 1h to drill 111 to 114m run.  
 Only about 60 cm of core recovered, small rounded crumbs. Clay/fines all washed away, big fault. No return since about 50 m deep.  
 Fair leak at hose on sub @ 720kPa.

Hole #: ABM6 / K15-206  
 Test #: 3



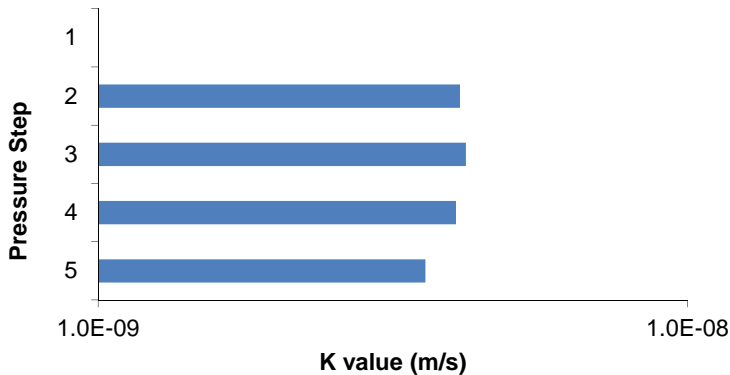
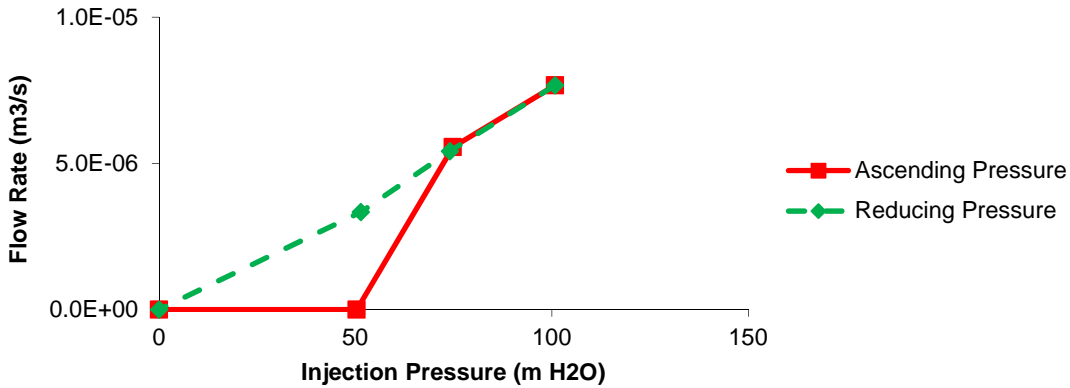
**Calculation Input Parameters**

Top of Packer Test Interval (mah): 94.5  
 Bottom of Packer Test Interval (mah): 114.0  
 L: Length of Test Interval (mah): 19.5  
 Test Interval Midpoint (mah): 104.3  
 Stickup Height (mah): 2.00  
 Pressure Gauge Height (m above ground): 1.50  
 Depth to Water Table (mah): 30.00  
 Borehole Diameter (mm): 76.000  
 r: Borehole Radius (m): 0.038  
 A: Angle From Horizontal (deg): -65  
 \* mah indicates "meters along hole"

$$K = \frac{Q \times \ln\left(\frac{L \sin(A)}{r}\right)}{2 \times \pi \times L \sin(A) \times dH}$$

Pressure Step	Pressure (psi)	Pressure (kPa)	Pressure (m of water)	Head Differential dH (m)	Flowrate Q (m <sup>3</sup> /s):	Hydraulic Conductivity K (m/s)
1	33.4	230.0	23.5	50.3	0.0E+00	1.0E-09
2	68.2	470.0	47.9	74.8	5.6E-06	4.1E-09
3	105.2	725.0	73.9	100.8	7.7E-06	4.2E-09
4	67.1	462.5	47.2	74.0	5.4E-06	4.0E-09
5	34.8	240.0	24.5	51.4	3.3E-06	3.6E-09
<b>Geometric Mean:</b>						<b>3.0E-09</b>

**Diagnostic Plots**



## Constant Head (CH) and Falling/Rising Head (F/RH) Packer Test - Field Form

**Client:** BMC / Equity  
**Project:** Kudz Ze Kayah  
**Project #:** ENVMIN03071-01  
**Personnel:** KRR

**Collar El.:** 1432 m  
**Trend:** 180 deg  
**Plunge:** -65 deg  
**Date:** 10-Aug-15

**Hole #:** ABM6 / K15-206  
**Hole Size:** NQ  
**Design Test Interval:** 211.5 to 237 m  
**Test #:** 4

**Packer Setup Type: Single**

Pressure Interval 1	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	220.0	101.4000	-
1	230.0	101.4220	0.0220
2	230.0	101.4450	0.0230
3	240.0	101.4670	0.0220
4	240.0	101.4890	0.0220
5	240.0	101.5120	0.0230
6			
7			
8			
9			
10			

Stable Ave. 236.0 0.0224

Pressure Interval 2	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	420.0	101.5320	-
1	400.0	101.5670	0.0350
2	400.0	101.6020	0.0350
3	390.0	101.6380	0.0360
4	400.0	101.6720	0.0340
5			
6			
7			
8			
9			
10			

Stable Ave. 397.5 0.0350

Pressure Interval 3	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	660	101.7100	-
1	670	101.7580	0.0480
2	670	101.8030	0.0450
3	670	101.8510	0.0480
4	670	101.8960	0.0450
5	670	101.9440	0.0480
6			
7			
8			
9			
10			

Stable Ave. 670.0 0.0468

Pressure Interval 4	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	450	101.9850	-
1	440	102.0230	0.0380
2	450	102.0590	0.0360
3	450	102.0960	0.0370
4	450	102.1300	0.0340
5	450	102.1720	0.0420
6			
7			
8			
9			
10			

Stable Ave. 448.0 0.0374

Pressure Interval 5	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	290	102.1900	-
1	280	102.2190	0.0290
2	290	102.2490	0.0300
3	290	102.2780	0.0290
4	290	102.3070	0.0290
5	300	102.3330	0.0260
6			
7			
8			
9			
10			

Stable Ave. 290.0 0.0286

Pressure Interval 6	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

**Measurements**

assume  
 Depth to Water from Top of Stickup: 40.0 m toc  
 Top of Packer Interval: 211.50 m ah\*  
 Bottom of Packer Interval (or Bottom of Hole): 237.00 m ah  
 Packer Inflation Pressure: 450 psi  
 Rod Stickup Height: 2.00 m ags  
 Water Flushed (Vol./Time/Until Clean): \_\_\_\_\_  
 Packer Pipe ID/ or Drill Rod ID (circle one): \_\_\_\_\_  
 Borehole Outside Diameter: 76 mm  
 Vertical height of gauge above ground: 1.50 m ags  
 \* m ah - metres along hole

**Measurement Units**

Volume: m<sup>3</sup>  
 Pressure: kPa (psi for packer inflation)  
 Length: m

**Time**

Start Flushing: 2:30 PM  
 End Flushing: 3:00 PM  
 Start Packer Testing: 4:10 PM  
 End Packer Testing: -

**FALLING HEAD TEST or RISING HEAD TEST**

Time (Min)	Depth to H2O (m)	Δ Depth/Min
0		-
1		
2		
4		
6		
8		
10		
15		
20		
25		
30		
40		
50		
60		

**Additional Comments:** Inflated once, but packers weren't quite in drill bit. Deflated and tried again, 2nd attempt successful. Lost return @ 54m, never regained. No leaks.

Hole #: ABM6 / K15-206  
 Test #: 4



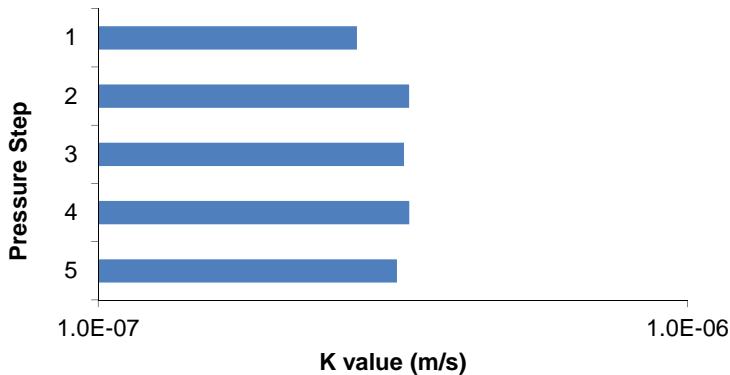
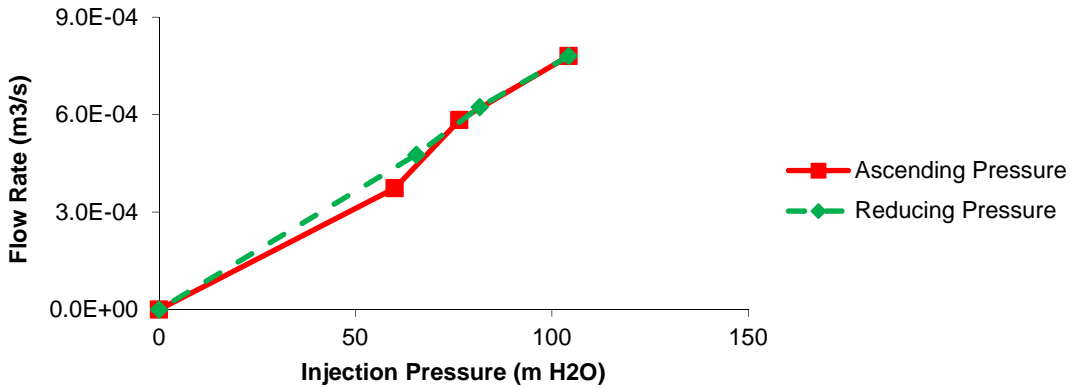
**Calculation Input Parameters**

Top of Packer Test Interval (mah): 211.5  
 Bottom of Packer Test Interval (mah): 237.0  
 L: Length of Test Interval (mah): 25.5  
 Test Interval Midpoint (mah): 224.3  
 Stickup Height (mah): 2.00  
 Pressure Gauge Height (m above ground): 1.50  
 Depth to Water Table (mah): 40.00  
 Borehole Diameter (mm): 76.000  
 r: Borehole Radius (m): 0.038  
 A: Angle From Horizontal (deg): -65  
 \* mah indicates "meters along hole"

$$K = \frac{Q \times \ln\left(\frac{L \sin(A)}{r}\right)}{2 \times \pi \times L \sin(A) \times dH}$$

Pressure Step	Pressure (psi)	Pressure (kPa)	Pressure (m of water)	Head Differential dH (m)	Flowrate Q (m <sup>3</sup> /s):	Hydraulic Conductivity K (m/s)
1	34.2	236.0	24.1	60.0	3.7E-04	2.7E-07
2	57.7	397.5	40.5	76.5	5.8E-04	3.4E-07
3	97.2	670.0	68.3	104.3	7.8E-04	3.3E-07
4	65.0	448.0	45.7	81.6	6.2E-04	3.4E-07
5	42.1	290.0	29.6	65.5	4.8E-04	3.2E-07
<b>Geometric Mean:</b>						<b>3.2E-07</b>

**Diagnostic Plots**



## Constant Head (CH) and Falling/Rising Head (F/RH) Packer Test - Field Form

**Client:** BMC / Equity  
**Project:** Kudz Ze Kayah  
**Project #:** ENV/MIN03071-01  
**Personnel:** Eliane Roy

**Collar El.:** 1409 m  
**Trend:** 180 deg  
**Plunge:** -70 deg  
**Date:** 31-Jul-15

**Hole #:** ABM16 / K15-200  
**Hole Size:** HQ  
**Design Test Interval:** 9 to 19.5 m  
**Test #:** 1

### Packer Setup Type: Single

Pressure Interval 1	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	80.0	98.3555	-
1	85.0	98.3645	0.0090
2	100.0	98.3775	0.0130
3	100.0	98.3865	0.0090
4	100.0	98.3970	0.0105
5	90.0	98.4070	0.0100
6	90.0	98.4175	0.0105
7	90.0	98.4280	0.0105
8	90.0	98.4375	0.0095
9			
10			

Stable Ave. 93.1 0.0102

Pressure Interval 2	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Stable Ave.

Pressure Interval 3	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	80.0	98.3555	-
1	85.0	98.3645	0.0090
2	100.0	98.3775	0.0130
3	100.0	98.3865	0.0090
4	100.0	98.3970	0.0105
5	90.0	98.4070	0.0100
6	90.0	98.4175	0.0105
7	90.0	98.4280	0.0105
8	90.0	98.4375	0.0095
9			
10			

Stable Ave.

Pressure Interval 4	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Stable Ave.

Pressure Interval 5	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Stable Ave.

Pressure Interval 6	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

### Measurements

Depth to Water from Top of Stickup: 7.0 m toc  
 Top of Packer Interval: 9.00 m ah\*  
 Bottom of Packer Interval (or Bottom of Hole): 19.50 m ah  
 Packer Inflation Pressure: 250 psi  
 Rod Stickup Height: 2.00 m ags  
 Water Flushed (Vol./Time/Until Clean):  
 Packer Pipe ID/ or Drill Rod ID (circle one):  
 Borehole Outside Diameter: 96 mm  
 Vertical height of gauge above ground: 1.50 m ags  
 \* m ah - metres along hole

### Measurement Units

Volume: m<sup>3</sup>  
 Pressure: kPa (psi for packer inflation)  
 Length: m

### Time

Start Flushing: 3:10 AM  
 End Flushing: 3:19 AM  
 Start Packer Testing: 4:23 AM  
 End Packer Testing: 4:32 AM

### FALLING HEAD TEST or RISING HEAD TEST

Time (Min)	Depth to H2O (m)	Δ Depth/Min
0		-
1		
2		
4		
6		
8		
10		
15		
20		
25		
30		
40		
50		
60		

**Additional Comments:** Little mud used, only took a few minutes for the water to run clear. Took a long time to fill the rods with water. Could not do pressure intervals as ~100 kPa was the minimum pressure achieved. Packers remained inflated at 250 psi, no return through the casing nor leak at sub.

Hole #: ABM16 / K15-200  
 Test #: 1



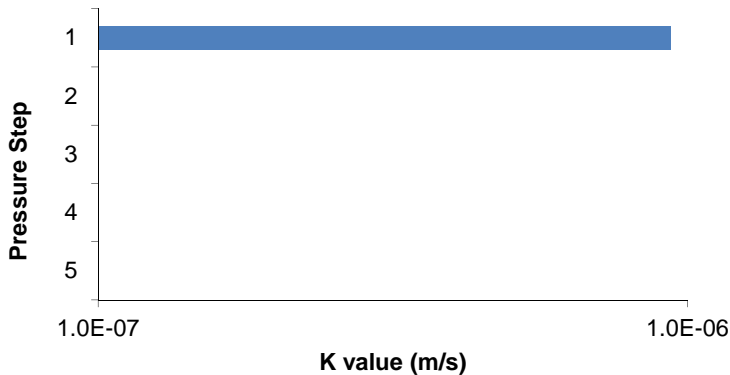
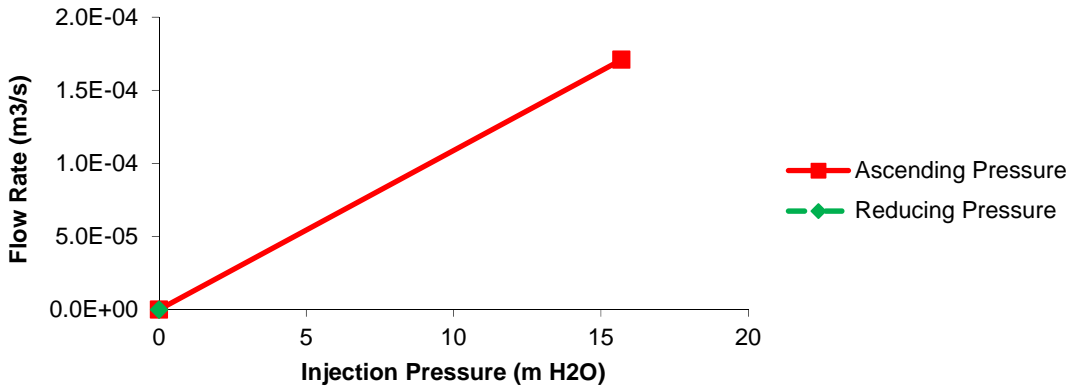
**Calculation Input Parameters**

Top of Packer Test Interval (mah): 9.0  
 Bottom of Packer Test Interval (mah): 19.5  
 L: Length of Test Interval (mah): 10.5  
 Test Interval Midpoint (mah): 14.3  
 Stickup Height (mah): 2.00  
 Pressure Gauge Height (m above ground): 1.50  
 Depth to Water Table (mah): 7.00  
 Borehole Diameter (mm): 96.000  
 r: Borehole Radius (m): 0.048  
 A: Angle From Horizontal (deg): -70  
 \* mah indicates "meters along hole"

$$K = \frac{Q \times \ln\left(\frac{L \sin(A)}{r}\right)}{2 \times \pi \times L \sin(A) \times dH}$$

Pressure Step	Pressure (psi)	Pressure (kPa)	Pressure (m of water)	Head Differential dH (m)	Flowrate Q (m <sup>3</sup> /s):	Hydraulic Conductivity K (m/s)
1	13.5	93.1	9.5	15.7	1.7E-04	9.4E-07
2						
3						
4						
5						
						9.4E-07

**Diagnostic Plots**



## Constant Head (CH) and Falling/Rising Head (F/RH) Packer Test - Field Form

**Client:** BMC / Equity  
**Project:** Kudz Ze Kayah  
**Project #:** ENVMIN03071-01  
**Personnel:** Eliane Roy

**Collar El.:** 1414 m  
**Trend:** 180 deg  
**Plunge:** -70 deg  
**Date:** 1-Aug-15

**Hole #:** ABM16 / K15-200  
**Hole Size:** HQ  
**Design Test Interval:** 64.5 to 75.0  
**Test #:** 2

### Packer Setup Type: Single

Pressure Interval 1	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	180.0	98.5950	-
1	180.0	98.6120	0.0170
2	180.0	98.6290	0.0170
3			
4			
5		98.6765	
6	190.0	98.6905	0.0140
7			
8			
9			
10			

Stable Ave. 183.3 0.0160

Pressure Interval 2	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	360.0	98.7400	-
1	370.0	98.7655	0.0255
2	360.0	98.7870	0.0215
3	360.0	98.8090	0.0220
4	365.0	98.8295	0.0205
5	360.0	98.8510	0.0215
6			
7			
8			
9			
10			

Stable Ave. 363.0 0.0222

Pressure Interval 3	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	520	98.9000	-
1	520	98.9370	0.0370
2	515	98.9715	0.0345
3	515	99.0040	0.0325
4	515	99.0370	0.0330
5	515	99.0715	0.0345
6			
7			
8			
9			
10			

Stable Ave. 516.0 0.0343

Pressure Interval 4	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	365	99.1000	-
1	365	99.1200	0.0200
2	365	99.1380	0.0180
3	360	99.1560	0.0180
4	360	99.1740	0.0180
5	360	99.1930	0.0190
6			
7			
8			
9			
10			

Stable Ave. 362.0 0.0186

Pressure Interval 5	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	180	99.2010	-
1	200	99.2105	0.0095
2	200	99.2190	0.0085
3	210	99.2305	0.0115
4	190	99.2375	0.0070
5	200	99.2480	0.0105
6	200	99.2580	0.0100
7			
8			
9			
10			

Stable Ave. 200.0 0.0095

Pressure Interval 6	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

### Measurements

Depth to Water from Top of Stickup: 2.5 m toc  
 Top of Packer Interval: 64.50 m ah\*  
 Bottom of Packer Interval (or Bottom of Hole): 75.00 m ah  
 Packer Inflation Pressure: 395 psi  
 Rod Stickup Height: 2.00 m ags  
 Water Flushed (Vol./Time/Until Clean):  
 Packer Pipe ID/ or Drill Rod ID (circle one):  
 Borehole Outside Diameter: 96 mm  
 Vertical height of gauge above ground: 1.50 m ags  
 \* m ah - metres along hole

### Measurement Units

Volume: m<sup>3</sup>  
 Pressure: kPa (psi for packer inflation)  
 Length: m

### Time

Start Flushing: -  
 End Flushing: 1:31 AM  
 Start Packer Testing: 2:31 AM  
 End Packer Testing: 3:08 AM

### FALLING HEAD TEST or RISING HEAD TEST

Time (Min)	Depth to H2O (m)	Δ Depth/Min
0		-
1		
2		
4		
6		
8		
10		
15		
20		
25		
30		
40		
50		
60		

**Additional Comments:** Broken core and poor recovery at -66 to 69 m. No leak at sub; not return through casing.



Hole #: ABM16 / K15-200  
 Test #: 2



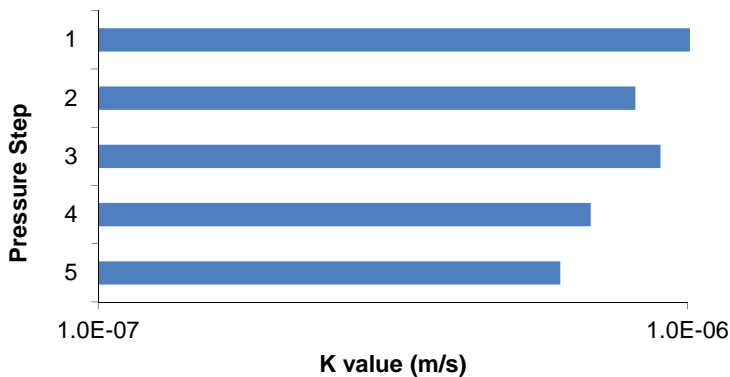
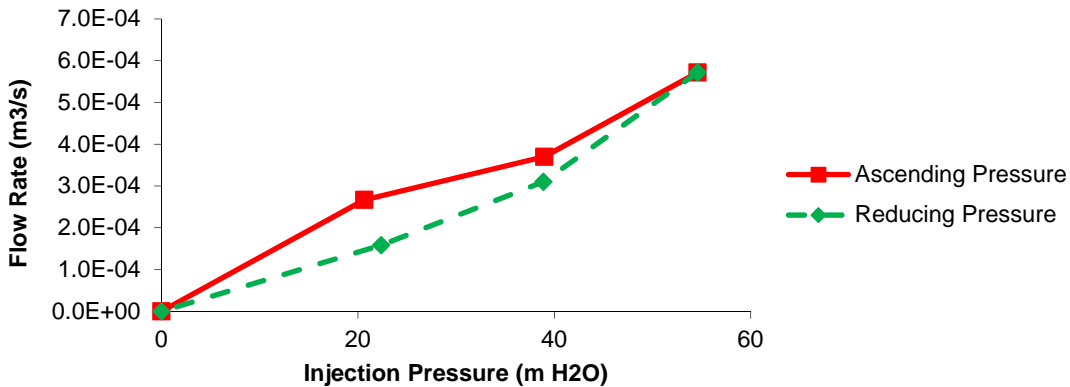
**Calculation Input Parameters**

Top of Packer Test Interval (mah): 64.5  
 Bottom of Packer Test Interval (mah): 75.0  
 L: Length of Test Interval (mah) 10.5  
 Eliane Roy 69.8  
 Stickup Height (mah): 2.00  
 Pressure Gauge Height (m above ground): 1.50  
 Depth to Water Table (mah): 2.50  
 Borehole Diameter (mm): 96.000  
 r: Borehole Radius (m): 0.048  
 A: Angle From Horizontal (deg): -70  
 \* mah indicates "meters along hole"

$$K = \frac{Q \times \ln\left(\frac{L \sin(A)}{r}\right)}{2 \times \pi \times L \sin(A) \times dH}$$

Pressure Step	Pressure (psi)	Pressure (kPa)	Pressure (m of water)	Head Differential dH (m)	Flowrate Q (m <sup>3</sup> /s):	Hydraulic Conductivity K (m/s)
1	26.6	183.3	18.7	20.7	2.7E-04	1.1E-06
2	52.6	363.0	37.0	39.0	3.7E-04	8.2E-07
3	74.8	516.0	52.6	54.6	5.7E-04	9.0E-07
4	52.5	362.0	36.9	38.9	3.1E-04	6.8E-07
5	29.0	200.0	20.4	22.4	1.6E-04	6.1E-07
<b>Geometric Mean:</b>						<b>8.1E-07</b>

**Diagnostic Plots**



## Constant Head (CH) and Falling/Rising Head (F/RH) Packer Test - Field Form

**Client:** BMC / Equity  
**Project:** Kudz Ze Kayah  
**Project #:** ENV/MIN03071-01  
**Personnel:** KRR

**Collar El.:** 1409 m  
**Trend:** 180 deg  
**Plunge:** -70 deg  
**Date:** 1-Aug-15

**Hole #:** ABM16 / K15-200  
**Hole Size:** HQ  
**Design Test Interval:** 103.5 to 108  
**Test #:** 3

**Packer Setup Type: Single**

Pressure Interval 1	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	260.0	99.4080	-
1	260.0	99.4085	0.0005
2	260.0	99.4085	0.0000
3	260.0	99.4090	0.0005
4	260.0	99.4100	0.0010
5	260.0	99.4100	0.0000
6			
7			
8			
9			
10			

Stable Ave. 260.0 0.0004

Pressure Interval 2	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	400.0	99.4110	-
1	425.0	99.4120	0.0010
2	425.0	99.4135	0.0015
3	425.0	99.4142	0.0007
4	425.0	99.4150	0.0008
5	425.0	99.4160	0.0010
6			
7			
8			
9			
10			

Stable Ave. 425.0 0.0010

Pressure Interval 3	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	630	99.4160	-
1	650	99.4170	0.0010
2	650	99.4175	0.0005
3	650	99.4180	0.0005
4	650	99.4185	0.0005
5	650	99.4190	0.0005
6			
7			
8			
9			
10			

Stable Ave. 650.0 0.0006

Pressure Interval 4	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	430	99.4190	-
1	430	99.4195	0.0005
2	430	99.4195	0.0000
3	430	99.4200	0.0005
4	430	99.4200	0.0000
5			
6			
7			
8			
9			
10			

Stable Ave. 430.0 0.0003

Pressure Interval 5	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	330	99.4200	-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Stable Ave. 330.0 0.0000

Pressure Interval 6	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Stable Ave. 0.0000 0.0000

**Measurements**

Depth to Water from Top of Stickup: 2.5 m toc  
 Top of Packer Interval: 103.50 m ah\*  
 Bottom of Packer Interval (or Bottom of Hole): 106.50 m ah  
 Packer Inflation Pressure: 400 psi  
 Rod Stickup Height: 2.00 m ags  
 Water Flushed (Vol./Time/Until Clean): \_\_\_\_\_  
 Packer Pipe ID/ or Drill Rod ID (circle one): \_\_\_\_\_  
 Borehole Outside Diameter: 96 mm  
 Vertical height of gauge above ground: 1.50 m ags  
 \* m ah - metres along hole

**Measurement Units**

Volume: m<sup>3</sup>  
 Pressure: kPa (psi for packer inflation)  
 Length: m

**Time**

Start Flushing: 2:20 PM  
 End Flushing: 2:28 PM  
 Start Packer Testing: -  
 End Packer Testing: -

**FALLING HEAD TEST or RISING HEAD TEST**

Time (Min)	Depth to H2O (m)	Δ Depth/Min
0		-
1		
2		
4		
6		
8		
10		
15		
20		
25		
30		
40		
50		
60		

**Additional Comments:** No detectable flow at last pressure step. No leak.

Hole #: ABM16 / K15-200  
 Test #: 3



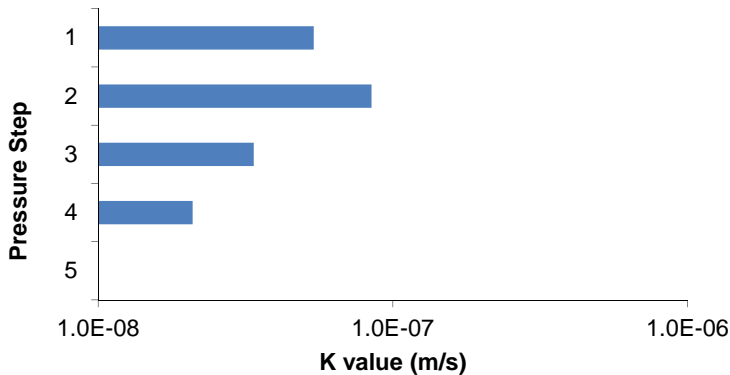
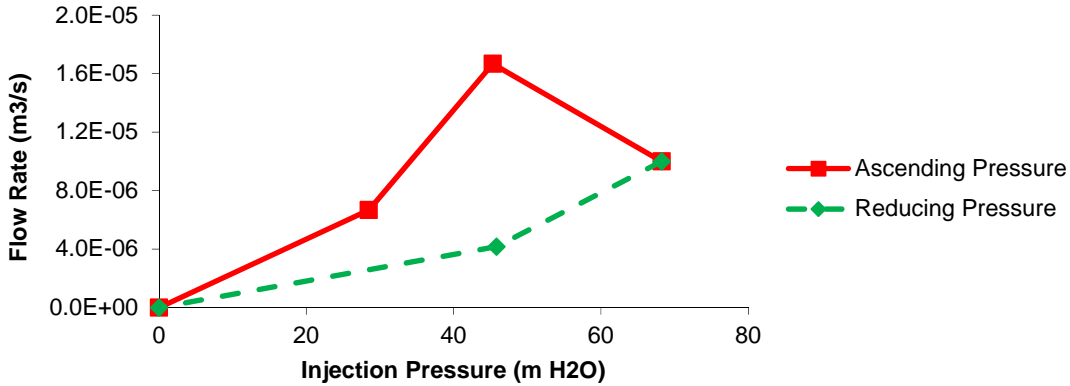
**Calculation Input Parameters**

Top of Packer Test Interval (mah): 103.5  
 Bottom of Packer Test Interval (mah): 106.5  
 L: Length of Test Interval (mah): 3.0  
 Test Interval Midpoint (mah): 105.0  
 Stickup Height (mah): 2.00  
 Pressure Gauge Height (m above ground): 1.50  
 Depth to Water Table (mah): 2.50  
 Borehole Diameter (mm): 96.000  
 r: Borehole Radius (m): 0.048  
 A: Angle From Horizontal (deg): -70  
 \* mah indicates "meters along hole"

$$K = \frac{Q \times \ln\left(\frac{L \sin(A)}{r}\right)}{2 \times \pi \times L \sin(A) \times dH}$$

Pressure Step	Pressure (psi)	Pressure (kPa)	Pressure (m of water)	Head Differential dH (m)	Flowrate Q (m <sup>3</sup> /s):	Hydraulic Conductivity K (m/s)
1	37.7	260.0	26.5	28.5	6.7E-06	5.4E-08
2	61.6	425.0	43.3	45.3	1.7E-05	8.5E-08
3	94.3	650.0	66.3	68.3	1.0E-05	3.4E-08
4	62.4	430.0	43.9	45.8	4.2E-06	2.1E-08
5						
<b>Geometric Mean:</b>						<b>4.2E-08</b>

**Diagnostic Plots**



## Constant Head (CH) and Falling/Rising Head (F/RH) Packer Test - Field Form

**Client:** BMC / Equity  
**Project:** Kudz Ze Kayah  
**Project #:** ENVMIN03071-01  
**Personnel:** Eliane Roy

**Collar El.:** 1409 m  
**Trend:** 180 deg  
**Plunge:** -70 deg  
**Date:** 2-Aug-15

**Hole #:** ABM16 / K15-200  
**Hole Size:** HQ  
**Design Test Interval:** 127.5 to 138 m  
**Test #:** 4

### Packer Setup Type: Single

Pressure Interval 1	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	235.0	99.4525	-
1			
2	235.0	99.4537	0.0006
3	235.0	99.4540	0.0003
4	235.0	99.4547	0.0007
5	235.0	99.4552	0.0005
6			
7			
8			
9			
10			

Stable Ave. 235.0 0.0005

Pressure Interval 2	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	470.0	99.4572	-
1	470.0	99.4590	0.0018
2	470.0	99.4600	0.0010
3	470.0	99.4610	0.0010
4	475.0	99.4622	0.0012
5	475.0	99.4635	0.0013
6			
7			
8			
9			
10			

Stable Ave. 472.0 0.0013

Pressure Interval 3	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	660	99.4660	-
1	660	99.4685	0.0025
2	660	99.4707	0.0022
3	670	99.4732	0.0025
4	670	99.4755	0.0023
5	670	99.4772	0.0017
6			
7			
8			
9			
10			

Stable Ave. 666.0 0.0022

Pressure Interval 4	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	440	99.4780	-
1	440	99.4787	0.0007
2	450	99.4795	0.0008
3	450	99.4797	0.0002
4	450	99.4802	0.0005
5	450	99.4805	0.0003
6			
7			
8			
9			
10			

Stable Ave. 448.0 0.0005

Pressure Interval 5	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	230	99.4807	-
1	230	99.4810	0.0003
2	230	99.4810	0.0000
3	230	99.4810	0.0000
4	230	99.4810	0.0000
5			
6			
7			
8			
9			
10			

Stable Ave. 230.0 0.0001

Pressure Interval 6	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

### Measurements

Depth to Water from Top of Stickup: 1.0 m toc  
 Top of Packer Interval: 127.50 m ah\*  
 Bottom of Packer Interval (or Bottom of Hole): 138.00 m ah  
 Packer Inflation Pressure: 460 psi  
 Rod Stickup Height: 2.00 m ags  
 Water Flushed (Vol./Time/Until Clean):  
 Packer Pipe ID/ or Drill Rod ID (circle one):  
 Borehole Outside Diameter: 96 mm  
 Vertical height of gauge above ground: 1.50 m ags  
 \* m ah - metres along hole

### Measurement Units

Volume: m<sup>3</sup>  
 Pressure: kPa (psi for packer inflation)  
 Length: m

### Time

Very little mud used  
 Start Flushing: 5:20 AM  
 End Flushing: 5:35 AM  
 Start Packer Testing: 6:12 AM  
 End Packer Testing: 6:42 AM

### FALLING HEAD TEST or RISING HEAD TEST

Time (Min)	Depth to H2O (m)	Δ Depth/Min
0		-
1		
2		
4		
6		
8		
10		
15		
20		
25		
30		
40		
50		
60		

**Additional Comments:** Somewhat weathered core just past 131.5m; very weathered between ~129 and 129.2 m.

No leaks at sub or casing.

Hole #: ABM16 / K15-200  
 Test #: 4



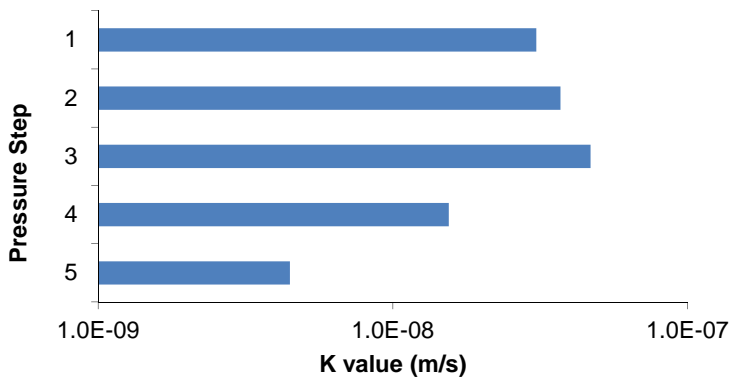
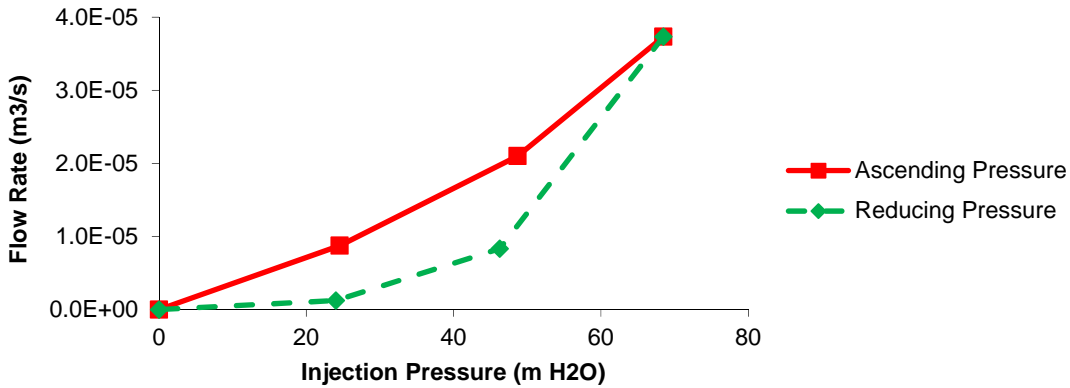
**Calculation Input Parameters**

Top of Packer Test Interval (mah): 127.5  
 Bottom of Packer Test Interval (mah): 138.0  
 L: Length of Test Interval (mah): 10.5  
 Test Interval Midpoint (mah): 132.8  
 Stickup Height (mah): 2.00  
 Pressure Gauge Height (m above ground): 1.50  
 Depth to Water Table (mah): 1.00  
 Borehole Diameter (mm): 96.000  
 r: Borehole Radius (m): 0.048  
 A: Angle From Horizontal (deg): -70  
 \* mah indicates "meters along hole"

$$K = \frac{Q \times \ln\left(\frac{L \sin(A)}{r}\right)}{2 \times \pi \times L \sin(A) \times dH}$$

Pressure Step	Pressure (psi)	Pressure (kPa)	Pressure (m of water)	Head Differential dH (m)	Flowrate Q (m <sup>3</sup> /s):	Hydraulic Conductivity K (m/s)
1	34.1	235.0	24.0	24.5	8.8E-06	3.1E-08
2	68.5	472.0	48.1	48.7	2.1E-05	3.7E-08
3	96.6	666.0	67.9	68.5	3.7E-05	4.7E-08
4	65.0	448.0	45.7	46.2	8.3E-06	1.5E-08
5	33.4	230.0	23.5	24.0	1.2E-06	4.5E-09
<b>Geometric Mean:</b>						<b>2.1E-08</b>

**Diagnostic Plots**



## Constant Head (CH) and Falling/Rising Head (F/RH) Packer Test - Field Form

**Client:** BMC / Equity  
**Project:** Kudz Ze Kayah  
**Project #:** ENVMIN03071-01  
**Personnel:** Eliane Roy

**Collar El.:** 1414 m  
**Trend:** 180 deg  
**Plunge:** -70 deg  
**Date:** 3-Aug-15

**Hole #:** ABM16 / K15-200  
**Hole Size:** HQ  
**Design Test Interval:** 199.5 to 213 m  
**Test #:** 5A

### Packer Setup Type: Single

Pressure Interval 1	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	225	99.5272	-
1	230	-	-
2	220	99.5280	0.0004
3	220	99.5280	0.0000
4	220	99.5280	0.0000
5			
6			
7			
8			
9			
10			

Stable Ave. 222.5 0.0001

Pressure Interval 2	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	480.0	99.5285	-
1	480.0	99.5295	0.0010
2	480.0	99.5300	0.0005
3	480.0	99.5302	0.0002
4	-	-	-
5	480.0	99.5317	0.0008
6	480.0	99.5322	0.0005
7			
8			
9			
10			

Stable Ave. 480.0 0.0006

Pressure Interval 3	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	700	99.5337	-
1	710	99.5347	0.0010
2	710	99.5357	0.0010
3	710	99.5365	0.0008
4	710	-	-
5	710	99.5385	0.0010
6			
7			
8			
9			
10			

Stable Ave. 710.0 0.0010

Pressure Interval 4	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	460	99.5390	-
1	460	99.5392	0.0002
2	460	99.5400	0.0008
3	460	99.5400	0.0000
4	460	99.5402	0.0002
5			
6			
7			
8			
9			
10			

Stable Ave. 460.0 0.0003

Pressure Interval 5	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	215	99.5405	-
1	215	99.5407	0.0002
2	220	99.5412	0.0005
3	220	99.5415	0.0003
4	220	99.5417	0.0002
5			
6			
7			
8			
9			
10			

Stable Ave. 218.8 0.0003

Pressure Interval 6	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

### Measurements

Depth to Water from Top of Stickup: 0.0 m toc  
 Top of Packer Interval: 199.50 m ah\*  
 Bottom of Packer Interval (or Bottom of Hole): 213.00 m ah  
 Packer Inflation Pressure: 610 psi  
 Rod Stickup Height: 2.00 m ags  
 Water Flushed (Vol./Time/Until Clean):  
 Packer Pipe ID/ or Drill Rod ID (circle one):  
 Borehole Outside Diameter: 96 mm  
 Vertical height of gauge above ground: 1.50 m ags  
 \* m ah - metres along hole

### Measurement Units

Volume: m<sup>3</sup>  
 Pressure: kPa (psi for packer inflation)  
 Length: m

### Time

Start Flushing: 8:42 PM  
 End Flushing: -  
 Start Packer Testing: 9:58 PM  
 End Packer Testing: 10:27 PM

### FALLING HEAD TEST or RISING HEAD TEST

Time (Min)	Depth to H2O (m)	Δ Depth/Min
0		-
1		
2		
4		
6		
8		
10		
15		
20		
25		
30		
40		
50		
60		

**Additional Comments:** Realized near the end of the test that the tank was full of mud. Redid the test, see file Analysis\_ABM16\_211.5m (2).xls

No return through the casing, small leak at sub and small leak top of sub.

Hole #: ABM16 / K15-200  
 Test #: 5A



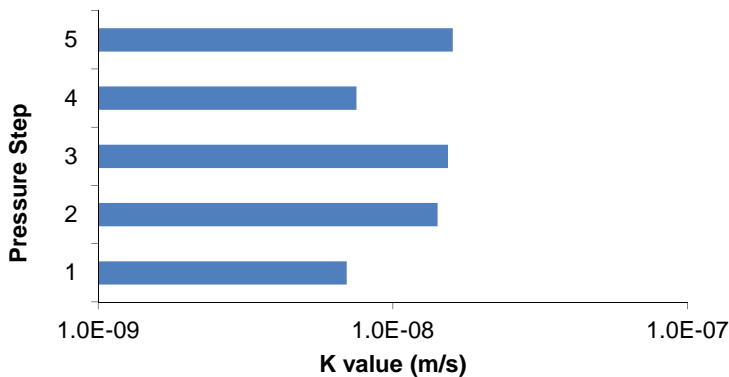
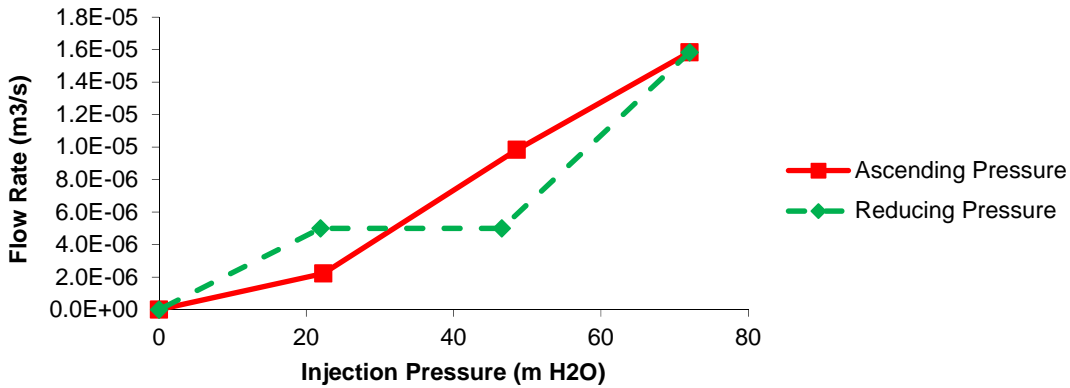
**Calculation Input Parameters**

Top of Packer Test Interval (mah): 199.5  
 Bottom of Packer Test Interval (mah): 213.0  
 L: Length of Test Interval (mah): 13.5  
 Test Interval Midpoint (mah): 206.3  
 Stickup Height (mah): 2.00  
 Pressure Gauge Height (m above ground): 1.50  
 Depth to Water Table (mah): 0.00  
 Borehole Diameter (mm): 96.000  
 r: Borehole Radius (m): 0.048  
 A: Angle From Horizontal (deg): -70  
 \* mah indicates "meters along hole"

$$K = \frac{Q \times \ln\left(\frac{L \sin(A)}{r}\right)}{2 \times \pi \times L \sin(A) \times dH}$$

Pressure Step	Pressure (psi)	Pressure (kPa)	Pressure (m of water)	Head Differential dH (m)	Flowrate Q (m <sup>3</sup> /s):	Hydraulic Conductivity K (m/s)
1	32.3	222.5	22.7	22.3	2.2E-06	7.0E-09
2	69.6	480.0	48.9	48.6	9.8E-06	1.4E-08
3	103.0	710.0	72.4	72.0	1.6E-05	1.5E-08
4	66.7	460.0	46.9	46.5	5.0E-06	7.5E-09
5	31.7	218.8	22.3	21.9	5.0E-06	1.6E-08
<b>Geometric Mean:</b>						<b>1.1E-08</b>

**Diagnostic Plots**



## Constant Head (CH) and Falling/Rising Head (F/RH) Packer Test - Field Form

**Client:** BMC / Equity  
**Project:** Kudz Ze Kayah  
**Project #:** ENVMIN03071-01  
**Personnel:** Eliane Roy

**Collar El.:** 1414 m  
**Trend:** 180 deg  
**Plunge:** -70 deg  
**Date:** 4-Aug-15

**Hole #:** ABM16 / K15-200  
**Hole Size:** HQ  
**Design Test Interval:** 198 to 211.5 m  
**Test #:** 5B

### Packer Setup Type: Single

Pressure Interval 1	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	230	99.5602	-
1	225	99.5602	0.0000
2	225	99.5605	0.0003
3	225	99.5605	0.0000
4			
5			
6			
7			
8			
9			
10			

Stable Ave. 225.0 0.0001

Pressure Interval 2	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	450.0	99.5612	-
1	450.0	99.5622	0.0010
2	450.0	99.5632	0.0010
3	450.0	99.5637	0.0005
4	450.0	99.5642	0.0005
5	440.0	99.5652	0.0010
6	440.0	99.5657	0.0005
7			
8			
9			
10			

Stable Ave. 446.7 0.0008

Pressure Interval 3	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	690	99.5672	-
1	700	99.5697	0.0025
2	710	99.5717	0.0020
3	710	99.5740	0.0023
4	710	-	
5	710	99.5797	0.0029
6			
7			
8			
9			
10			

Stable Ave. 708.0 0.0024

Pressure Interval 4	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	460	99.5825	-
1	465	99.5835	0.0010
2	465	99.5840	0.0005
3	465	99.5850	0.0010
4	465	99.5860	0.0010
5	465	99.5862	0.0002
6	465	99.5872	0.0010
7			
8			
9			
10			

Stable Ave. 465.0 0.0008

Pressure Interval 5	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	240	99.5872	-
1	240	99.5872	0.0000
2	240	99.5872	0.0000
3	240	99.5872	0.0000
4			
5			
6			
7			
8			
9			
10			

Stable Ave. 240.0 0.0000

Pressure Interval 6	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

### Measurements

Depth to Water from Top of Stickup: 0.0 m toc  
 Top of Packer Interval: 198.00 m ah\*  
 Bottom of Packer Interval (or Bottom of Hole): 211.50 m ah  
 Packer Inflation Pressure: 610 psi  
 Rod Stickup Height: 2.00 m ags  
 Water Flushed (Vol./Time/Until Clean):  
 Packer Pipe ID/ or Drill Rod ID (circle one):  
 Borehole Outside Diameter: 96 mm  
 Vertical height of gauge above ground: 1.50 m ags

\* m ah - metres along hole

### Measurement Units

Volume: m<sup>3</sup>  
 Pressure: kPa (psi for packer inflation)  
 Length: m

### Time

Start Flushing: -  
 End Flushing: -  
 Start Packer Testing: 12:15 AM  
 End Packer Testing: 12:43 AM

### FALLING HEAD TEST or RISING HEAD TEST

Time (Min)	Depth to H2O (m)	Δ Depth/Min
0		-
1		
2		
4		
6		
8		
10		
15		
20		
25		
30		
40		
50		
60		

**Additional Comments:** Flushed the hole with clear water and redid the test.

Small leak at sub.



Hole #: ABM16 / K15-200  
 Test #: 5B



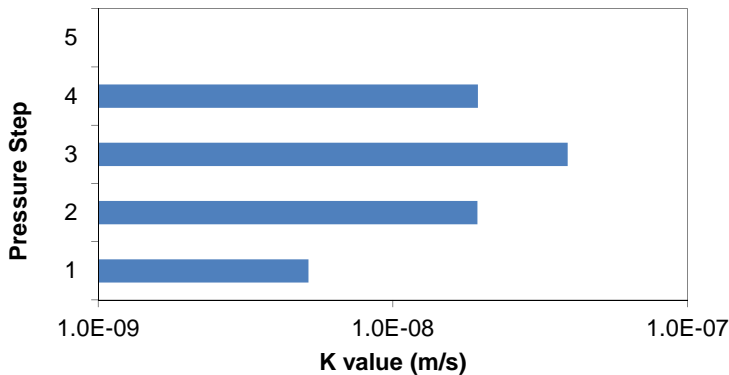
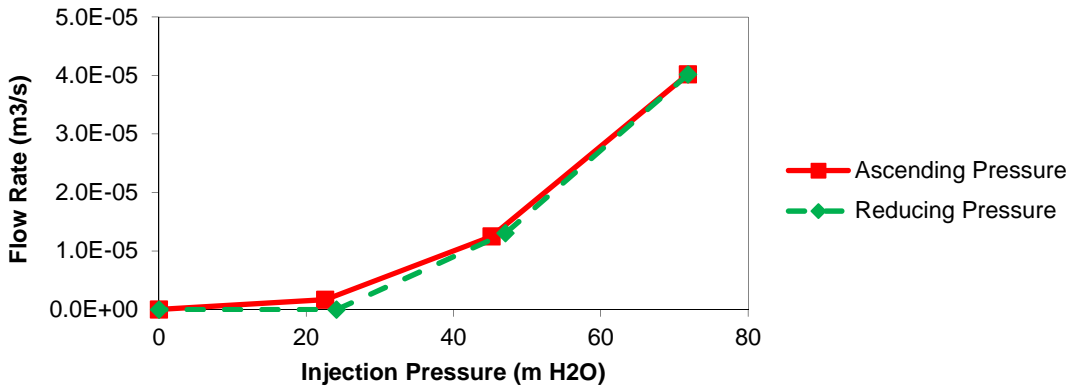
**Calculation Input Parameters**

Top of Packer Test Interval (mah): 198.0  
 Bottom of Packer Test Interval (mah): 211.5  
 L: Length of Test Interval (mah): 13.5  
 Test Interval Midpoint (mah): 204.8  
 Stickup Height (mah): 2.00  
 Pressure Gauge Height (m above ground): 1.50  
 Depth to Water Table (mah): 0.00  
 Borehole Diameter (mm): 96.000  
 r: Borehole Radius (m): 0.048  
 A: Angle From Horizontal (deg): -70  
 \* mah indicates "meters along hole"

$$K = \frac{Q \times \ln\left(\frac{L \sin(A)}{r}\right)}{2 \times \pi \times L \sin(A) \times dH}$$

Pressure Step	Pressure (psi)	Pressure (kPa)	Pressure (m of water)	Head Differential dH (m)	Flowrate Q (m <sup>3</sup> /s):	Hydraulic Conductivity K (m/s)
1	32.6	225.0	22.9	22.6	1.7E-06	5.2E-09
2	64.8	446.7	45.6	45.2	1.3E-05	1.9E-08
3	102.7	708.0	72.2	71.8	4.0E-05	3.9E-08
4	67.4	465.0	47.4	47.0	1.3E-05	1.9E-08
5	34.8	240.0	24.5	24.1	0.0E+00	1.0E-09
<b>Geometric Mean:</b>						<b>9.5E-09</b>

**Diagnostic Plots**



## Constant Head (CH) and Falling/Rising Head (F/RH) Packer Test - Field Form

**Client:** BMC / Equity  
**Project:** Kudz Ze Kayah  
**Project #:** ENVMIN03071-01  
**Personnel:** Eliane Roy

**Collar El.:** 1404 m  
**Trend:** 180 deg  
**Plunge:** -60 deg  
**Date:** 2-Aug-15

**Hole #:** ABM18 / K15-202  
**Hole Size:** HQ  
**Design Test Interval:** 21.5 to 32.0 m  
**Test #:** 1

### Packer Setup Type: Single

Pressure Interval 1	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	40.0	24.6620	-
1	40.0	24.6670	0.0050
2	45.0	24.6715	0.0045
3	45.0	24.6760	0.0045
4	45.0	24.6805	0.0045
5	45.0	24.6850	0.0045
6	45.0	24.6895	0.0045
7			
8			
9			
10			

Stable Ave. 44.2 0.0046

Pressure Interval 2	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	65.0	24.6980	-
1	65.0	24.7025	0.0045
2			
3	65.0	24.7125	0.0050
4	65.0	24.7170	0.0045
5	65.0	24.7220	0.0050
6			
7			
8			
9			
10			

Stable Ave. 65.0 0.0048

Pressure Interval 3	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	105	24.7320	-
1	110	24.7367	0.0047
2	110	24.7427	0.0060
3	110	24.7467	0.0040
4	110	24.7515	0.0048
5	112	24.7565	0.0050
6	112	24.7612	0.0047
7			
8			
9			
10			

Stable Ave. 110.7 0.0049

Pressure Interval 4	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	70	24.7720	-
1	70	24.7772	0.0052
2	72	24.7822	0.0050
3	72	24.7872	0.0050
4	72	24.7922	0.0050
5	72	24.7972	0.0050
6			
7			
8			
9			
10			

Stable Ave. 71.6 0.0050

Pressure Interval 5	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	40	24.8030	-
1	40	24.8085	0.0055
2	40	24.8137	0.0052
3	40	24.8190	0.0053
4	40	24.8245	0.0055
5	40	24.8297	0.0052
6			
7			
8			
9			
10			

Stable Ave. 40.0 0.0053

Pressure Interval 6	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

### Measurements

measured at 3.15 and rising slowly  
 Depth to Water from Top of Stickup: 0.0 m toc  
 Top of Packer Interval: 21.50 m ah\*  
 Bottom of Packer Interval (or Bottom of Hole): 32.00 m ah  
 Packer Inflation Pressure: 330 psi  
 Rod Stickup Height: 2.00 m ags  
 Water Flushed (Vol./Time/Until Clean):  
 Packer Pipe ID/ or Drill Rod ID (circle one):  
 Borehole Outside Diameter: 96 mm  
 Vertical height of gauge above ground: 1.50 m ags  
 \* m ah - metres along hole

### Measurement Units

Volume: m<sup>3</sup>  
 Pressure: kPa (psi for packer inflation)  
 Length: m

### Time

Start Flushing: -  
 End Flushing: -  
 Start Packer Testing: 4:00 AM  
 End Packer Testing: 4:34 AM

### FALLING HEAD TEST or RISING HEAD TEST

Time (Min)	Depth to H2O (m)	Δ Depth/Min
0		-
1		
2		
4		
6		
8		
10		
15		
20		
25		
30		
40		
50		
60		

**Additional Comments:** Driller indicated fault at 23 and 26 m, although did not loose return. Crumbly stratified rock. 26 to 29m run took 1h to drill; very hard quartzite intrusions.  
 No mud used, quick rinse. Minimum pressure on flowmeter gauge is 40 kPa. Geotech's regulator was messed up, had to go get ours.  
 Shoot water out as the packers were deflating; mildly artesian condition?

Hole #: ABM18 / K15-202  
 Test #: 1



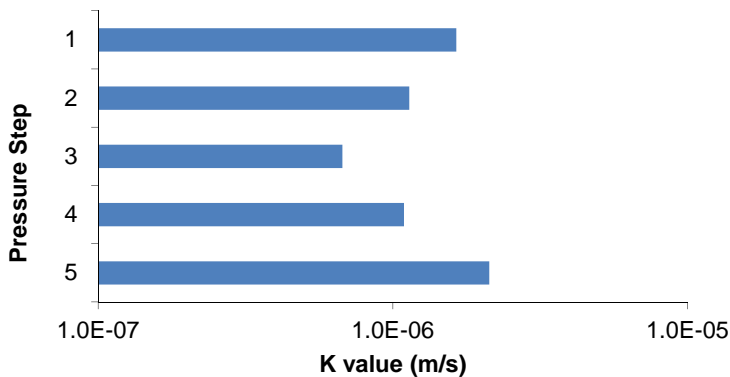
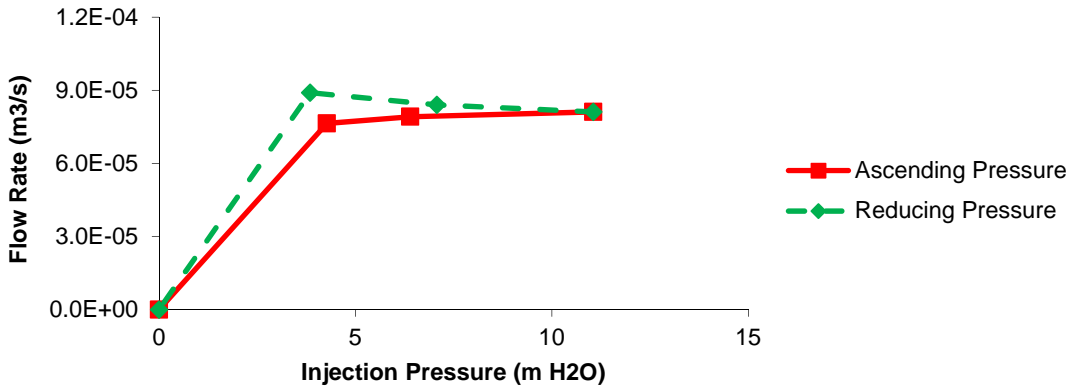
**Calculation Input Parameters**

Top of Packer Test Interval (mah): 21.5  
 Bottom of Packer Test Interval (mah): 32.0  
 L: Length of Test Interval (mah): 10.5  
 Test Interval Midpoint (mah): 26.8  
 Stickup Height (mah): 2.00  
 Pressure Gauge Height (m above ground): 1.50  
 Depth to Water Table (mah): 0.00  
 Borehole Diameter (mm): 96.000  
 r: Borehole Radius (m): 0.048  
 A: Angle From Horizontal (deg): -60  
 \* mah indicates "meters along hole"

$$K = \frac{Q \times \ln\left(\frac{L \sin(A)}{r}\right)}{2 \times \pi \times L \sin(A) \times dH}$$

Pressure Step	Pressure (psi)	Pressure (kPa)	Pressure (m of water)	Head Differential dH (m)	Flowrate Q (m <sup>3</sup> /s):	Hydraulic Conductivity K (m/s)
1	6.4	44.2	4.5	4.3	7.6E-05	1.6E-06
2	9.4	65.0	6.6	6.4	7.9E-05	1.1E-06
3	16.1	110.7	11.3	11.1	8.1E-05	6.7E-07
4	10.4	71.6	7.3	7.1	8.4E-05	1.1E-06
5	5.8	40.0	4.1	3.8	8.9E-05	2.1E-06
<b>Geometric Mean:</b>						<b>1.2E-06</b>

**Diagnostic Plots**



## Constant Head (CH) and Falling/Rising Head (F/RH) Packer Test - Field Form

**Client:** BMC / Equity  
**Project:** Kudz Ze Kayah  
**Project #:** ENVMIN03071-01  
**Personnel:** KRR

**Collar El.:** 1404 m  
**Trend:** 180 deg  
**Plunge:** -60 deg  
**Date:** 2-Aug-15

**Hole #:** ABM18 / K15-202  
**Hole Size:** HQ  
**Design Test Interval:** 57.5 to 71 m  
**Test #:** 2

**Packer Setup Type: Single**

Pressure Interval 1	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	260.0	25.1650	-
1	260.0	25.1930	0.0280
2	260.0	25.2220	0.0290
3	260.0	25.2500	0.0280
4	260.0	25.2680	0.0180
5	260.0	25.3060	0.0380
6			
7			
8			
9			
10			

Stable Ave. 260.0 0.0282

Pressure Interval 2	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	500.0	25.3370	-
1	520.0	25.3600	0.0230
2	500.0	25.4000	0.0400
3	480.0	25.4300	0.0300
4	490.0	25.4620	0.0320
5	490.0	25.4930	0.0310
6			
7			
8			
9			
10			

Stable Ave. 496.0 0.0312

Pressure Interval 3	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	620	25.5090	-
1	650	25.5410	0.0320
2	690	25.5720	0.0310
3	680	25.6020	0.0300
4	690	25.6340	0.0320
5			
6			
7			
8			
9			
10			

Stable Ave. 677.5 0.0313

Pressure Interval 4	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	440	25.6590	-
1	440	25.6800	0.0210
2	440	25.7120	0.0320
3	450	25.7420	0.0300
4	440	25.7740	0.0320
5	440	25.8060	0.0320
6			
7			
8			
9			
10			

Stable Ave. 442.0 0.0294

Pressure Interval 5	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	200	25.8120	-
1			
2	200	25.8850	0.0365
3	200	25.9110	0.0260
4			
5	200	25.9780	0.0335
6			
7			
8			
9			
10			

Stable Ave. 200.0 0.0320

Pressure Interval 6	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

**Measurements**

assume  
 Depth to Water from Top of Stickup: -0.1 m toc  
 Top of Packer Interval: 57.50 m ah\*  
 Bottom of Packer Interval (or Bottom of Hole): 71.00 m ah  
 Packer Inflation Pressure: 450 psi  
 Rod Stickup Height: 2.00 m ags  
 Water Flushed (Vol./Time/Until Clean): 20 min  
 Packer Pipe ID/ or Drill Rod ID (circle one): \_\_\_\_\_  
 Borehole Outside Diameter: 96 mm  
 Vertical height of gauge above ground: 2.00 m ags  
 \* m ah - metres along hole

**Measurement Units**

Volume: m<sup>3</sup>  
 Pressure: kPa (psi for packer inflation)  
 Length: m

**Time**

Start Flushing: 4:30 PM  
 End Flushing: 4:50 PM  
 Start Packer Testing: -  
 End Packer Testing: 7:00 PM

**FALLING HEAD TEST or RISING HEAD TEST**

Time (Min)	Depth to H2O (m)	Δ Depth/Min
0		-
1		
2		
4		
6		
8		
10		
15		
20		
25		
30		
40		
50		
60		

**Additional Comments:** Well producing water. Return through casing, but didn't raise water pressure. Drillers think its from fracture above drill bit.

Hole #: ABM18 / K15-202  
 Test #: 2



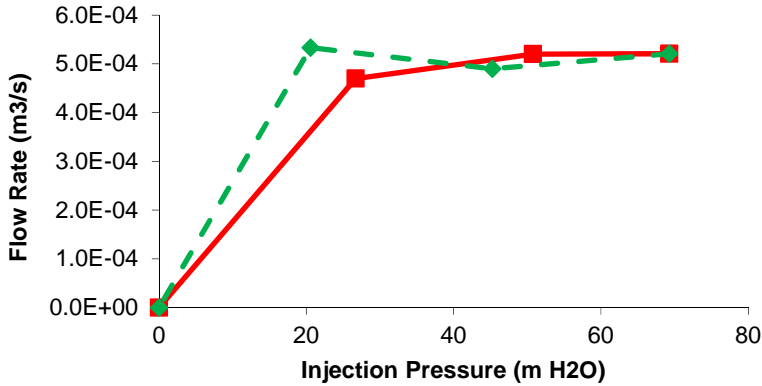
**Calculation Input Parameters**

Top of Packer Test Interval (mah): 57.5  
 Bottom of Packer Test Interval (mah): 71.0  
 L: Length of Test Interval (mah): 13.5  
 Test Interval Midpoint (mah): 64.3  
 Stickup Height (mah): 2.00  
 Pressure Gauge Height (m above ground): 2.00  
 Depth to Water Table (mah): -0.10  
 Borehole Diameter (mm): 96.000  
 r: Borehole Radius (m): 0.048  
 A: Angle From Horizontal (deg): -60  
 \* mah indicates "meters along hole"

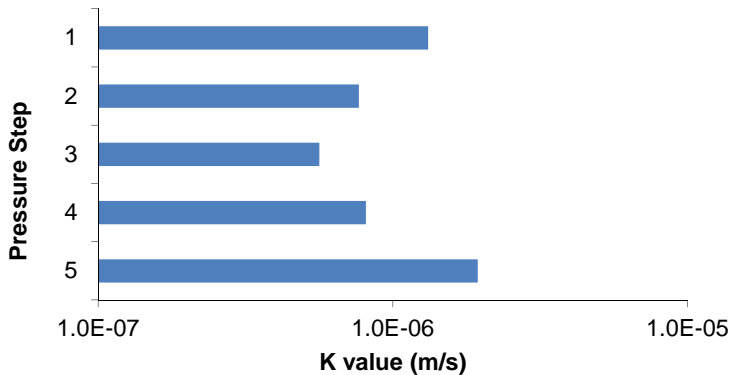
$$K = \frac{Q \times \ln\left(\frac{L \sin(A)}{r}\right)}{2 \times \pi \times L \sin(A) \times dH}$$

Pressure Step	Pressure (psi)	Pressure (kPa)	Pressure (m of water)	Head Differential dH (m)	Flowrate Q (m <sup>3</sup> /s):	Hydraulic Conductivity K (m/s)
1	37.7	260.0	26.5	26.7	4.7E-04	1.3E-06
2	71.9	496.0	50.6	50.8	5.2E-04	7.7E-07
3	98.3	677.5	69.1	69.3	5.2E-04	5.6E-07
4	64.1	442.0	45.1	45.3	4.9E-04	8.1E-07
5	29.0	200.0	20.4	20.6	5.3E-04	1.9E-06
<b>Geometric Mean:</b>						<b>9.8E-07</b>

**Diagnostic Plots**



#DIV/0!



## Constant Head (CH) and Falling/Rising Head (F/RH) Packer Test - Field Form

**Client:** BMC / Equity  
**Project:** Kudz Ze Kayah  
**Project #:** ENVMIN03071-01  
**Personnel:** KRR

**Collar El.:** 1407 m  
**Trend:** 167 deg  
**Plunge:** -65 deg  
**Date:** 31-Aug-15

**Hole #:** ABM46R (Relocated) / K15-242  
**Hole Size:** NQ  
**Design Test Interval:** 27.5 to 38 m  
**Test #:** 1

**Packer Setup Type: Single**

Pressure Interval 1	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	60.0	103.8410	-
1	58.0	103.8570	0.0160
2	50.0	103.8720	0.0150
3	50.0	103.8880	0.0160
4	50.0	103.9030	0.0150
5			
6			
7			
8			
9			
10			

Stable Ave. 52.0 0.0155

Pressure Interval 2	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	110.0	103.9180	-
1			
2	130.0	103.9560	0.0190
3	130.0	103.9740	0.0180
4	120.0	103.9920	0.0180
5	120.0	104.0100	0.0180
6			
7			
8			
9			
10			

Stable Ave. 125.0 0.0183

Pressure Interval 3	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	200	104.0270	-
1	200	104.0490	0.0220
2	200	104.0700	0.0210
3	200	104.0920	0.0220
4	200	104.1140	0.0220
5			
6			
7			
8			
9			
10			

Stable Ave. 200.0 0.0218

Pressure Interval 4	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	120	104.1230	-
1	120	104.1400	0.0170
2	120	104.1570	0.0170
3	120	104.1740	0.0170
4	120	104.1910	0.0170
5			
6			
7			
8			
9			
10			

Stable Ave. 120.0 0.0170

Pressure Interval 5	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	60	104.1980	-
1	60	104.2120	0.0140
2	60	104.2270	0.0150
3	60	104.2410	0.0140
4	60	104.2550	0.0140
5			
6			
7			
8			
9			
10			

Stable Ave. 60.0 0.0143

Pressure Interval 6	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

**Measurements**

assume  
 Depth to Water from Top of Stickup: 20.0 m toc  
 Top of Packer Interval: 27.50 m ah\*  
 Bottom of Packer Interval (or Bottom of Hole): 38.00 m ah  
 Packer Inflation Pressure: 350 psi  
 Rod Stickup Height: 2.00 m ags  
 Water Flushed (Vol./Time/Until Clean):  
 Packer Pipe ID/ or Drill Rod ID (circle one):  
 Borehole Outside Diameter: 76 mm  
 Vertical height of gauge above ground: 1.50 m ags  
 \* m ah - metres along hole

**Measurement Units**

Volume: m<sup>3</sup>  
 Pressure: kPa (psi for packer inflation)  
 Length: m

**Time**

No mud used, just flushing cuttings  
 Start Flushing: 9:00 AM  
 End Flushing: 9:10 AM  
 Start Packer Testing: 10:20 AM  
 End Packer Testing: 10:52 AM

**FALLING HEAD TEST or RISING HEAD TEST**

Time (Min)	Depth to H2O (m)	Δ Depth/Min
0		-
1		
2		
4		
6		
8		
10		
15		
20		
25		
30		
40		
50		
60		

**Additional Comments:** No return through casing, no leaks from stuffing box. Finished first run at 9:00am. Set up packer began inflating; noticed issue. Pulled lines. Nitrogen line broke off.  
 Replaced fitting. Some problems again. Taped line. No issues. Delayed start.

Hole #: ABM46R (Relocated) / K15-242  
 Test #: 1



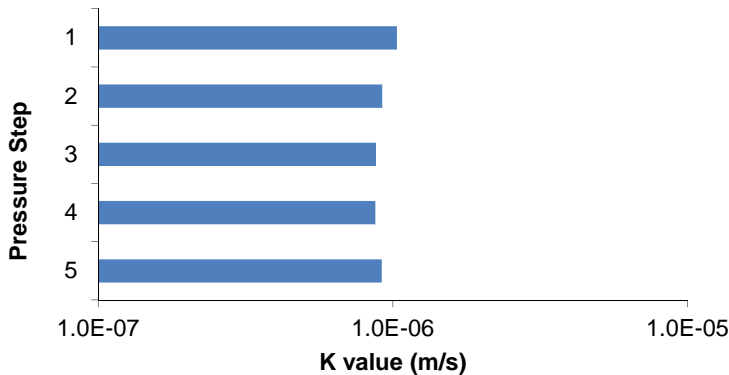
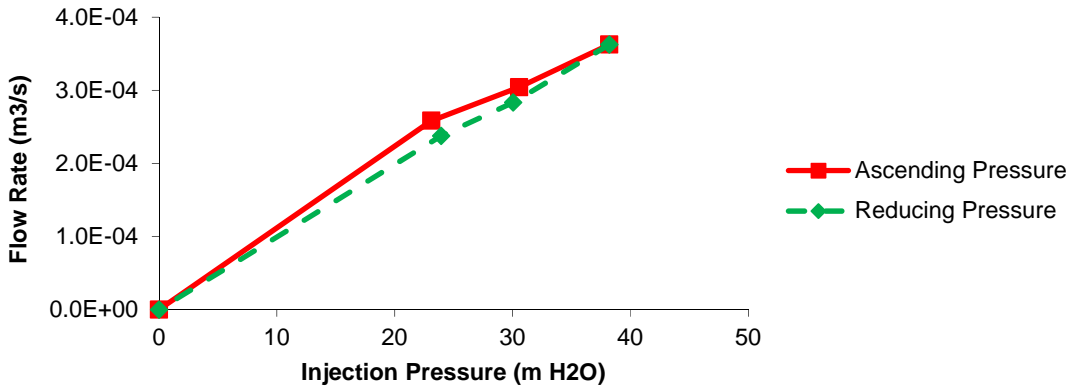
**Calculation Input Parameters**

Top of Packer Test Interval (mah): 27.5  
 Bottom of Packer Test Interval (mah): 38.0  
 L: Length of Test Interval (mah): 10.5  
 Test Interval Midpoint (mah): 32.8  
 Stickup Height (mah): 2.00  
 Pressure Gauge Height (m above ground): 1.50  
 Depth to Water Table (mah): 20.00  
 Borehole Diameter (mm): 76.000  
 r: Borehole Radius (m): 0.038  
 A: Angle From Horizontal (deg): -65  
 \* mah indicates "meters along hole"

$$K = \frac{Q \times \ln\left(\frac{L \sin(A)}{r}\right)}{2 \times \pi \times L \sin(A) \times dH}$$

Pressure Step	Pressure (psi)	Pressure (kPa)	Pressure (m of water)	Head Differential dH (m)	Flowrate Q (m <sup>3</sup> /s):	Hydraulic Conductivity K (m/s)
1	7.5	52.0	5.3	23.1	2.6E-04	1.0E-06
2	18.1	125.0	12.7	30.6	3.0E-04	9.2E-07
3	29.0	200.0	20.4	38.2	3.6E-04	8.8E-07
4	17.4	120.0	12.2	30.1	2.8E-04	8.7E-07
5	8.7	60.0	6.1	23.9	2.4E-04	9.2E-07
<b>Geometric Mean:</b>						<b>9.2E-07</b>

**Diagnostic Plots**



## Constant Head (CH) and Falling/Rising Head (F/RH) Packer Test - Field Form

**Client:** BMC / Equity  
**Project:** Kudz Ze Kayah  
**Project #:** ENVMIN03071-01  
**Personnel:** Eliane Roy

**Collar El.:** 1407 m  
**Trend:** 180 deg  
**Plunge:** -65 deg  
**Date:** 31-Aug-15

**Hole #:** ABM46R (Relocated) / K15-242  
**Hole Size:** NQ  
**Design Test Interval:** 69.5 to 86m  
**Test #:** 2

**Packer Setup Type: Single**

Pressure Interval 1	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	150.0	104.3205	-
1	150.0	104.3210	0.0005
2	150.0	104.3210	0.0000
3	150.0	104.3212	0.0002
4	150.0	104.3215	0.0003
5	150.0	104.3217	0.0002
6			
7			
8			
9			
10			

Stable Ave. 150.0 0.0002

Pressure Interval 2	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	280.0	104.3222	-
1	330.0	104.3230	0.0008
2	300.0	104.3230	0.0000
3	280.0	104.3232	0.0002
4	280.0	104.3237	0.0005
5	280.0	104.3242	0.0005
6	280.0	104.3245	0.0003
7			
8			
9			
10			

Stable Ave. 291.7 0.0004

Pressure Interval 3	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	420	104.3250	-
1	420	104.3250	0.0000
2	420	104.3252	0.0002
3	420	104.3257	0.0005
4	420	104.3262	0.0005
5	420	104.3262	0.0000
6	420	104.3265	0.0003
7			
8			
9			
10			

Stable Ave. 420.0 0.0002

Pressure Interval 4	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	280	104.3267	-
1	280	104.3270	0.0003
2	280	104.3272	0.0002
3	280	104.3275	0.0003
4	280	104.3277	0.0002
5	280	104.3280	0.0003
6			
7			
8			
9			
10			

Stable Ave. 280.0 0.0003

Pressure Interval 5	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	150	104.3285	-
1	150	104.3285	0.0000
2	150	104.3287	0.0002
3	150	104.3290	0.0003
4	150	104.3292	0.0002
5	150	104.3295	0.0003
6			
7			
8			
9			
10			

Stable Ave. 150.0 0.0002

Pressure Interval 6	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

**Measurements**

assume  
 Depth to Water from Top of Stickup: 18.0 m toc  
 Top of Packer Interval: 69.50 m ah\*  
 Bottom of Packer Interval (or Bottom of Hole): 86.00 m ah  
 Packer Inflation Pressure: 600 psi  
 Rod Stickup Height: 2.00 m ags  
 Water Flushed (Vol./Time/Until Clean):  
 Packer Pipe ID/ or Drill Rod ID (circle one):  
 Borehole Outside Diameter: 76 mm  
 Vertical height of gauge above ground: 1.50 m ags  
 \* m ah - metres along hole

**Measurement Units**

Volume: m<sup>3</sup>  
 Pressure: kPa (psi for packer inflation)  
 Length: m

**Time**

No mud used, just flushing cuttings  
 Start Flushing: 9:55 PM  
 End Flushing: 10:05 PM  
 Start Packer Testing: 10:52 PM  
 End Packer Testing: 10:34 PM

**FALLING HEAD TEST or RISING HEAD TEST**

Time (Min)	Depth to H2O (m)	Δ Depth/Min
0		-
1		
2		
4		
6		
8		
10		
15		
20		
25		
30		
40		
50		
60		

**Additional Comments:** Small leak at hose on sub. Regulator valve was shut, though not the N2 tank valve; packer initially inflated to 450psi, pressure slowly increased to 750psi until noticed  
 No damage.



Hole #: ABM46R (Relocated) / K15-242  
 Test #: 2



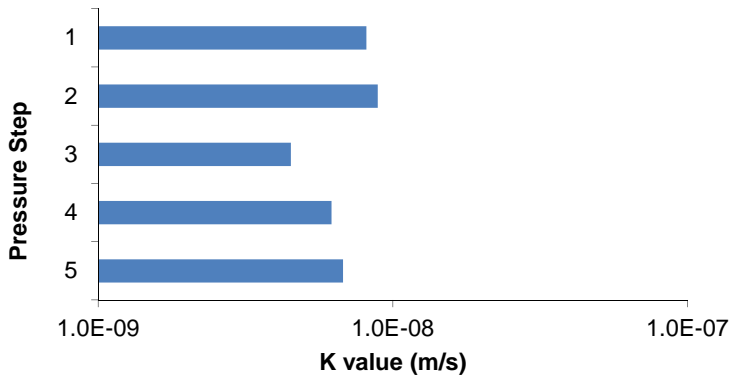
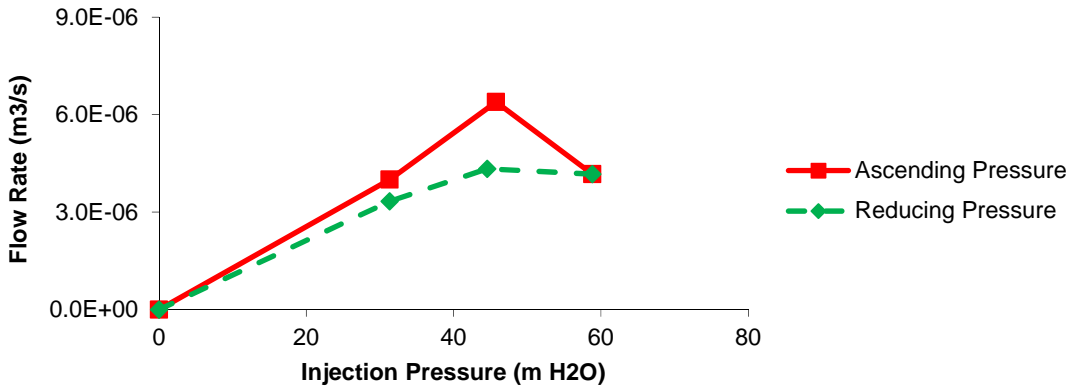
**Calculation Input Parameters**

Top of Packer Test Interval (mah): 69.5  
 Bottom of Packer Test Interval (mah): 86.0  
 L: Length of Test Interval (mah): 16.5  
 Test Interval Midpoint (mah): 77.8  
 Stickup Height (mah): 2.00  
 Pressure Gauge Height (m above ground): 1.50  
 Depth to Water Table (mah): 18.00  
 Borehole Diameter (mm): 76.000  
 r: Borehole Radius (m): 0.038  
 A: Angle From Horizontal (deg): -65  
 \* mah indicates "meters along hole"

$$K = \frac{Q \times \ln\left(\frac{L \sin(A)}{r}\right)}{2 \times \pi \times L \sin(A) \times dH}$$

Pressure Step	Pressure (psi)	Pressure (kPa)	Pressure (m of water)	Head Differential dH (m)	Flowrate Q (m <sup>3</sup> /s):	Hydraulic Conductivity K (m/s)
1	21.8	150.0	15.3	31.3	4.0E-06	8.1E-09
2	42.3	291.7	29.7	45.7	6.4E-06	8.9E-09
3	60.9	420.0	42.8	58.8	4.2E-06	4.5E-09
4	40.6	280.0	28.6	44.6	4.3E-06	6.2E-09
5	21.8	150.0	15.3	31.3	3.3E-06	6.8E-09
<b>Geometric Mean:</b>						<b>6.7E-09</b>

**Diagnostic Plots**



## Constant Head (CH) and Falling/Rising Head (F/RH) Packer Test - Field Form

**Client:** BMC / Equity  
**Project:** Kudz Ze Kayah  
**Project #:** ENVMIN03071-01  
**Personnel:** KRR

**Collar El.:** \_\_\_\_\_ m  
**Trend:** 167 deg  
**Plunge:** -65 deg  
**Date:** 1-Sep-15

**Hole #:** ABM46R (Relocated) / K15-242  
**Hole Size:** NQ  
**Design Test Interval:** 117.5 to 125 m  
**Test #:** 3

**Packer Setup Type: Single**

Pressure Interval 1	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	300.0	104.4855	-
1	300.0	104.4858	0.0003
2	300.0	104.4860	0.0002
3	300.0	104.4862	0.0002
4	300.0	104.4865	0.0003
5	300.0	-	-
6	300.0	104.4868	0.0001
7			
8			
9	Flowing, but very slowly		
10	No leaks		

Stable Ave. 300.0 0.0002

Pressure Interval 2	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	450.0	104.4870	-
1	450.0		
2	450.0	104.4872	0.0001
3	450.0	104.4875	0.0003
4	450.0	104.4878	0.0003
5			
6	450.0	104.4878	0.0000
7			
8			
9			
10			

Stable Ave. 450.0 0.0002

Pressure Interval 3	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	650	104.4880	-
1	650	104.4882	0.0002
2	650	104.4888	0.0006
3	650	104.4888	0.0000
4	650	104.4890	0.0002
5	650	104.4890	0.0000
6			
7			
8			
9			
10			

Stable Ave. 650.0 0.0002

Pressure Interval 4	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	440	104.4890	-
1	440	104.4892	0.0002
2		104.4895	0.0003
3	440	104.4898	0.0003
4	440	104.4898	0.0000
5	440	104.4900	0.0002
6			
7			
8			
9			
10			

Stable Ave. 440.0 0.0002

Pressure Interval 5	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	250	104.4900	-
1	250		
2	250		
3	250	104.4902	0.0001
4	250		
5	250	104.4905	0.0001
6			
7			
8			
9			
10			

Stable Ave. 250.0 0.0001

Pressure Interval 6	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

**Measurements**

assume  
 Depth to Water from Top of Stickup: 16.0 m toc  
 Top of Packer Interval: 117.50 m ah\*  
 Bottom of Packer Interval (or Bottom of Hole): 125.00 m ah  
 Packer Inflation Pressure: 400 psi  
 Rod Stickup Height: 2.00 m ags  
 Water Flushed (Vol./Time/Until Clean): \_\_\_\_\_  
 Packer Pipe ID/ or Drill Rod ID (circle one): \_\_\_\_\_  
 Borehole Outside Diameter: 76 mm  
 Vertical height of gauge above ground: 1.50 m ags  
 \* m ah - metres along hole

**Measurement Units**

Volume: m<sup>3</sup>  
 Pressure: kPa (psi for packer inflation)  
 Length: m

**Time**

No mud used, just flushing cuttings  
 Start Flushing: 9:00 AM  
 End Flushing: 9:15 AM  
 Start Packer Testing: 9:55 AM  
 End Packer Testing: 10:30 AM

**FALLING HEAD TEST or RISING HEAD TEST**

Time (Min)	Depth to H2O (m)	Δ Depth/Min
0		-
1		
2		
4		
6		
8		
10		
15		
20		
25		
30		
40		
50		
60		

**Additional Comments:** Rock highly fractured. Driller had lost return between 40m and 117m. Taking on water, but slowly.

Hole #: ABM46R (Relocated) / K15-242  
 Test #: 3



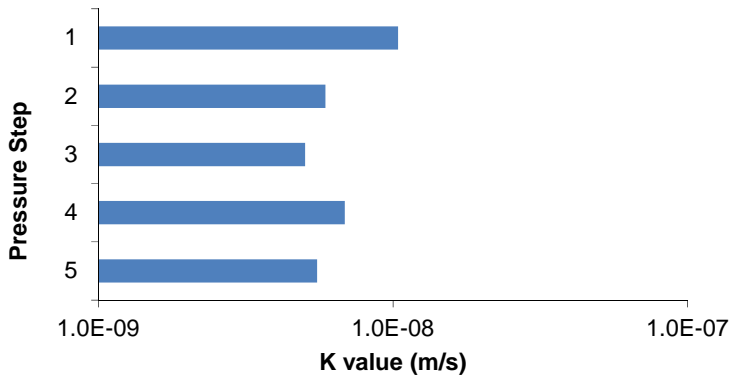
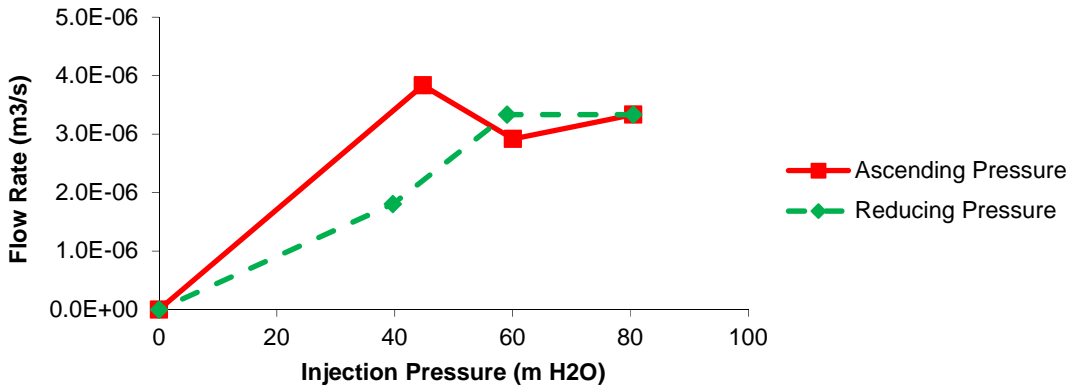
**Calculation Input Parameters**

Top of Packer Test Interval (mah): 117.5  
 Bottom of Packer Test Interval (mah): 125.0  
 L: Length of Test Interval (mah) 7.5  
 Test Interval Midpoint (mah): 121.3  
 Stickup Height (mah): 2.00  
 Pressure Gauge Height (m above ground): 1.50  
 Depth to Water Table (mah): 16.00  
 Borehole Diameter (mm): 76.000  
 r: Borehole Radius (m): 0.038  
 A: Angle From Horizontal (deg): -65  
 \* mah indicates "meters along hole"

$$K = \frac{Q \times \ln\left(\frac{L \sin(A)}{r}\right)}{2 \times \pi \times L \sin(A) \times dH}$$

Pressure Step	Pressure (psi)	Pressure (kPa)	Pressure (m of water)	Head Differential dH (m)	Flowrate Q (m <sup>3</sup> /s):	Hydraulic Conductivity K (m/s)
1	43.5	300.0	30.6	44.8	3.8E-06	1.0E-08
2	65.3	450.0	45.9	60.1	2.9E-06	5.9E-09
3	94.3	650.0	66.3	80.5	3.3E-06	5.0E-09
4	63.8	440.0	44.9	59.1	3.3E-06	6.9E-09
5	36.3	250.0	25.5	39.7	1.8E-06	5.5E-09
<b>Geometric Mean:</b>						<b>6.5E-09</b>

**Diagnostic Plots**



## Constant Head (CH) and Falling/Rising Head (F/RH) Packer Test - Field Form

**Client:** BMC / Equity  
**Project:** Kudz Ze Kayah  
**Project #:** ENVMIN03071-01  
**Personnel:** Eliane Roy

**Collar El.:** 1407 m  
**Trend:** 167 deg  
**Plunge:** -65 deg  
**Date:** 1-Sep-15

**Hole #:** ABM46R (Relocated) / K15-242  
**Hole Size:** NQ  
**Design Test Interval:** 132.5 to 161  
**Test #:** 4

**Packer Setup Type: Single**

Pressure Interval 1	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	220.0	104.5070	-
1	220.0	104.5147	0.0077
2	220.0	104.5230	0.0083
3	220.0	104.5297	0.0067
4	220.0	104.5357	0.0060
5	220.0	104.5425	0.0068
6			
7			
8			
9			
10			

Stable Ave. 220.0 0.0071

Pressure Interval 2	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	500.0	104.5540	-
1	460.0	104.5645	0.0105
2	480.0	104.5732	0.0087
3	470.0	104.5820	0.0088
4	470.0	104.5905	0.0085
5	480.0	104.5995	0.0090
6	490.0	104.6080	0.0085
7	470.0	104.6157	0.0077
8			
9			
10			

Stable Ave. 474.3 0.0088

Pressure Interval 3	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	680	104.6352	-
1	720	104.6460	0.0108
2	680	104.6565	0.0105
3	680	104.6655	0.0090
4	690	104.6750	0.0095
5	680	104.6845	0.0095
6	680	104.6937	0.0092
7			
8			
9			
10			

Stable Ave. 688.3 0.0098

Pressure Interval 4	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	470	104.7025	-
1	470	-	
2	480	104.7157	0.0066
3	480	104.7230	0.0073
4	480	104.7297	0.0067
5	480	104.7360	0.0063
6			
7			
8			
9			
10			

Stable Ave. 478.0 0.0067

Pressure Interval 5	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	230	104.7402	-
1	230	104.7445	0.0043
2	230	104.7485	0.0040
3	230	104.7525	0.0040
4	230	104.7562	0.0037
5	230	104.7602	0.0040
6			
7			
8			
9			
10			

Stable Ave. 230.0 0.0040

Pressure Interval 6	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

**Measurements**

assume  
 Depth to Water from Top of Stickup: 12.0 m toc  
 Top of Packer Interval: 132.50 m ah\*  
 Bottom of Packer Interval (or Bottom of Hole): 161.00 m ah  
 Packer Inflation Pressure: 425 psi  
 Rod Stickup Height: 2.00 m ags  
 Water Flushed (Vol./Time/Until Clean):  
 Packer Pipe ID/ or Drill Rod ID (circle one):  
 Borehole Outside Diameter: 76 mm  
 Vertical height of gauge above ground: 1.50 m ags  
 \* m ah - metres along hole

**Measurement Units**

Volume: m<sup>3</sup>  
 Pressure: kPa (psi for packer inflation)  
 Length: m

**Time**

No mud used, just flushing cuttings  
 Start Flushing: 9:55 PM  
 End Flushing: -  
 Start Packer Testing: 12:23 AM  
 End Packer Testing: 12:58 AM

**FALLING HEAD TEST or RISING HEAD TEST**

Time (Min)	Depth to H2O (m)	Δ Depth/Min
0		-
1		
2		
4		
6		
8		
10		
15		
20		
25		
30		
40		
50		
60		

**Additional Comments:** Technical difficulties, had to pull the packers out and troubleshoot for a bit, then reset the packers down into the borehole.

Hole #: ABM46R (Relocated) / K15-242  
 Test #: 4



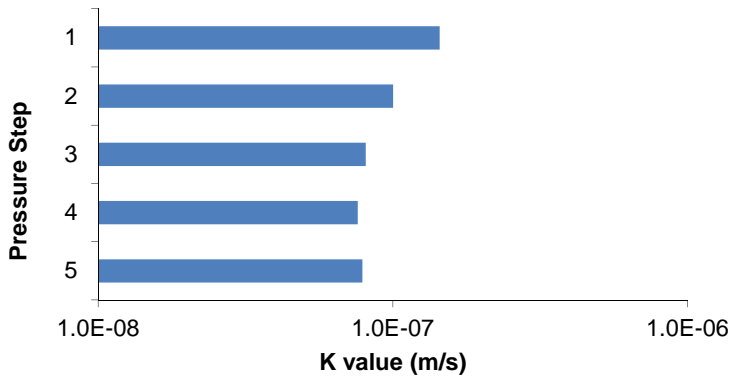
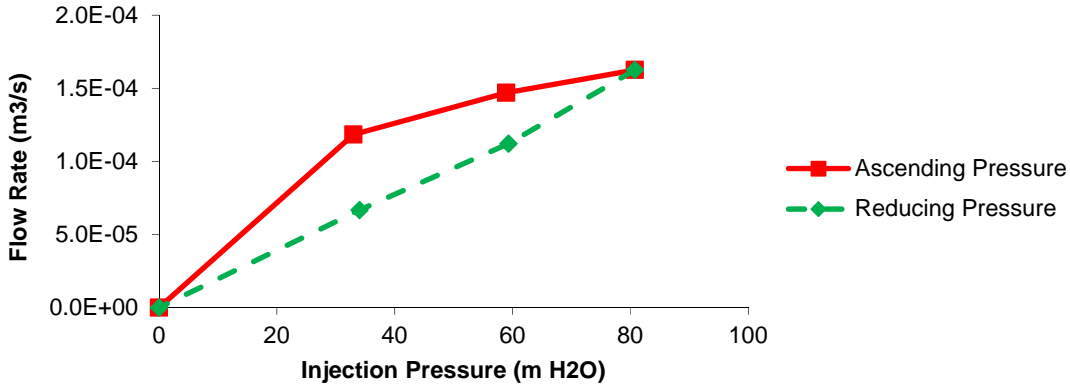
**Calculation Input Parameters**

Top of Packer Test Interval (mah): 132.5  
 Bottom of Packer Test Interval (mah): 161.0  
 L: Length of Test Interval (mah): 28.5  
 Test Interval Midpoint (mah): 146.8  
 Stickup Height (mah): 2.00  
 Pressure Gauge Height (m above ground): 1.50  
 Depth to Water Table (mah): 12.00  
 Borehole Diameter (mm): 76.000  
 r: Borehole Radius (m): 0.038  
 A: Angle From Horizontal (deg): -65  
 \* mah indicates "meters along hole"

$$K = \frac{Q \times \ln\left(\frac{L \sin(A)}{r}\right)}{2 \times \pi \times L \sin(A) \times dH}$$

Pressure Step	Pressure (psi)	Pressure (kPa)	Pressure (m of water)	Head Differential dH (m)	Flowrate Q (m <sup>3</sup> /s):	Hydraulic Conductivity K (m/s)
1	31.9	220.0	22.4	33.0	1.2E-04	1.4E-07
2	68.8	474.3	48.4	58.9	1.5E-04	1.0E-07
3	99.8	688.3	70.2	80.8	1.6E-04	8.1E-08
4	69.3	478.0	48.7	59.3	1.1E-04	7.6E-08
5	33.4	230.0	23.5	34.0	6.7E-05	7.9E-08
<b>Geometric Mean:</b>						<b>9.3E-08</b>

**Diagnostic Plots**



## Constant Head (CH) and Falling/Rising Head (F/RH) Packer Test - Field Form

**Client:** BMC / Equity  
**Project:** Kudz Ze Kayah  
**Project #:** ENVMIN03071-01  
**Personnel:** Eliane Roy

**Collar El.:** 1424 m  
**Trend:** 180 deg  
**Plunge:** -75 deg  
**Date:** 10-Sep-15

**Hole #:** ABM50 / K15-248  
**Hole Size:** HQ  
**Design Test Interval:** 46.5 to 52.5 m  
**Test #:** 1

**Packer Setup Type: Single**

Pressure Interval 1	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	90.0	106.9595	-
1	90.0	106.9597	0.0002
2	90.0	106.9597	0.0000
3	90.0	106.9597	0.0000
4			
5			
6			
7			
8			
9			
10			

Stable Ave. 90.0 0.0001

Pressure Interval 2	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	180.0	106.9600	-
1	180.0	106.9605	0.0005
2	180.0	106.9607	0.0002
3	180.0	106.9610	0.0003
4	180.0	106.9617	0.0007
5	180.0	106.9620	0.0003
6			
7			
8			
9			
10			

Stable Ave. 180.0 0.0004

Pressure Interval 3	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	270	106.9622	-
1	270	106.9622	0.0000
2	270	106.9625	0.0003
3	270	106.9630	0.0005
4	270	106.9632	0.0002
5	270	106.9635	0.0003
6			
7			
8			
9			
10			

Stable Ave. 270.0 0.0003

Pressure Interval 4	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	180	106.9640	-
1	180	106.9642	0.0002
2	180	106.9650	0.0008
3	180	106.9652	0.0002
4	180	106.9655	0.0003
5	180	106.9660	0.0005
6			
7			
8			
9			
10			

Stable Ave. 180.0 0.0004

Pressure Interval 5	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	90	106.9662	-
1	90	106.9665	0.0003
2	90	106.9665	0.0000
3	90	106.9665	0.0000
4	90	106.9665	0.0000
5	90	106.9665	0.0000
6			
7			
8			
9			
10			

Stable Ave. 90.0 0.0001

Pressure Interval 6	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

**Measurements**

Depth to Water from Top of Stickup: 33.5 m toc  
 Top of Packer Interval: 46.50 m ah\*  
 Bottom of Packer Interval (or Bottom of Hole): 52.50 m ah  
 Packer Inflation Pressure: 320 psi  
 Rod Stickup Height: 2.00 m ags  
 Water Flushed (Vol./Time/Until Clean):  
 Packer Pipe ID/ or Drill Rod ID (circle one):  
 Borehole Outside Diameter: 96 mm  
 Vertical height of gauge above ground: 1.50 m ags  
 \* m ah - metres along hole

**Measurement Units**

Volume: m<sup>3</sup>  
 Pressure: kPa (psi for packer inflation)  
 Length: m

**Time**

No mud used, just flushing cuttings  
 Start Flushing: -  
 End Flushing: -  
 Start Packer Testing: 9:00 PM  
 End Packer Testing: 9:32 PM

**FALLING HEAD TEST or RISING HEAD TEST**

Time (Min)	Depth to H2O (m)	Δ Depth/Min
0		-
1		
2		
4		
6		
8		
10		
15		
20		
25		
30		
40		
50		
60		

**Additional Comments:** No return while drilling since start of hole. Return when flushing the hole though. Very crumbly, clay rich fractures ranging from mm to about 1dm thick. Quartz seams. Casing advanced to 18m, competent rock starting at ~24m.  
 Triple packer with 4X 1.5m extension = 6m interval.

Hole #: ABM50 / K15-248  
 Test #: 1



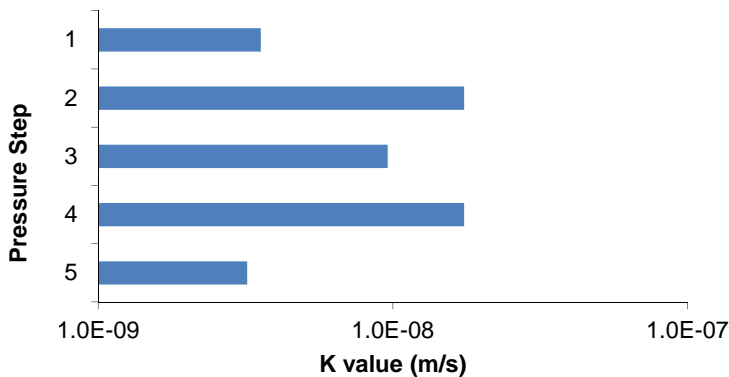
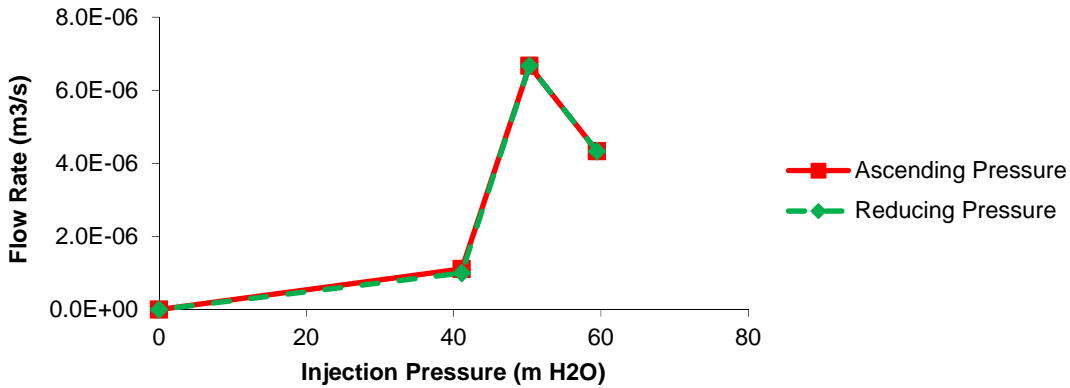
**Calculation Input Parameters**

Top of Packer Test Interval (mah): 46.5  
 Bottom of Packer Test Interval (mah): 52.5  
 L: Length of Test Interval (mah): 6.0  
 Test Interval Midpoint (mah): 49.5  
 Stickup Height (mah): 2.00  
 Pressure Gauge Height (m above ground): 1.50  
 Depth to Water Table (mah): 33.50  
 Borehole Diameter (mm): 96.000  
 r: Borehole Radius (m): 0.048  
 A: Angle From Horizontal (deg): -75  
 \* mah indicates "meters along hole"

$$K = \frac{Q \times \ln\left(\frac{L \sin(A)}{r}\right)}{2 \times \pi \times L \sin(A) \times dH}$$

Pressure Step	Pressure (psi)	Pressure (kPa)	Pressure (m of water)	Head Differential dH (m)	Flowrate Q (m <sup>3</sup> /s):	Hydraulic Conductivity K (m/s)
1	13.1	90.0	9.2	41.1	1.1E-06	3.6E-09
2	26.1	180.0	18.4	50.3	6.7E-06	1.7E-08
3	39.2	270.0	27.5	59.5	4.3E-06	9.6E-09
4	26.1	180.0	18.4	50.3	6.7E-06	1.7E-08
5	13.1	90.0	9.2	41.1	1.0E-06	3.2E-09
<b>Geometric Mean:</b>						<b>8.0E-09</b>

**Diagnostic Plots**



## Constant Head (CH) and Falling/Rising Head (F/RH) Packer Test - Field Form

**Client:** BMC / Equity  
**Project:** Kudz Ze Kayah  
**Project #:** ENVMIN03071-01  
**Personnel:** KRR

**Collar El.:** 1424 m  
**Trend:** 180 deg  
**Plunge:** -75 deg  
**Date:** 10-Sep-15

**Hole #:** ABM50 / K15-248  
**Hole Size:** HQ  
**Design Test Interval:** 169.5 to 175.5 m  
**Test #:** 2

**Packer Setup Type: Single**

Pressure Interval 1	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	300.0	106.6030	-
1	300.0	106.6040	0.0010
2	300.0	106.6045	0.0005
3	300.0	106.6050	0.0005
4	300.0	106.6055	0.0005
5	300.0	106.6060	0.0005
6			
7			
8			
9			
10			

Stable Ave. 300.0 0.0006

Pressure Interval 2	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	480.0	106.6060	-
1	480.0	106.6068	0.0008
2	480.0	106.6075	0.0007
3	480.0	106.6082	0.0007
4	480.0	106.6085	0.0003
5	480.0	106.6090	0.0005
6			
7			
8			
9			
10			

Stable Ave. 480.0 0.0006

Pressure Interval 3	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	680	106.6098	-
1	680	106.6100	0.0002
2	690	106.6105	0.0005
3	690	106.6110	0.0005
4	690	106.6115	0.0005
5	690	106.6120	0.0005
6			
7			
8			
9			
10			

Stable Ave. 688.0 0.0004

Pressure Interval 4	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	480	106.6120	-
1	480		
2	480	106.6125	0.0003
3	480	106.6130	0.0005
4	480	106.6135	0.0005
5	480	106.6140	0.0005
6			
7			
8			
9			
10			

Stable Ave. 480.0 0.0004

Pressure Interval 5	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	280	106.6142	-
1	280	106.6150	0.0008
2	260	106.6155	0.0005
3	260	106.6160	0.0005
4	260	106.6170	0.0010
5	260	106.6178	0.0008
6			
7			
8			
9			
10			

Stable Ave. 264.0 0.0007

Pressure Interval 6	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

**Measurements**

Depth to Water from Top of Stickup: 18.5 m toc  
 Top of Packer Interval: 169.50 m ah\*  
 Bottom of Packer Interval (or Bottom of Hole): 175.50 m ah  
 Packer Inflation Pressure: 550 psi  
 Rod Stickup Height: 2.00 m ags  
 Water Flushed (Vol./Time/Until Clean): 30  
 Packer Pipe ID/ or Drill Rod ID (circle one):  
 Borehole Outside Diameter: 96 mm  
 Vertical height of gauge above ground: 1.50 m ags  
 \* m ah - metres along hole

**Measurement Units**

Volume: m<sup>3</sup>  
 Pressure: kPa (psi for packer inflation)  
 Length: m

**Time**

Start Flushing: -  
 End Flushing: -  
 Start Packer Testing:  
 End Packer Testing:

**FALLING HEAD TEST or RISING HEAD TEST**

Time (Min)	Depth to H2O (m)	Δ Depth/Min
0		-
1		
2		
4		
6		
8		
10		
15		
20		
25		
30		
40		
50		
60		

**Additional Comments:** Small leak form stuffing box, pinhole in diameter.



Hole #: ABM50 / K15-248  
 Test #: 2



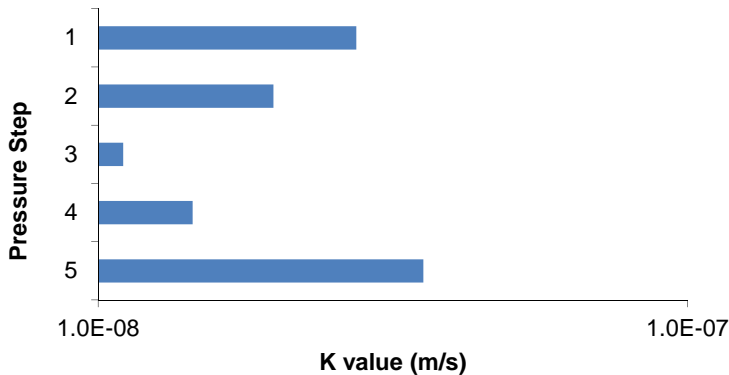
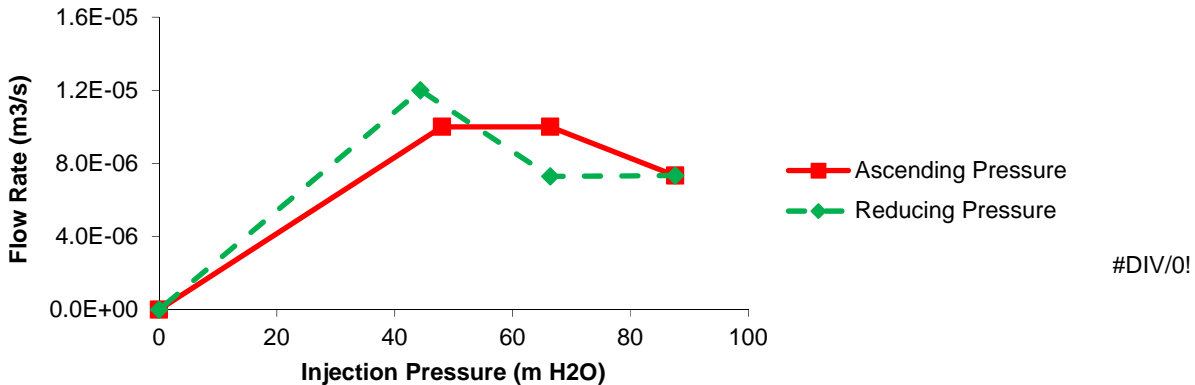
**Calculation Input Parameters**

Top of Packer Test Interval (mah): 169.5  
 Bottom of Packer Test Interval (mah): 175.5  
 L: Length of Test Interval (mah): 6.0  
 Test Interval Midpoint (mah): 172.5  
 Stickup Height (mah): 2.00  
 Pressure Gauge Height (m above ground): 1.50  
 Depth to Water Table (mah): 18.50  
 Borehole Diameter (mm): 96.000  
 r: Borehole Radius (m): 0.048  
 A: Angle From Horizontal (deg): -75  
 \* mah indicates "meters along hole"

$$K = \frac{Q \times \ln\left(\frac{L \sin(A)}{r}\right)}{2 \times \pi \times L \sin(A) \times dH}$$

Pressure Step	Pressure (psi)	Pressure (kPa)	Pressure (m of water)	Head Differential dH (m)	Flowrate Q (m <sup>3</sup> /s):	Hydraulic Conductivity K (m/s)
1	43.5	300.0	30.6	48.0	1.0E-05	2.7E-08
2	69.6	480.0	48.9	66.4	1.0E-05	2.0E-08
3	99.8	688.0	70.2	87.6	7.3E-06	1.1E-08
4	69.6	480.0	48.9	66.4	7.3E-06	1.4E-08
5	38.3	264.0	26.9	44.4	1.2E-05	3.6E-08
<b>Geometric Mean:</b>						<b>2.0E-08</b>

**Diagnostic Plots**



## Constant Head (CH) and Falling/Rising Head (F/RH) Packer Test - Field Form

**Client:** BMC / Equity  
**Project:** Kudz Ze Kayah  
**Project #:** ENVMIN03071-01  
**Personnel:** KRR

**Collar El.:** 1424 m  
**Trend:** 180 deg  
**Plunge:** -75 deg  
**Date:** 9-Sep-15

**Hole #:** ABM50 / K15-248  
**Hole Size:** HQ  
**Design Test Interval:** 226.5 to 240 m  
**Test #:** 3

**Packer Setup Type: Single**

Pressure Interval 1	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	290.0	105.3140	-
1	280.0	105.3200	0.0060
2	280.0	105.3250	0.0050
3	290.0	105.3310	0.0060
4	290.0	105.3370	0.0060
5			
6			
7			
8			
9			
10			

Stable Ave. 285.0 0.0058

Pressure Interval 2	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	450.0	105.6820	-
1	450.0	105.6830	0.0010
2	450.0	105.6840	0.0010
3	450.0	105.6840	0.0000
4	440.0	105.6845	0.0005
5	440.0	105.6850	0.0005
6			
7			
8			
9			
10			

Stable Ave. 446.0 0.0006

Pressure Interval 3	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	680	105.6855	-
1	680	105.6860	0.0005
2	660	105.6870	0.0010
3	640	105.6870	0.0000
4	640	105.6875	0.0005
5	640	105.6880	0.0005
6			
7			
8			
9			
10			

Stable Ave. 652.0 0.0005

Pressure Interval 4	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	500	105.6880	-
1	500	105.6885	0.0005
2	500	105.6890	0.0005
3	500	105.6895	0.0005
4	500	105.6900	0.0005
5			
6			
7			
8			
9			
10			

Stable Ave. 500.0 0.0005

Pressure Interval 5	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	280	105.6130	-
1	240	105.6130	0.0000
2	240	105.6130	0.0000
3	240	105.6130	0.0000
4			
5			
6			
7			
8			
9			
10			

Stable Ave. 240.0 0.0000

Pressure Interval 6	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

**Measurements**

Depth to Water from Top of Stickup: 10.0 m toc  
 Top of Packer Interval: 226.50 m ah\*  
 Bottom of Packer Interval (or Bottom of Hole): 240.00 m ah  
 Packer Inflation Pressure: 600 psi  
 Rod Stickup Height: 2.00 m ags  
 Water Flushed (Vol./Time/Until Clean):  
 Packer Pipe ID/ or Drill Rod ID (circle one):  
 Borehole Outside Diameter: 96 mm  
 Vertical height of gauge above ground: 1.50 m ags  
 \* m ah - metres along hole

**Measurement Units**

Volume: m<sup>3</sup>  
 Pressure: kPa (psi for packer inflation)  
 Length: m

**Time**

Start Flushing: 10:27 AM  
 End Flushing: 11:00 AM  
 Start Packer Testing: 11:45 AM  
 End Packer Testing: 12:10 PM

**FALLING HEAD TEST or RISING HEAD TEST**

Time (Min)	Depth to H2O (m)	Δ Depth/Min
0		-
1		
2		
4		
6		
8		
10		
15		
20		
25		
30		
40		
50		
60		

**Additional Comments:** Packers holding pressure, no leaks from stuffing box. Difficult to reach min p, increased packers pressure to 600psi. Packer was holding pressure but flow decreased.  
 Packer was likely leaking for first pressure step - do not use for analysis.

Hole #: ABM50 / K15-248  
 Test #: 3



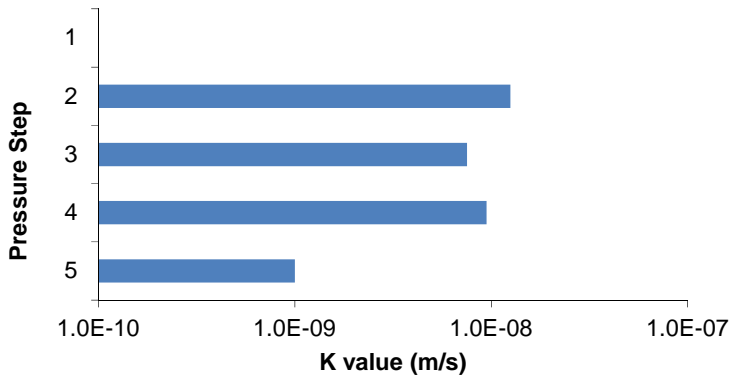
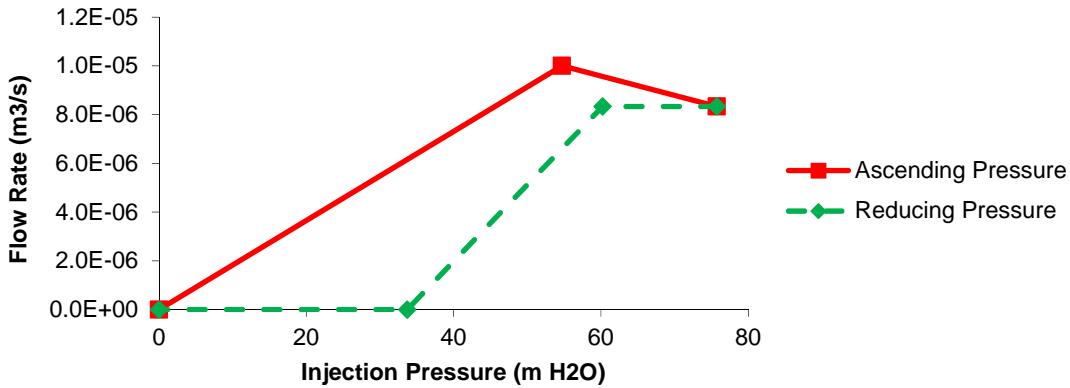
**Calculation Input Parameters**

Top of Packer Test Interval (mah): 226.5  
 Bottom of Packer Test Interval (mah): 240.0  
 L: Length of Test Interval (mah) 13.5  
 Test Interval Midpoint (mah): 233.3  
 Stickup Height (mah): 2.00  
 Pressure Gauge Height (m above ground): 1.50  
 Depth to Water Table (mah): 10.00  
 Borehole Diameter (mm): 96.000  
 r: Borehole Radius (m): 0.048  
 A: Angle From Horizontal (deg): -75  
 \* mah indicates "meters along hole"

$$K = \frac{Q \times \ln\left(\frac{L \sin(A)}{r}\right)}{2 \times \pi \times L \sin(A) \times dH}$$

Pressure Step	Pressure (psi)	Pressure (kPa)	Pressure (m of water)	Head Differential dH (m)	Flowrate Q (m <sup>3</sup> /s):	Hydraulic Conductivity K (m/s)
1						
2	64.7	446.0	45.5	54.7	1.0E-05	1.3E-08
3	94.6	652.0	66.5	75.7	8.3E-06	7.5E-09
4	72.5	500.0	51.0	60.2	8.3E-06	9.5E-09
5	34.8	240.0	24.5	33.7	0.0E+00	1.0E-09
<b>Geometric Mean:</b>						<b>5.5E-09</b>

**Diagnostic Plots**



## Constant Head (CH) and Falling/Rising Head (F/RH) Packer Test - Field Form

**Client:** BMC / Equity  
**Project:** Kudz Ze Kayah  
**Project #:** ENVMIN03071-01  
**Personnel:** Eliane Roy

**Collar El.:** 1424 m  
**Trend:** 180 deg  
**Plunge:** -75 deg  
**Date:** 10-Sep-15

**Hole #:** ABM50 / K15-248  
**Hole Size:** HQ  
**Design Test Interval:** 244.5 - 279 m  
**Test #:** 4

**Packer Setup Type: Single**

Pressure Interval 1	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	240.0	105.6792	-
1	240.0	105.6795	0.0003
2	240.0	105.6800	0.0005
3	240.0	105.6802	0.0002
4	240.0	105.6810	0.0008
5	240.0	105.6810	0.0000
6	240.0	105.6820	0.0010
7			
8			
9			
10			

Stable Ave. 240.0 0.0005

Pressure Interval 2	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	470.0	105.6830	-
1	470.0		
2	470.0	105.6845	0.0007
3	475.0	105.6850	0.0005
4	475.0	105.6850	0.0000
5	480.0	105.6865	0.0015
6			
7			
8			
9			
10			

Stable Ave. 474.0 0.0007

Pressure Interval 3	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	695	105.6877	-
1	700	105.6882	0.0005
2	700	105.6895	0.0013
3	700	105.6902	0.0007
4	700	105.6912	0.0010
5	700	105.6920	0.0008
6			
7			
8			
9			
10			

Stable Ave. 700.0 0.0009

Pressure Interval 4	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	470	105.6927	-
1	475	105.6935	0.0008
2	475	105.6942	0.0007
3	480	105.6950	0.0008
4	480	105.6957	0.0007
5	470	105.6962	0.0005
6	475	105.6975	0.0013
7			
8			
9			
10			

Stable Ave. 475.8 0.0008

Pressure Interval 5	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	230	105.6980	-
1	230	105.6982	0.0002
2	230	105.6990	0.0008
3	230	105.7000	0.0010
4	230	105.7002	0.0002
5	230	105.7010	0.0008
6			
7			
8			
9			
10			

Stable Ave. 230.0 0.0006

Pressure Interval 6	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

**Measurements**

Depth to Water from Top of Stickup: 8.0 m toc  
 Top of Packer Interval: 244.50 m ah\*  
 Bottom of Packer Interval (or Bottom of Hole): 279.00 m ah  
 Packer Inflation Pressure: 625 psi  
 Rod Stickup Height: 2.00 m ags  
 Water Flushed (Vol./Time/Until Clean):  
 Packer Pipe ID/ or Drill Rod ID (circle one):  
 Borehole Outside Diameter: 96 mm  
 Vertical height of gauge above ground: 1.50 m ags  
 \* m ah - metres along hole

**Measurement Units**

Volume: m<sup>3</sup>  
 Pressure: kPa (psi for packer inflation)  
 Length: m

**Time**

No mud used, just flushing cuttings  
 Start Flushing: -  
 End Flushing: ~ 45 min  
 Start Packer Testing: 5:15 AM  
 End Packer Testing: 5:48 AM

**FALLING HEAD TEST or RISING HEAD TEST**

Time (Min)	Depth to H2O (m)	Δ Depth/Min
0		-
1		
2		
4		
6		
8		
10		
15		
20		
25		
30		
40		
50		
60		

**Additional Comments:** Bottom of hole very altered, lots of clay. Rock started to get better past 243m.

Hole #: ABM50 / K15-248  
 Test #: 4



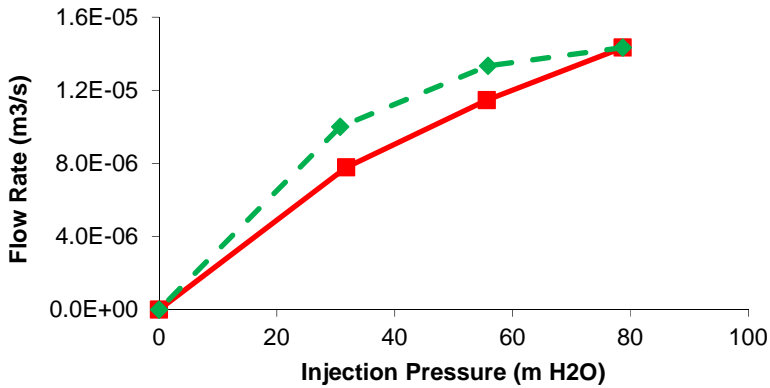
**Calculation Input Parameters**

Top of Packer Test Interval (mah): 244.5  
 Bottom of Packer Test Interval (mah): 279.0  
 L: Length of Test Interval (mah): 34.5  
 Test Interval Midpoint (mah): 261.8  
 Stickup Height (mah): 2.00  
 Pressure Gauge Height (m above ground): 1.50  
 Depth to Water Table (mah): 8.00  
 Borehole Diameter (mm): 96.000  
 r: Borehole Radius (m): 0.048  
 A: Angle From Horizontal (deg): -75  
 \* mah indicates "meters along hole"

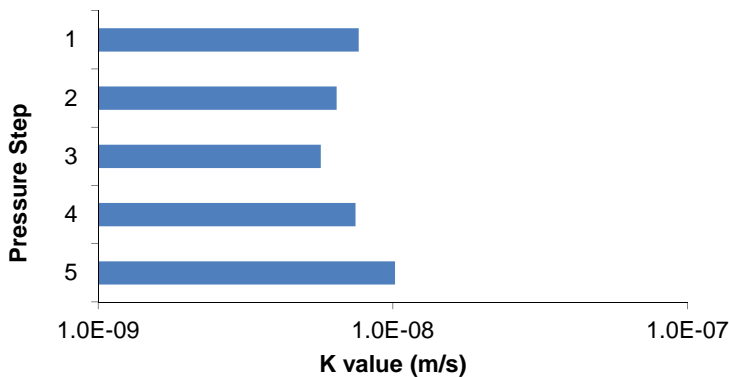
$$K = \frac{Q \times \ln\left(\frac{L \sin(A)}{r}\right)}{2 \times \pi \times L \sin(A) \times dH}$$

Pressure Step	Pressure (psi)	Pressure (kPa)	Pressure (m of water)	Head Differential dH (m)	Flowrate Q (m <sup>3</sup> /s):	Hydraulic Conductivity K (m/s)
1	34.8	240.0	24.5	31.8	7.8E-06	7.6E-09
2	68.7	474.0	48.3	55.6	1.1E-05	6.4E-09
3	101.5	700.0	71.4	78.7	1.4E-05	5.7E-09
4	69.0	475.8	48.5	55.8	1.3E-05	7.5E-09
5	33.4	230.0	23.5	30.8	1.0E-05	1.0E-08
<b>Geometric Mean:</b>						<b>7.3E-09</b>

**Diagnostic Plots**



#DIV/0!



## Constant Head (CH) and Falling/Rising Head (F/RH) Packer Test - Field Form

**Client:** BMC / Equity  
**Project:** Kudz Ze Kayah  
**Project #:** ENV/MIN03071-01  
**Personnel:** Kristen Range

**Collar El.:** 1424 m  
**Trend:** 180 deg  
**Plunge:** -55 deg  
**Date:** 19-Sep-15

**Hole #:** ABM51R / K15-265  
**Hole Size:** NQ  
**Design Test Interval:** 70.5 - 90  
**Test #:** 1

**Packer Setup Type: Single**

Pressure Interval 1	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	170.0	107.6020	-
1	170.0	107.6045	0.0025
2	170.0	107.6070	0.0025
3	170.0	107.6090	0.0020
4	170.0	107.6115	0.0025
5			
6			
7			
8			
9			
10			

Stable Ave. 170.0 0.0024

Pressure Interval 2	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	280.0	107.6150	-
1	270.0	107.6180	
2	270.0	107.6210	0.0030
3	270.0	107.6240	0.0030
4	270.0	107.6270	0.0030
5			
6			
7			
8			
9			
10			

Stable Ave. 270.0 0.0030

Pressure Interval 3	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	420	107.6290	-
1	400	107.6330	0.0040
2	400	107.6360	0.0030
3	400	107.6400	0.0040
4	400	107.6435	0.0035
5			
6			
7			
8			
9			
10			

Stable Ave. 400.0 0.0036

Pressure Interval 4	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	280	107.6450	-
1	250	107.6475	0.0025
2	280	107.6500	0.0025
3	280	107.6530	0.0030
4	280	107.6560	0.0030
5			
6			
7			
8			
9			
10			

Stable Ave. 272.5 0.0028

Pressure Interval 5	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	130	107.6670	-
1	130	107.6690	0.0020
2	130	107.6715	0.0025
3	130	107.6735	0.0020
4	130	107.6755	0.0020
5			
6			
7			
8			
9			
10			

Stable Ave. 130.0 0.0021

Pressure Interval 6	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

**Measurements**

Depth to Water from Top of Stickup: 30.0 m toc  
 Top of Packer Interval: 70.50 m ah\*  
 Bottom of Packer Interval (or Bottom of Hole): 90.00 m ah  
 Packer Inflation Pressure: 400 psi  
 Rod Stickup Height: 2.00 m ags  
 Water Flushed (Vol./Time/Until Clean):  
 Packer Pipe ID/ or Drill Rod ID (circle one):  
 Borehole Outside Diameter: 76 mm  
 Vertical height of gauge above ground: 1.50 m ags  
 \* m ah - metres along hole

**Measurement Units**

Volume: m<sup>3</sup>  
 Pressure: kPa (psi for packer inflation)  
 Length: m

**Time**

No mud used, just washing cuttings  
 Start Flushing: 6:40 AM  
 End Flushing: 7:00 AM  
 Start Packer Testing: -  
 End Packer Testing: -

**FALLING HEAD TEST or RISING HEAD TEST**

Time (Min)	Depth to H2O (m)	Δ Depth/Min
0		-
1		
2		
4		
6		
8		
10		
15		
20		
25		
30		
40		
50		
60		

**Additional Comments:**

Hole #: ABM51R / K15-265  
 Test #: 1



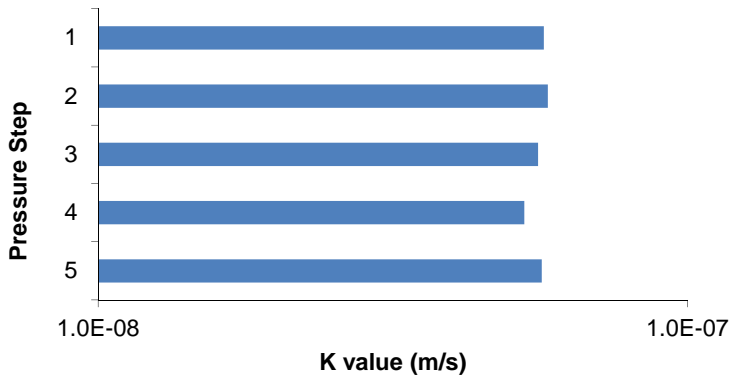
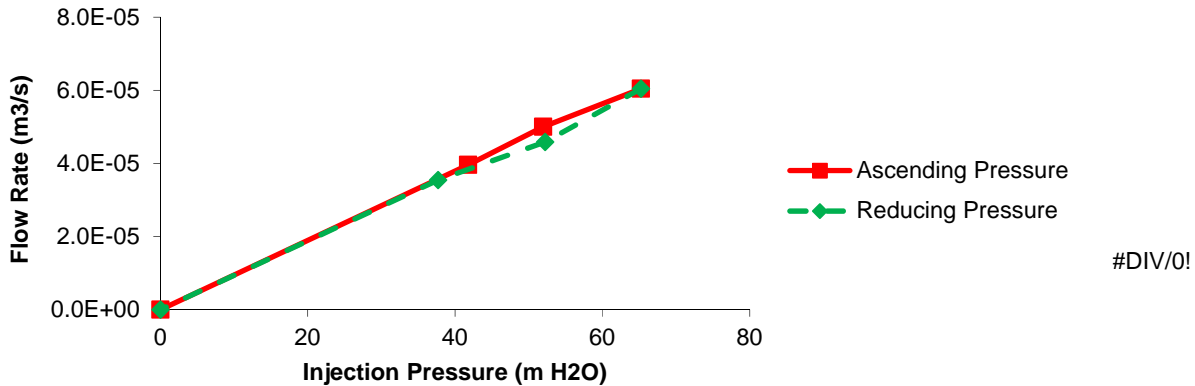
**Calculation Input Parameters**

Top of Packer Test Interval (mah): 70.5  
 Bottom of Packer Test Interval (mah): 90.0  
 L: Length of Test Interval (mah): 19.5  
 Test Interval Midpoint (mah): 80.3  
 Stickup Height (mah): 2.00  
 Pressure Gauge Height (m above ground): 1.50  
 Depth to Water Table (mah): 30.00  
 Borehole Diameter (mm): 76.000  
 r: Borehole Radius (m): 0.038  
 A: Angle From Horizontal (deg): -55  
 \* mah indicates "meters along hole"

$$K = \frac{Q \times \ln\left(\frac{L \sin(A)}{r}\right)}{2 \times \pi \times L \sin(A) \times dH}$$

Pressure Step	Pressure (psi)	Pressure (kPa)	Pressure (m of water)	Head Differential dH (m)	Flowrate Q (m <sup>3</sup> /s):	Hydraulic Conductivity K (m/s)
1	24.7	170.0	17.3	41.8	4.0E-05	5.7E-08
2	39.2	270.0	27.5	52.0	5.0E-05	5.8E-08
3	58.0	400.0	40.8	65.2	6.0E-05	5.6E-08
4	39.5	272.5	27.8	52.2	4.6E-05	5.3E-08
5	18.9	130.0	13.3	37.7	3.5E-05	5.7E-08
<b>Geometric Mean:</b>						<b>5.6E-08</b>

**Diagnostic Plots**



## Constant Head (CH) and Falling/Rising Head (F/RH) Packer Test - Field Form

**Client:** BMC / Equity  
**Project:** Kudz Ze Kayah  
**Project #:** ENV/MIN03071-01  
**Personnel:** Kristen Range

**Collar El.:** 1424 m  
**Trend:** 180 deg  
**Plunge:** -55 deg  
**Date:** 20-Sep-15

**Hole #:** ABM51R / K15-265  
**Hole Size:** NQ  
**Design Test Interval:** 133.5 - 153  
**Test #:** 2

### Packer Setup Type: Single

Pressure Interval 1	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	220.0	107.8370	-
1	220.0	107.8400	0.0030
2	220.0	107.8430	0.0030
3	220.0	107.8460	0.0030
4	220.0	107.8485	0.0025
5	220.0	107.8510	0.0025
6			
7			
8			
9			
10			

Stable Ave. 220.0 0.0028

Pressure Interval 2	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	420.0	107.8540	-
1	440.0	107.8580	
2	450.0	107.8615	0.0038
3	420.0	107.8650	0.0035
4	440.0	107.8680	0.0030
5	450.0	107.8715	0.0035
6			
7			
8			
9			
10			

Stable Ave. 440.0 0.0034

Pressure Interval 3	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	640	107.8760	-
1	600	107.8800	0.0040
2	620	107.8840	0.0040
3	640	107.8875	0.0035
4	600	107.8910	0.0035
5	620	107.8945	0.0035
6			
7			
8			
9			
10			

Stable Ave. 616.0 0.0037

Pressure Interval 4	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	390	107.8950	-
1	420	107.8960	0.0010
2	420	107.8985	0.0025
3	420	107.9005	0.0020
4	430	107.9030	0.0025
5	430	107.9050	0.0020
6			
7			
8			
9			
10			

Stable Ave. 424.0 0.0020

Pressure Interval 5	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	200	107.9055	-
1	200	107.9065	0.0010
2	200	107.9075	0.0010
3	200	107.9090	0.0015
4	200	107.9100	0.0010
5	200	107.9115	0.0015
6			
7			
8			
9			
10			

Stable Ave. 200.0 0.0012

Pressure Interval 6	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

### Measurements

assume  
 Depth to Water from Top of Stickup: 25.0 m toc  
 Top of Packer Interval: 133.50 m ah\*  
 Bottom of Packer Interval (or Bottom of Hole): 153.00 m ah  
 Packer Inflation Pressure: 450 psi  
 Rod Stickup Height: 2.00 m ags  
 Water Flushed (Vol./Time/Until Clean): 15 min  
 Packer Pipe ID/ or Drill Rod ID (circle one):  
 Borehole Outside Diameter: 76 mm  
 Vertical height of gauge above ground: 1.50 m ags  
 \* m ah - metres along hole

### Measurement Units

Volume: m<sup>3</sup>  
 Pressure: kPa (psi for packer inflation)  
 Length: m

### Time

No mud used, just washing cuttings  
 Start Flushing: 9:45 AM  
 End Flushing: 10:00 AM  
 Start Packer Testing: 10:25 AM  
 End Packer Testing: 10:55 AM

### FALLING HEAD TEST or RISING HEAD TEST

Time (Min)	Depth to H2O (m)	Δ Depth/Min
0		-
1		
2		
4		
6		
8		
10		
15		
20		
25		
30		
40		
50		
60		

**Additional Comments:**



Hole #: ABM51R / K15-265  
 Test #: 2



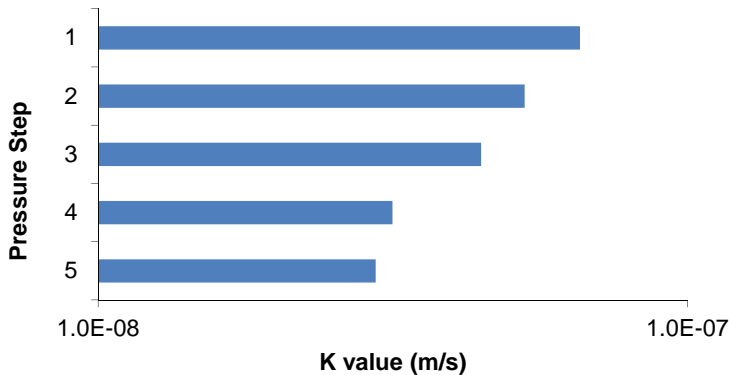
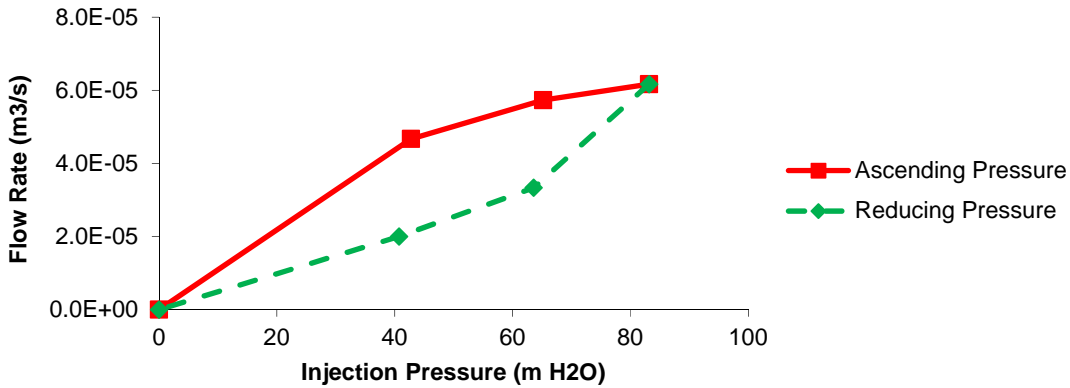
**Calculation Input Parameters**

Top of Packer Test Interval (mah): 133.5  
 Bottom of Packer Test Interval (mah): 153.0  
 L: Length of Test Interval (mah): 19.5  
 Test Interval Midpoint (mah): 143.3  
 Stickup Height (mah): 2.00  
 Pressure Gauge Height (m above ground): 1.50  
 Depth to Water Table (mah): 25.00  
 Borehole Diameter (mm): 76.000  
 r: Borehole Radius (m): 0.038  
 A: Angle From Horizontal (deg): -55  
 \* mah indicates "meters along hole"

$$K = \frac{Q \times \ln\left(\frac{L \sin(A)}{r}\right)}{2 \times \pi \times L \sin(A) \times dH}$$

Pressure Step	Pressure (psi)	Pressure (kPa)	Pressure (m of water)	Head Differential dH (m)	Flowrate Q (m <sup>3</sup> /s):	Hydraulic Conductivity K (m/s)
1	31.9	220.0	22.4	42.8	4.7E-05	6.6E-08
2	63.8	440.0	44.9	65.2	5.7E-05	5.3E-08
3	89.3	616.0	62.8	83.2	6.2E-05	4.5E-08
4	61.5	424.0	43.2	63.6	3.3E-05	3.2E-08
5	29.0	200.0	20.4	40.7	2.0E-05	3.0E-08
<b>Geometric Mean:</b>						<b>4.3E-08</b>

**Diagnostic Plots**



## Constant Head (CH) and Falling/Rising Head (F/RH) Packer Test - Field Form

**Client:** BMC / Equity  
**Project:** Kudz Ze Kayah  
**Project #:** ENVMIN03071-01  
**Personnel:** Kristen Range

**Collar El.:** 1424 m  
**Trend:** 180 deg  
**Plunge:** -55 deg  
**Date:** 20-Sep-15

**Hole #:** ABM51R / K15-265  
**Hole Size:** NQ  
**Design Test Interval:** 190.5 - 201  
**Test #:** 3

**Packer Setup Type: Single**

Pressure Interval 1	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	220.0	108.0060	-
1	220.0	108.0160	0.0100
2	220.0	108.0260	0.0100
3	220.0	108.0360	0.0100
4	220.0	108.0460	0.0100
5			
6			
7			
8			
9			
10			

Stable Ave. 220.0 0.0100

Pressure Interval 2	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	480.0	108.0560	-
1	480.0	108.0700	0.0140
2	480.0	108.0840	0.0140
3	480.0	108.0980	0.0140
4	480.0	108.1110	0.0130
5			
6			
7			
8			
9			
10			

Stable Ave. 480.0 0.0138

Pressure Interval 3	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	700	108.1250	-
1	700	108.1420	0.0170
2	700	108.1590	0.0170
3	700	108.1720	0.0130
4	700	108.1930	0.0210
5			
6			
7			
8			
9			
10			

Stable Ave. 700.0 0.0170

Pressure Interval 4	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	480	108.2050	-
1	480	108.2180	0.0130
2	480	108.2310	0.0130
3	480	108.2450	0.0140
4	480	108.2580	0.0130
5			
6			
7			
8			
9			
10			

Stable Ave. 480.0 0.0132

Pressure Interval 5	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	230	108.2650	-
1	230	108.2750	0.0100
2	230	108.2850	0.0100
3	230	108.2950	0.0100
4	230	108.3050	0.0100
5			
6			
7			
8			
9			
10			

Stable Ave. 230.0 0.0100

Pressure Interval 6	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			-
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

**Measurements**

assume  
 Depth to Water from Top of Stickup: 20.0 m toc  
 Top of Packer Interval: 190.50 m ah\*  
 Bottom of Packer Interval (or Bottom of Hole): 201.00 m ah  
 Packer Inflation Pressure: 500 psi  
 Rod Stickup Height: 2.00 m ags  
 Water Flushed (Vol./Time/Until Clean): 15  
 Packer Pipe ID/ or Drill Rod ID (circle one): \_\_\_\_\_  
 Borehole Outside Diameter: 76 mm  
 Vertical height of gauge above ground: 1.50 m ags  
 \* m ah - metres along hole

**Measurement Units**

Volume: m<sup>3</sup>  
 Pressure: kPa (psi for packer inflation)  
 Length: m

**Time**

Start Flushing: 9:55 PM  
 End Flushing: 10:10 PM  
 Start Packer Testing: 10:30 PM  
 End Packer Testing: 11:00 PM

**FALLING HEAD TEST or RISING HEAD TEST**

Time (Min)	Depth to H2O (m)	Δ Depth/Min
0		-
1		
2		
4		
6		
8		
10		
15		
20		
25		
30		
40		
50		
60		

**Additional Comments:**

Hole #: ABM51R / K15-265  
 Test #: 3



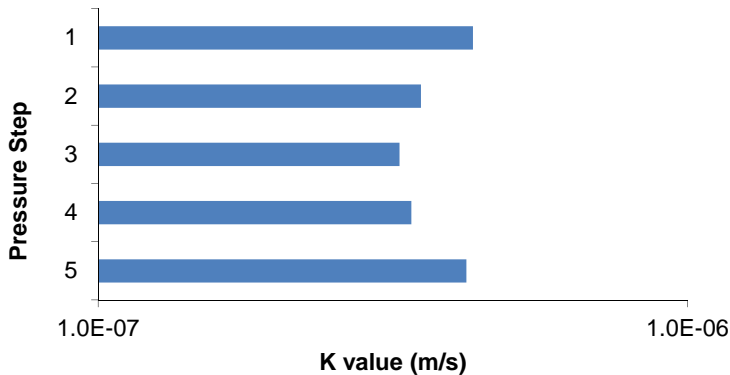
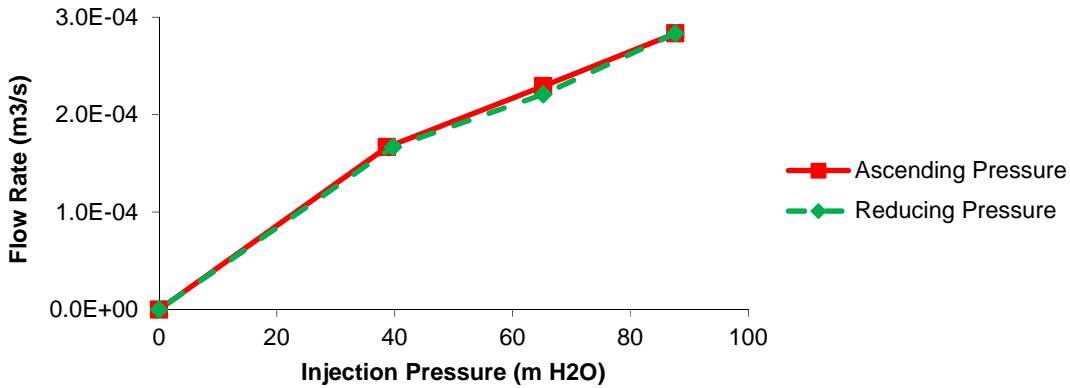
**Calculation Input Parameters**

Top of Packer Test Interval (mah): 190.5  
 Bottom of Packer Test Interval (mah): 201.0  
 L: Length of Test Interval (mah) 10.5  
 Test Interval Midpoint (mah): 195.8  
 Stickup Height (mah): 2.00  
 Pressure Gauge Height (m above ground): 1.50  
 Depth to Water Table (mah): 20.00  
 Borehole Diameter (mm): 76.000  
 r: Borehole Radius (m): 0.038  
 A: Angle From Horizontal (deg): -55  
 \* mah indicates "meters along hole"

$$K = \frac{Q \times \ln\left(\frac{L \sin(A)}{r}\right)}{2 \times \pi \times L \sin(A) \times dH}$$

Pressure Step	Pressure (psi)	Pressure (kPa)	Pressure (m of water)	Head Differential dH (m)	Flowrate Q (m <sup>3</sup> /s):	Hydraulic Conductivity K (m/s)
1	31.9	220.0	22.4	38.7	1.7E-04	4.3E-07
2	69.6	480.0	48.9	65.2	2.3E-04	3.5E-07
3	101.5	700.0	71.4	87.6	2.8E-04	3.2E-07
4	69.6	480.0	48.9	65.2	2.2E-04	3.4E-07
5	33.4	230.0	23.5	39.7	1.7E-04	4.2E-07
<b>Geometric Mean:</b>						<b>3.7E-07</b>

**Diagnostic Plots**



## Constant Head (CH) and Falling/Rising Head (F/RH) Packer Test - Field Form

**Client:** BMC / Equity  
**Project:** Kudz Ze Kayah  
**Project #:** ENVMIN03071-01  
**Personnel:** Kristen Range

**Collar El.:** 1424 m  
**Trend:** 180 deg  
**Plunge:** -55 deg  
**Date:** 21-Sep-15

**Hole #:** ABM51R / K15-265  
**Hole Size:** NQ  
**Design Test Interval:** 271.5 - 285  
**Test #:** 4

**Packer Setup Type: Single**

Pressure Interval 1	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	190.0	27.5130	-
1	210.0	27.5130	0.0000
2	210.0	27.5130	0.0000
3			
4			
5			
6			
7			
8			
9			
10			

Stable Ave. 210.0 0.0000

Pressure Interval 2	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	480.0	27.5139	-
1	480.0		
2	480.0		
3	480.0		
4	480.0		
5	480.0	27.5150	0.0002
6			
7			
8			
9			
10			

Stable Ave. 480.0 0.0002

Pressure Interval 3	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	680	27.5150	-
1	680		
2	680		
3	680		
4	680		
5	680	27.5168	0.0004
6			
7			
8			
9			
10			

Stable Ave. 680.0 0.0004

Pressure Interval 4	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	460	27.5168	-
1	460		
2	460		
3	460		
4	460		
5	460	27.5178	0.0002
6			
7			
8			
9			
10			

Stable Ave. 460.0 0.0002

Pressure Interval 5	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0	220	27.5178	-
1	220		
2	220		
3	220		
4	220	27.5183	0.0001
5			
6			
7			
8			
9			
10			

Stable Ave. 220.0 0.0001

Pressure Interval 6	Pressure	Volume	Δ Volume
Minutes	kPa	m3	m3
0			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

**Measurements**

assume  
 Depth to Water from Top of Stickup: 10.0 m toc  
 Top of Packer Interval: 271.50 m ah\*  
 Bottom of Packer Interval (or Bottom of Hole): 285.00 m ah  
 Packer Inflation Pressure: 550 psi  
 Rod Stickup Height: 2.00 m ags  
 Water Flushed (Vol./Time/Until Clean): 20  
 Packer Pipe ID/ or Drill Rod ID (circle one): \_\_\_\_\_  
 Borehole Outside Diameter: 76 mm  
 Vertical height of gauge above ground: 1.00 m ags  
 \* m ah - metres along hole

**Measurement Units**

Volume: m<sup>3</sup>  
 Pressure: kPa (psi for packer inflation)  
 Length: m

**Time**

Start Flushing: 5:00 AM  
 End Flushing: 5:20 AM  
 Start Packer Testing: 8:00 AM  
 End Packer Testing: 8:37 AM

**FALLING HEAD TEST or RISING HEAD TEST**

Time (Min)	Depth to H2O (m)	Δ Depth/Min
0		-
1		
2		
4		
6		
8		
10		
15		
20		
25		
30		
40		
50		
60		

**Additional Comments:** Last 10 m of core quite fractured. Otherwise, last 50 m of hole very competent rock. Fractures didn't have gouge so assumed they would take water but no.

Hole #: ABM51R / K15-265  
 Test #: 4



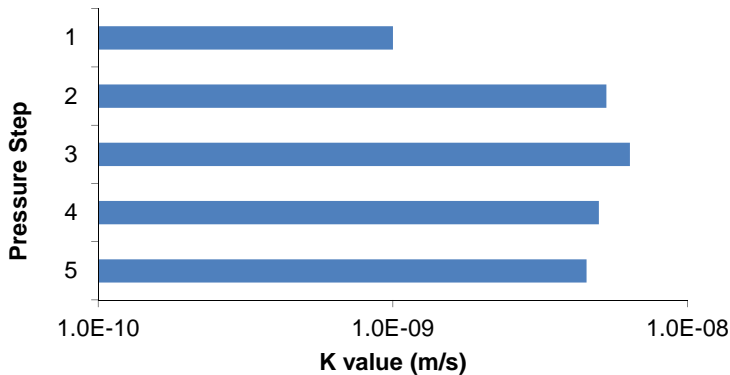
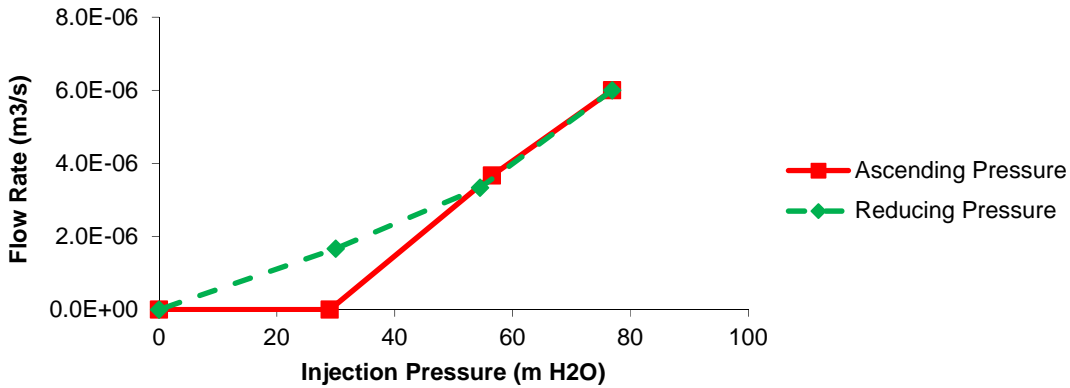
**Calculation Input Parameters**

Top of Packer Test Interval (mah): 271.5  
 Bottom of Packer Test Interval (mah): 285.0  
 L: Length of Test Interval (mah) 13.5  
 Test Interval Midpoint (mah): 278.3  
 Stickup Height (mah): 2.00  
 Pressure Gauge Height (m above ground): 1.00  
 Depth to Water Table (mah): 10.00  
 Borehole Diameter (mm): 76.000  
 r: Borehole Radius (m): 0.038  
 A: Angle From Horizontal (deg): -55  
 \* mah indicates "meters along hole"

$$K = \frac{Q \times \ln\left(\frac{L \sin(A)}{r}\right)}{2 \times \pi \times L \sin(A) \times dH}$$

Pressure Step	Pressure (psi)	Pressure (kPa)	Pressure (m of water)	Head Differential dH (m)	Flowrate Q (m <sup>3</sup> /s):	Hydraulic Conductivity K (m/s)
1	30.5	210.0	21.4	29.0	0.0E+00	1.0E-09
2	69.6	480.0	48.9	56.5	3.7E-06	5.3E-09
3	98.6	680.0	69.3	76.9	6.0E-06	6.4E-09
4	66.7	460.0	46.9	54.5	3.3E-06	5.0E-09
5	31.9	220.0	22.4	30.0	1.7E-06	4.5E-09
<b>Geometric Mean:</b>						<b>3.8E-09</b>

**Diagnostic Plots**





**Photo 1:** K15-211 / MW15-01: 1.50 – 8.23 m ah.



**Photo 2:** K15-211 / MW15-01: 8.23 – 20.00 m bg. Well screen interval 10.0 – 18.8 m bg.  
Packer test from 12.5 – 20.0 m bg.





**Photo 3:** K15-214 / MW15-02: 5.00 – 21.37 m bg. Packer test interval 12.5 – 32.0 m bg.



**Photo 4:** K15-214 / MW15-02: 21.37 – 32.00 m bg. Well screen interval 23.0 – 31.7 m bg. Packer test interval 12.5 – 32.0 m bg.



**Photo 5:** K15-222 / MW15-03S/D: 4.60 – 17.95 m bg. Well screen intervals 4.1 – 7.1 and 10.1 – 16.0 m bg.



**Photo 6:** K15-220 / MW15-04S: 5.60 – 24.88 m bg. Well screen interval 11.2 – 14.1 m bg.





**Photo 7:** K15-220 / MW15-04D: 24.88 – 33.00 m bg. Well screen interval 27.1 – 32.9 m bg.



**Photo 8:** K15-219 / MW15-05: 8.57 – 20.38 m bg.





**Photo 9:** K15-219 / MW15-05D: 20.38 – 30.00 m bg. Well screen interval 22.4 – 29.8 m bg.  
Test interval 22.5 – 30.0 m bg.



**Photo 10:** K15-215 / MW15-07D: 13.50 – 27.00 m bg. Well screen interval 26.3 – 32.1 m bg.  
Packer test interval 16.5 – 33.0 m bg.



**Photo 11:** K15-215 / MW15-07D: 27.00 – 33.00 m bg. Well screen interval 26.3 – 32.1 m bg.  
Packer test interval 16.5 – 33.0 m bg.



**Photo 12:** K15-212 / MW15-08D: 13.50 – 30.36 m bg.





**Photo 13:** K15-212 / MW15-08D: 30.36 – 36.00 m bg. Well screen interval 29.8 – 35.6 m bg.  
Packer test interval 19.5 – 36.0 m bg.



**Photo 14:** K15-208 / MW15-09D: 17.70 – 42.00 m bg. Well screen interval 35.1 – 40.9 m bg.  
Packer test interval 34.5 – 39.0 m bg.



**Photo 15:** K15-210 / MW15-10D: 12.00 – 36.00 m bg. Well screen interval 25.7 – 31.5 m bg.  
Packer test interval 28.5 – 33.0 m bg.



**Photo 16:** K15-318 / MW15-11: 7.50 – ~16.95 m bg.





**Photo 17:** K15-318 / MW15-11D: ~16.95 – ~26.25 m bg. Well screen interval 20.6 – 35.2 m bg.



**Photo 18:** K15-318 / MW15-11D: ~26.25 – 35 m bg. Well screen interval 20.6 – 35.2 m bg.



**Photo 1:** K15-200-WVP: 6.00 – 18.96 m ah. Packer Test #1 test interval 9.0 – 19.5 m ah.



**Photo 2:** K15-200-WVP: 18.96 – 31.95 m ah. Packer Test #1 test interval 9.0 – 19.5 m ah.



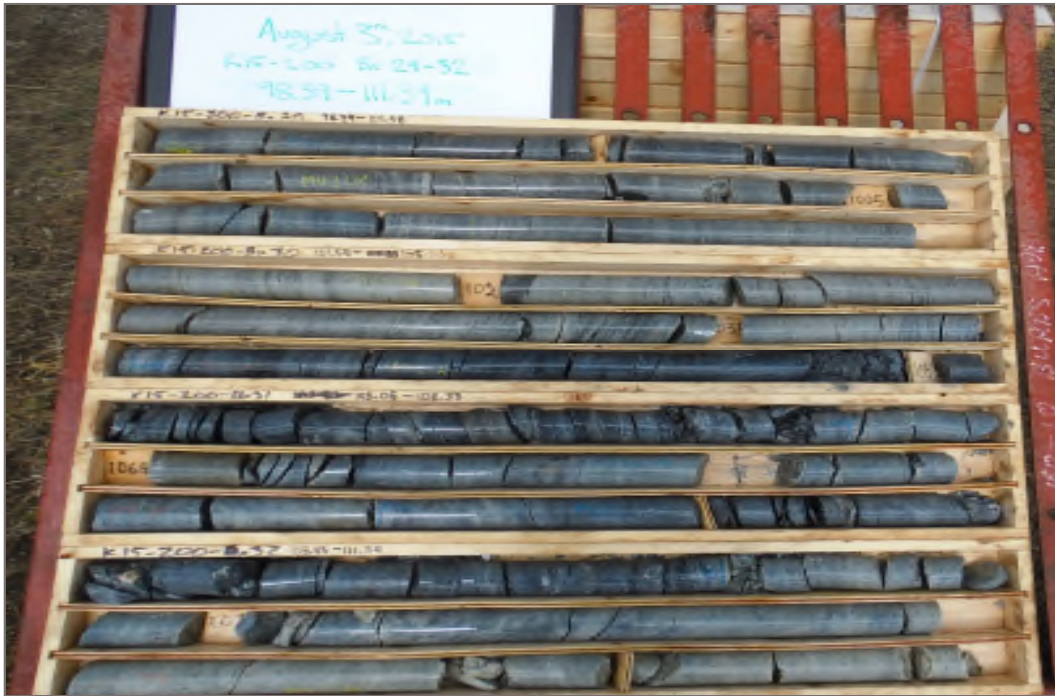


**Photo 3:** K15-200-WWP: 58.12 – 72.35 m ah. Packer Test #2 test interval 64.5 – 75.0 m ah.



**Photo 4:** K15-200-WWP: 72.35 – 85.43 m ah. Packer Test #2 test interval 64.5 – 75.0 m ah.





**Photo 5:** K15-200-WWP: 98.39 – 111.39 m ah. Packer Test #3 test interval 103.5 – 106.5 m ah.



**Photo 6:** K15-200-WWP: 124.50 – 137.31 m ah. Packer Test #4 test interval 127.5 – 138.0 m ah.



**Photo 7:** K15-200-WVP: 137.31 – 150.07 m ah. Packer Test #4 test interval 127.5 – 138.0 m ah.



**Photo 8:** K15-200-WVP: 188.53 – 201.57 m ah. Packer Test #5 test interval 198.0 – 211.5 m ah.





**Photo 9:** K15-200-WVP: 201.57 – 211.50 m ah. Packer Test #5 test interval 198.0 – 211.5 m ah.



**Photo 10:** K15-202: 8.00 – 22.80 m ah. Packer Test #1 test interval 21.5 – 32.0 m ah.



**Photo 11:** K15-202: 22.80 – 37.45 m ah. Packer Test #1 test interval 21.5 – 32.0 m ah.



**Photo 12:** K15-202: 50.90 – 66.11 m ah. Packer Test #2 test interval 57.5 – 71.0 m ah.





**Photo 13:** K15-202: 66.11 – 71.00 m ah. Packer Test #2 test interval 57.5 – 71.0 m ah.



**Photo 14:** K15-204: 6.00 – 26.00 m ah. Packer Test #1 test interval 21.5 – 35.0 m ah.



**Photo 15:** K15-204: 26.00 – 43.86 m ah. Packer Test #1 test interval 21.5 – 35.0 m ah.



**Photo 16:** K15-204: 62.22 – 81.24 m ah. Packer Test #2 test interval 72.5 – 95.0 m ah.





**Photo 17:** K15-204: 81.24 – 98.93 m ah. Packer Test #2 test interval 72.5 – 95.0 m ah.



**Photo 18:** K15-204: 116.88 – 135.10 m ah. Packer Test #3 test interval 123.5 – 149.0 m ah.





**Photo 19:** K15-204: 135.10 – 149.00 m ah. Packer Test #3 test interval 123.5 – 149.0 m ah.



**Photo 20:** K15-206: 9.00 – 30.70 m ah. Packer Test #1 test interval 13.5 – 24.0 m ah.





**Photo 21:** K15-206: 49.03 – 67.30 m ah. Packer Test #2 test interval 52.5 – 57.0 m ah.



**Photo 22:** K15-206: 85.55 – 103.60 m ah. Packer Test #3 test interval 94.5 – 114.0 m ah.



**Photo 23:** K15-206: 103.60 – 125.17 m ah. Packer Test #3 test interval 94.5 – 114.0 m ah.



**Photo 24:** K15-206: 197.79 – 215.58 m ah. Packer Test #4 test interval 211.5 – 237.0 m ah.





**Photo 25:** K15-206: 215.58 – 233.60 m ah. Packer Test #4 test interval 211.5 – 237.0 m ah.



**Photo 26:** K15-206: 233.60 – 237.00 m ah. Packer Test #4 test interval 211.5 – 237.0 m ah.



**Photo 27:** K15-242: 22.30 – 36.80 m ah. Packer Test #1 test interval 27.5 – 38.0 m ah.



**Photo 28:** K15-242: 36.80 – 50.40 m ah. Packer Test #1 test interval 27.5 – 38.0 m ah.





**Photo 29:** K15-242: 63.80 – 77.00 m ah. Packer Test #2 test interval 69.5 – 86.0 m ah.



**Photo 30:** K15-242: 77.00 – 91.54 m ah. Packer Test #2 test interval 69.5 – 86.0 m ah.



**Photo 31:** K15-242: 105.12 – 119.90 m ah. Packer Test #3 test interval 117.5 – 125.0 m ah.



**Photo 32:** K15-242: 119.90 – 133.00 m ah. Packer Test #3 test interval 117.5 – 125.0 m ah and Packer Test #4 test interval 132.5 – 161.0 m ah.





**Photo 33:** K15-242: 133.00 – 145.89 m ah. Packer Test #4 test interval 132.5 – 161.0 m ah.



**Photo 34:** K15-242: 145.89 – 159.40 m ah. Packer Test #4 test interval 132.5 – 161.0 m ah.



**Photo 35:** K15-242: 159.40 – 161.00 m ah. Packer Test #4 test interval 132.5 – 161.0 m ah.



**Photo 36:** K15-248-WWP: 38.44 – 48.82 m ah. Packer Test #1 test interval 46.5 – 52.5 m ah.





**Photo 37:** K15-248-WWP: 48.82 – 60.95 m ah. Packer Test #1 test interval 46.5 – 52.5 m ah.



**Photo 38:** K15-248-WWP: 161.20 – 171.19 m ah. Packer Test #2 test interval 169.5 – 175.5 m ah.



**Photo 39:** K15-248-WVP: 171.19 – 181.19 m ah. Packer Test #2 test interval 169.5 – 175.5 m ah.



**Photo 40:** K15-248-WVP: 219.00 – 229.06 m ah. Packer Test #3 test interval 226.5 – 240.0 m ah.





**Photo 41:** K15-248-WVP: 238.78 – 250.80 m ah. Packer Test #3 test interval 226.5 – 240.0 m ah.



**Photo 42:** K15-248-WVP: 238.78 – 250.80 m ah. Packer Test #4 test interval 244.5 – 279.0 m ah.



**Photo 43:** K15-248-WVP: 250.80 – 263.91 m ah. Packer Test #4 test interval 244.5 – 279.0 m ah.

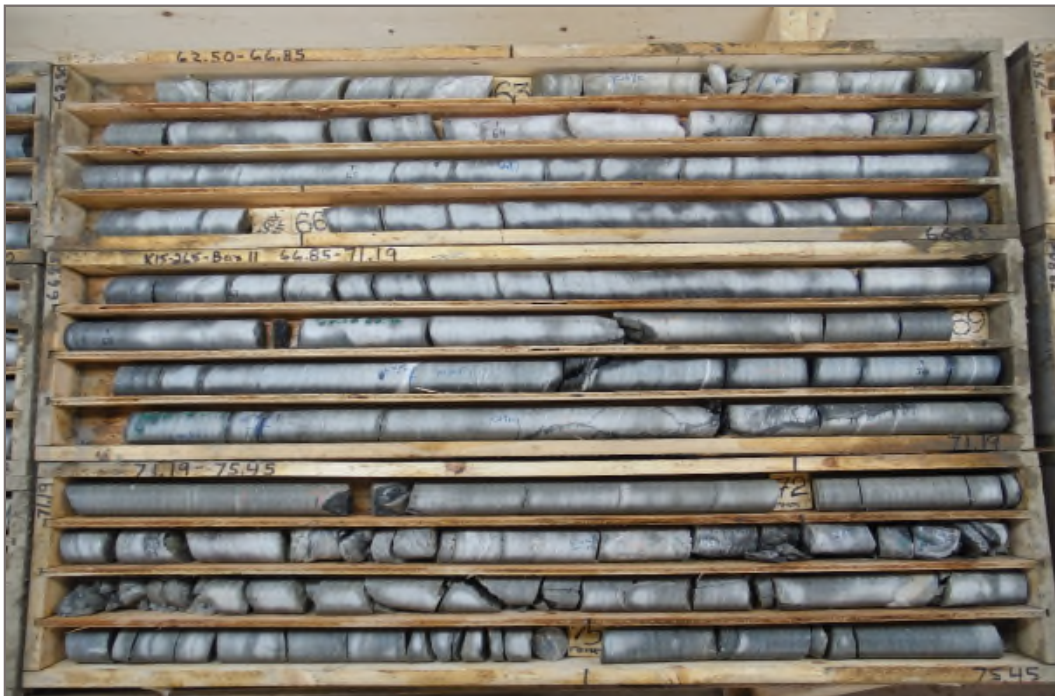


**Photo 44:** K15-248-WVP: 263.91 – 273.85 m ah. Packer Test #4 test interval 244.5 – 279.0 m ah.





**Photo 45:** K15-248-WWP: 273.85 – 278.50 m ah. Packer Test #4 test interval 244.5 – 279.0 m ah.



**Photo 46:** K15-265: 62.50 – 75.45 m ah. Packer Test #1 test interval 70.5 – 90.0 m ah.



**Photo 47:** K15-265: 75.45 – 88.61 m ah. Packer Test #1 test interval 70.5 – 90.0 m ah.



**Photo 48:** K15-265: 88.61 – 102.23 m ah. Packer Test #1 test interval 70.5 – 90.0 m ah.





**Photo 49:** K15-265: 130.00 – 143.70 m ah. Packer Test #2 test interval 133.5 -153.0 m ah.



**Photo 50:** K15-265: 143.70 – 156.66 m ah. Packer Test #2 test interval 133.5 -153.0 m ah.



**Photo 51:** K15-265: 185.17 – 198.30 m ah. Packer Test #3 test interval 190.5 – 201.0 m ah.



**Photo 52:** K15-265: 198.30 – 214.00 m ah. Packer Test #3 test interval 190.5 – 201.0 m ah.





**Photo 53:** K15-265: 265.98 – 278.85 m ah. Packer Test #4 test interval 271.5 – 285.0 m ah.



**Photo 54:** K15-265: 278.85 – 285.00 m ah. Packer Test #4 test interval 271.5 – 285.0 m ah.

# APPENDIX G

## LABORATORY REPORTS

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Your Project #: ENVMIN03071-01  
Your C.O.C. #: 464671-02-01, 464671-01-01

**Attention:KRISTEN RANGE**

TETRATECH EBA  
61 WASSON PLACE  
WHITEHORSE, YT  
Canada Y1A 0H7

**Report Date: 2016/01/19**  
Report #: R2119252  
Version: 3 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**MAXXAM JOB #: B540423**

**Received: 2015/05/15, 12:35**

Sample Matrix: Water  
# Samples Received: 21

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
Acidity pH 4.5 & pH 8.3 (as CaCO3)	11	N/A	2015/05/20	BBY6SOP-00037	SM 22 2310 B m
Alkalinity - Water	11	2015/05/20	2015/05/20	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry	11	N/A	2015/05/19	BBY6SOP-00011	SM 22 4500-Cl- G m
Conductance - water	11	N/A	2015/05/20	BBY6SOP-00026	SM 22 2510 B m
Fluoride	11	N/A	2015/05/19	BBY6SOP-00048	SM 22 4500-F C m
Hardness Total (calculated as CaCO3)	3	N/A	2015/05/21	BBY7SOP-00002	EPA 6020a R1 m
Hardness Total (calculated as CaCO3)	8	N/A	2015/05/25	BBY7SOP-00002	EPA 6020a R1 m
Hardness (calculated as CaCO3)	11	N/A	2015/05/21	BBY7SOP-00002	EPA 6020a R1 m
Mercury (Dissolved-LowLevel) by CVAf	11	N/A	2015/05/21	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total-LowLevel) by CVAf	11	2015/05/21	2015/05/21	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Ion Balance	11	N/A	2015/05/21	BBY WI-00033	SM 22 1030E
Sum of cations, anions	11	N/A	2015/05/21	Calc	
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	11	N/A	2015/05/21	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Low Level (dissolved)	5	N/A	2015/05/20	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Low Level (dissolved)	6	N/A	2015/05/21	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Digested LL (total)	8	2015/05/20	2015/05/23	BBY7SOP-00002	EPA 6020A R1 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	3	N/A	2015/05/21	BBY7SOP-00002	EPA 6020A R1 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	8	N/A	2015/05/25	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Low Level (total)	3	N/A	2015/05/20	BBY7SOP-00002	EPA 6020A R1 m
Nitrogen (Total)	11	2015/05/21	2015/05/21	BBY6SOP-00016	SM 22 4500-N C m
Ammonia-N (Unpreserved)	1	N/A	2015/05/20	BBY6SOP-00009	SM 22 4500-NH3- G m
Ammonia-N (Preserved)	10	N/A	2015/05/19	BBY6SOP-00009	SM 22 4500-NH3- G m
Nitrate+Nitrite (N) (low level)	11	N/A	2015/05/15	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrate+Nitrite (N) (low level)	10	N/A	2015/05/16	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) (low level)	11	N/A	2015/05/15	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N)	11	N/A	2015/05/16	BBY6SOP-00010	SM 22 4500-NO3- I m
Filter and HNO3 Preserve for Metals	4	N/A	2015/05/20	BBY7 WI-00004	BCMOE Reqs 08/14
Filter and HNO3 Preserve for Metals	6	N/A	2015/05/21	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (1)	10	N/A	2015/05/20	BBY6SOP-00026	SM 22 4500-H+ B m
pH Water (1)	1	N/A	2015/05/21	BBY6SOP-00026	SM 22 4500-H+ B m

Your Project #: ENVMIN03071-01  
Your C.O.C. #: 464671-02-01, 464671-01-01

**Attention:KRISTEN RANGE**

TETRATECH EBA  
61 WASSON PLACE  
WHITEHORSE, YT  
Canada Y1A 0H7

**Report Date: 2016/01/19**  
Report #: R2119252  
Version: 3 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**MAXXAM JOB #: B540423**

**Received: 2015/05/15, 12:35**

Sample Matrix: Water  
# Samples Received: 21

Analyses	Date		Laboratory Method	Analytical Method
	Quantity	Extracted		
Orthophosphate by Konelab (low level)	11	N/A	2015/05/15 BBY6SOP-00013	SM 22 4500-P E m
Sulphate by Automated Colourimetry	10	N/A	2015/05/19 BBY6SOP-00017	SM 22 4500-SO42- E m
Sulphate by Automated Colourimetry	1	N/A	2015/05/20 BBY6SOP-00017	SM 22 4500-SO42- E m
Total Dissolved Solids - Low Level	10	N/A	2015/05/20 BBY6SOP-00033	SM 22 2540 C m
Total Dissolved Solids - Low Level	1	N/A	2015/05/24 BBY6SOP-00033	SM 22 2540 C m
TKN (Calc. TN, N/N) total	11	N/A	2015/05/21 BBY WI-00033	Calculation
Carbon (Total Organic) (2)	11	N/A	2015/05/21 BBY6SOP-00003	SM 22 5310 C m
Phosphorus-P (LL Tot, dissolved) - FF/FP	10	2015/05/19	2015/05/19 BBY6SOP-00013	SM 22 4500-P E m
Phosphorus-P (LL Tot, dissolved) - UF/UP	1	2015/05/20	2015/05/20 BBY6SOP-00013	SM 22 4500-P E m
Total Phosphorus	11	N/A	2015/05/19 BBY6SOP-00013	SM 22 4500-P E m
Total Phosphorus - unpreserved	1	N/A	2015/05/20 BBY6SOP-00013	SM 22 4500-P E m
Turbidity	11	N/A	2015/05/18 BBY6SOP-00027	SM 22 2130 B m

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

(2) TOC present in the sample should be considered as non-purgeable TOC.

**Encryption Key**

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Morgan Melnychuk, Burnaby Project Manager

Email: MMelnychuk@maxxam.ca

Phone# (604)638-8034 Ext:8034

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B540423  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		MG3098	MG3098			MG3099		
Sampling Date		2015/05/12	2015/05/12			2015/05/12		
COC Number		464671-02-01	464671-02-01			464671-02-01		
	UNITS	BH95-25	BH95-25 Lab-Dup	RDL	QC Batch	BH95-25 FIELD PRESERVED	RDL	QC Batch

**Calculated Parameters**

Anion Sum	meq/L	10		N/A	7904047		N/A	7904047
Cation Sum	meq/L	11		N/A	7904047		N/A	7904047
Filter and HNO3 Preservation	N/A	FIELD		N/A	ONSITE		N/A	ONSITE
Ion Balance	N/A	1.1		0.010	7903958		0.010	7903958
Nitrate (N)	mg/L	0.0024		0.0020	7903020		0.0020	7903020

**Misc. Inorganics**

Fluoride (F)	mg/L	0.120		0.010	7906097		0.010	7906097
Acidity (pH 4.5)	mg/L	<0.50		0.50	7906927		0.50	7906927
Alkalinity (Total as CaCO3)	mg/L	302		0.50	7906762		0.50	7906762
Total Organic Carbon (C)	mg/L	2.41		0.50	7908536		0.50	7908536
Acidity (pH 8.3)	mg/L	1.33		0.50	7906927		0.50	7906927
Alkalinity (PP as CaCO3)	mg/L	<0.50		0.50	7906762		0.50	7906762
Bicarbonate (HCO3)	mg/L	368		0.50	7906762		0.50	7906762
Carbonate (CO3)	mg/L	<0.50		0.50	7906762		0.50	7906762
Hydroxide (OH)	mg/L	<0.50		0.50	7906762		0.50	7906762

**Anions**

Orthophosphate (P)	mg/L	0.0012		0.0010	7904503		0.0010	7904503
Dissolved Sulphate (SO4)	mg/L	197		0.50	7905975		0.50	7905975
Dissolved Chloride (Cl)	mg/L	0.51		0.50	7905974		0.50	7905974

**Nutrients**

Total Ammonia (N)	mg/L	0.16		0.0050	7906182		0.0050	7906182
Dissolved Phosphorus (P)	mg/L			0.0020	7906159	0.0024	0.0020	7906159
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.217		0.020	7903024		0.020	7903024
Nitrate plus Nitrite (N)	mg/L	0.0024		0.0020	7904151	<0.020 (1)	0.020	7904747
Nitrite (N)	mg/L	<0.0020		0.0020	7904159			
Total Nitrogen (N)	mg/L	0.220		0.020	7908217			
Total Phosphorus (P)	mg/L					3.28	0.020	7906172

**Physical Properties**

Conductivity	uS/cm	908		1.0	7906760			
pH	pH	8.11		N/A	7906757			

**Physical Properties**

Total Dissolved Solids	mg/L	656	646	1.0	7905320			
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RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

(1) RDL raised due to sample matrix interference.

Maxxam Job #: B540423  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		MG3098	MG3098			MG3099		
Sampling Date		2015/05/12	2015/05/12			2015/05/12		
COC Number		464671-02-01	464671-02-01			464671-02-01		
	UNITS	BH95-25	BH95-25 Lab-Dup	RDL	QC Batch	BH95-25 FIELD PRESERVED	RDL	QC Batch
Turbidity	NTU	587		0.10	7904142			
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate								

Maxxam Job #: B540423  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		MG3099			MG3100	MG3100		
Sampling Date		2015/05/12			2015/05/12	2015/05/12		
COC Number		464671-02-01			464671-02-01	464671-02-01		
	UNITS	BH95-25 FIELD PRESERVED Lab-Dup	RDL	QC Batch	BH95-146	BH95-146 Lab-Dup	RDL	QC Batch

Calculated Parameters								
Anion Sum	meq/L		N/A	7904047	8.3		N/A	7904047
Cation Sum	meq/L		N/A	7904047	8.5		N/A	7904047
Filter and HNO3 Preservation	N/A		N/A	ONSITE	FIELD		N/A	ONSITE
Ion Balance	N/A		0.010	7903958	1.0		0.010	7903958
Nitrate (N)	mg/L		0.0020	7903020	0.0053		0.0020	7903020
Misc. Inorganics								
Fluoride (F)	mg/L		0.010	7906097	0.310		0.010	7906097
Acidity (pH 4.5)	mg/L		0.50	7906927	<0.50		0.50	7906929
Alkalinity (Total as CaCO3)	mg/L		0.50	7906762	130		0.50	7906762
Total Organic Carbon (C)	mg/L		0.50	7908536	1.06		0.50	7908536
Acidity (pH 8.3)	mg/L		0.50	7906927	<0.50		0.50	7906929
Alkalinity (PP as CaCO3)	mg/L		0.50	7906762	<0.50		0.50	7906762
Bicarbonate (HCO3)	mg/L		0.50	7906762	159		0.50	7906762
Carbonate (CO3)	mg/L		0.50	7906762	<0.50		0.50	7906762
Hydroxide (OH)	mg/L		0.50	7906762	<0.50		0.50	7906762
Anions								
Orthophosphate (P)	mg/L		0.0010	7904503	<0.0010		0.0010	7904503
Dissolved Sulphate (SO4)	mg/L		0.50	7905975	273		5.0	7905975
Dissolved Chloride (Cl)	mg/L		0.50	7905974	<0.50		0.50	7905974
Nutrients								
Total Ammonia (N)	mg/L		0.0050	7906182	0.043		0.0050	7906182
Dissolved Phosphorus (P)	mg/L	0.0024	0.0020	7906159			0.0020	7906159
Total Total Kjeldahl Nitrogen (Calc)	mg/L		0.020	7903024	0.060		0.020	7903024
Nitrate plus Nitrite (N)	mg/L		0.020	7904747	0.0053		0.0020	7904151
Nitrite (N)	mg/L				<0.0020		0.0020	7904159
Total Nitrogen (N)	mg/L				0.065		0.020	7908217
Total Phosphorus (P)	mg/L		0.020	7906172	0.0034	0.0033	0.0020	7906174
Physical Properties								
Conductivity	uS/cm				767		1.0	7906760
pH	pH				8.12		N/A	7906757
Physical Properties								
Total Dissolved Solids	mg/L				604		1.0	7905320
Turbidity	NTU				15.7		0.10	7904142

RDL = Reportable Detection Limit  
Lab-Dup = Laboratory Initiated Duplicate



Maxxam Job #: B540423  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		MG3101			MG3102		
Sampling Date		2015/05/12			2015/05/12		
COC Number		464671-02-01			464671-02-01		
	UNITS	BH95-146 FIELD PRESERVED	RDL	QC Batch	BH95-21	RDL	QC Batch
<b>Calculated Parameters</b>							
Anion Sum	meq/L		N/A	7904047	4.3	N/A	7904047
Cation Sum	meq/L		N/A	7904047	4.5	N/A	7904047
Filter and HNO3 Preservation	N/A		N/A	ONSITE	FIELD	N/A	ONSITE
Ion Balance	N/A		0.010	7903958	1.1	0.010	7903958
Nitrate (N)	mg/L		0.0020	7903020	0.0048	0.0020	7903020
<b>Misc. Inorganics</b>							
Fluoride (F)	mg/L		0.010	7906097	0.100	0.010	7906097
Acidity (pH 4.5)	mg/L		0.50	7906929	<0.50	0.50	7906927
Alkalinity (Total as CaCO3)	mg/L		0.50	7906762	165	0.50	7906762
Total Organic Carbon (C)	mg/L		0.50	7908536	0.77	0.50	7908536
Acidity (pH 8.3)	mg/L		0.50	7906929	<0.50	0.50	7906927
Alkalinity (PP as CaCO3)	mg/L		0.50	7906762	<0.50	0.50	7906762
Bicarbonate (HCO3)	mg/L		0.50	7906762	201	0.50	7906762
Carbonate (CO3)	mg/L		0.50	7906762	<0.50	0.50	7906762
Hydroxide (OH)	mg/L		0.50	7906762	<0.50	0.50	7906762
<b>Anions</b>							
Orthophosphate (P)	mg/L		0.0010	7904503	<0.0010	0.0010	7904503
Dissolved Sulphate (SO4)	mg/L		5.0	7905975	46.5	0.50	7905975
Dissolved Chloride (Cl)	mg/L		0.50	7905974	<0.50	0.50	7905974
<b>Nutrients</b>							
Total Ammonia (N)	mg/L		0.0050	7906182	0.019	0.0050	7906182
Dissolved Phosphorus (P)	mg/L	0.0026	0.0020	7906159		0.0020	7906159
Total Total Kjeldahl Nitrogen (Calc)	mg/L		0.020	7903024	0.033	0.020	7903024
Nitrate plus Nitrite (N)	mg/L	<0.020 (1)	0.020	7904747	0.0048	0.0020	7904151
Nitrite (N)	mg/L				<0.0020	0.0020	7904159
Total Nitrogen (N)	mg/L				0.038	0.020	7908217
Total Phosphorus (P)	mg/L	0.0275	0.0020	7906172		0.020	
<b>Physical Properties</b>							
Conductivity	uS/cm				402	1.0	7906760
pH	pH				8.22	N/A	7906757
<b>Physical Properties</b>							
Total Dissolved Solids	mg/L				284	1.0	7905320
RDL = Reportable Detection Limit N/A = Not Applicable (1) RDL raised due to sample matrix interference.							



Maxxam Job #: B540423  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		MG3101			MG3102		
<b>Sampling Date</b>		2015/05/12			2015/05/12		
<b>COC Number</b>		464671-02-01			464671-02-01		
	<b>UNITS</b>	<b>BH95-146 FIELD PRESERVED</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH95-21</b>	<b>RDL</b>	<b>QC Batch</b>
Turbidity	NTU				640	0.10	7904142
RDL = Reportable Detection Limit							

Maxxam Job #: B540423  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		MG3103			MG3104	MG3104		
Sampling Date		2015/05/12			2015/05/12	2015/05/12		
COC Number		464671-02-01			464671-02-01	464671-02-01		
	UNITS	BH95-21 FIELD PRESERVED	RDL	QC Batch	BH95-22	BH95-22 Lab-Dup	RDL	QC Batch

**Calculated Parameters**

Anion Sum	meq/L		N/A	7904047	4.2		N/A	7904047
Cation Sum	meq/L		N/A	7904047	4.1		N/A	7904047
Filter and HNO3 Preservation	N/A		N/A	ONSITE	FIELD		N/A	ONSITE
Ion Balance	N/A		0.010	7903958	0.98		0.010	7903958
Nitrate (N)	mg/L		0.0020	7903020	0.105		0.0020	7903020

**Misc. Inorganics**

Fluoride (F)	mg/L		0.010	7906097	0.070		0.010	7906097
Acidity (pH 4.5)	mg/L		0.50	7906927	<0.50	<0.50	0.50	7906929
Alkalinity (Total as CaCO3)	mg/L		0.50	7906762	152		0.50	7906762
Total Organic Carbon (C)	mg/L		0.50	7908536	6.18		0.50	7908536
Acidity (pH 8.3)	mg/L		0.50	7906927	<0.50	<0.50	0.50	7906929
Alkalinity (PP as CaCO3)	mg/L		0.50	7906762	<0.50		0.50	7906762
Bicarbonate (HCO3)	mg/L		0.50	7906762	186		0.50	7906762
Carbonate (CO3)	mg/L		0.50	7906762	<0.50		0.50	7906762
Hydroxide (OH)	mg/L		0.50	7906762	<0.50		0.50	7906762

**Anions**

Orthophosphate (P)	mg/L		0.0010	7904503	<0.0010		0.0010	7904503
Dissolved Sulphate (SO4)	mg/L		0.50	7905975	52.8		0.50	7905975
Dissolved Chloride (Cl)	mg/L		0.50	7905974	<0.50		0.50	7905974

**Nutrients**

Total Ammonia (N)	mg/L		0.0050	7906182	0.51 (1)		0.50	7906182
Dissolved Phosphorus (P)	mg/L	0.0023	0.0020	7906159			0.0020	7906159
Total Total Kjeldahl Nitrogen (Calc)	mg/L		0.020	7903024	1.59		0.20	7903024
Nitrate plus Nitrite (N)	mg/L	0.0052	0.0020	7904747	0.105		0.0020	7904151
Nitrite (N)	mg/L		0.0020		<0.0020		0.0020	7904159
Total Nitrogen (N)	mg/L		0.020		1.70 (1)		0.20	7908217
Total Phosphorus (P)	mg/L	0.914	0.020	7906172			0.20	

**Physical Properties**

Conductivity	uS/cm		1.0		391		1.0	7906760
pH	pH		N/A		8.22		N/A	7906757

**Physical Properties**

Total Dissolved Solids	mg/L		1.0		252		1.0	7905320
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RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

(1) RDL raised due to sample matrix interference.

Maxxam Job #: B540423  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		MG3103			MG3104	MG3104		
<b>Sampling Date</b>		2015/05/12			2015/05/12	2015/05/12		
<b>COC Number</b>		464671-02-01			464671-02-01	464671-02-01		
	<b>UNITS</b>	<b>BH95-21 FIELD PRESERVED</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH95-22</b>	<b>BH95-22 Lab-Dup</b>	<b>RDL</b>	<b>QC Batch</b>
Turbidity	NTU		0.10		2850 (1)		1.0	7904142

RDL = Reportable Detection Limit  
Lab-Dup = Laboratory Initiated Duplicate  
(1) RDL raised due to sample dilution.

Maxxam Job #: B540423  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		MG3105			MG3106		
Sampling Date		2015/05/12			2015/05/12		
COC Number		464671-02-01			464671-02-01		
	UNITS	BH95-22 FIELD PRESERVED	RDL	QC Batch	ART - 3 (3)	RDL	QC Batch
<b>Calculated Parameters</b>							
Anion Sum	meq/L		N/A	7904047	4.0	N/A	7904047
Cation Sum	meq/L		N/A	7904047	4.1	N/A	7904047
Filter and HNO3 Preservation	N/A		N/A	ONSITE	FIELD	N/A	ONSITE
Ion Balance	N/A		0.010	7903958	1.0	0.010	7903958
Nitrate (N)	mg/L		0.0020	7903020	0.0053	0.0020	7903020
<b>Misc. Inorganics</b>							
Fluoride (F)	mg/L		0.010	7906097	0.180	0.010	7906097
Acidity (pH 4.5)	mg/L		0.50	7906929	<0.50	0.50	7906927
Alkalinity (Total as CaCO3)	mg/L		0.50	7906762	104	0.50	7906762
Total Organic Carbon (C)	mg/L		0.50	7908536	<0.50	0.50	7908536
Acidity (pH 8.3)	mg/L		0.50	7906929	1.31	0.50	7906927
Alkalinity (PP as CaCO3)	mg/L		0.50	7906762	<0.50	0.50	7906762
Bicarbonate (HCO3)	mg/L		0.50	7906762	128	0.50	7906762
Carbonate (CO3)	mg/L		0.50	7906762	<0.50	0.50	7906762
Hydroxide (OH)	mg/L		0.50	7906762	<0.50	0.50	7906762
<b>Anions</b>							
Orthophosphate (P)	mg/L		0.0010	7904503	<0.0010	0.0010	7904503
Dissolved Sulphate (SO4)	mg/L		0.50	7905975	90.3	0.50	7905975
Dissolved Chloride (Cl)	mg/L		0.50	7905974	<0.50	0.50	7905974
<b>Nutrients</b>							
Total Ammonia (N)	mg/L		0.50	7906182	0.018	0.0050	7906182
Dissolved Phosphorus (P)	mg/L	0.0027	0.0020	7906159		0.0020	7906159
Total Total Kjeldahl Nitrogen (Calc)	mg/L		0.20	7903024	0.072	0.020	7903024
Nitrate plus Nitrite (N)	mg/L	0.143	0.0020	7904747	0.0053	0.0020	7904151
Nitrite (N)	mg/L		0.0020		<0.0020	0.0020	7904159
Total Nitrogen (N)	mg/L		0.20		0.077	0.020	7908208
Total Phosphorus (P)	mg/L	6.61	0.20	7906172		0.0020	
<b>Physical Properties</b>							
Conductivity	uS/cm		1.0		392	1.0	7906760
pH	pH		N/A		8.03	N/A	7906757
<b>Physical Properties</b>							
Total Dissolved Solids	mg/L		1.0		254	1.0	7905320
Turbidity	NTU		1.0		52.3	0.10	7904142
RDL = Reportable Detection Limit N/A = Not Applicable							

Maxxam Job #: B540423  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		MG3107			MG3108		
Sampling Date		2015/05/12			2015/05/12		
COC Number		464671-02-01			464671-02-01		
	UNITS	ART - 3 (3) FIELD PRESERVED	RDL	QC Batch	ART-4	RDL	QC Batch
<b>Calculated Parameters</b>							
Anion Sum	meq/L		N/A	7904047	4.4	N/A	7904047
Cation Sum	meq/L		N/A	7904047	4.5	N/A	7904047
Filter and HNO3 Preservation	N/A		N/A	ONSITE	FIELD	N/A	ONSITE
Ion Balance	N/A		0.010	7903958	1.0	0.010	7903958
Nitrate (N)	mg/L		0.0020	7903020	<0.0020	0.0020	7903020
<b>Misc. Inorganics</b>							
Fluoride (F)	mg/L		0.010	7906097	0.240	0.010	7906097
Acidity (pH 4.5)	mg/L		0.50	7906927	<0.50	0.50	7906927
Alkalinity (Total as CaCO3)	mg/L		0.50	7906762	166	0.50	7906762
Total Organic Carbon (C)	mg/L		0.50	7908536	1.50	0.50	7908536
Acidity (pH 8.3)	mg/L		0.50	7906927	<0.50	0.50	7906927
Alkalinity (PP as CaCO3)	mg/L		0.50	7906762	<0.50	0.50	7906762
Bicarbonate (HCO3)	mg/L		0.50	7906762	203	0.50	7906762
Carbonate (CO3)	mg/L		0.50	7906762	<0.50	0.50	7906762
Hydroxide (OH)	mg/L		0.50	7906762	<0.50	0.50	7906762
<b>Anions</b>							
Orthophosphate (P)	mg/L		0.0010	7904503	0.0010	0.0010	7904503
Dissolved Sulphate (SO4)	mg/L		0.50	7905975	50.6	0.50	7905975
Dissolved Chloride (Cl)	mg/L		0.50	7905974	<0.50	0.50	7905974
<b>Nutrients</b>							
Total Ammonia (N)	mg/L		0.0050	7906182	0.90	0.0050	7906182
Dissolved Phosphorus (P)	mg/L	0.0163	0.0020	7906159		0.0020	7906159
Total Total Kjeldahl Nitrogen (Calc)	mg/L		0.020	7903024	0.85	0.20	7903024
Nitrate plus Nitrite (N)	mg/L	<0.0020	0.0020	7904747	<0.0020	0.0020	7904151
Nitrite (N)	mg/L		0.0020		<0.0020	0.0020	7904159
Total Nitrogen (N)	mg/L		0.020		0.85 (1)	0.20	7908217
Total Phosphorus (P)	mg/L	0.0234	0.0020	7906172			
<b>Physical Properties</b>							
Conductivity	uS/cm		1.0		415	1.0	7906760
pH	pH		N/A		8.28	N/A	7906757
<b>Physical Properties</b>							
Total Dissolved Solids	mg/L		1.0		258	1.0	7905320
RDL = Reportable Detection Limit N/A = Not Applicable (1) RDL raised due to sample matrix interference.							

Maxxam Job #: B540423  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		MG3107			MG3108		
<b>Sampling Date</b>		2015/05/12			2015/05/12		
<b>COC Number</b>		464671-02-01			464671-02-01		
	<b>UNITS</b>	<b>ART - 3 (3) FIELD PRESERVED</b>	<b>RDL</b>	<b>QC Batch</b>	<b>ART-4</b>	<b>RDL</b>	<b>QC Batch</b>
Turbidity	NTU		0.10		126	0.10	7904142
RDL = Reportable Detection Limit							

Maxxam Job #: B540423  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		MG3109			MG3110		
Sampling Date		2015/05/12			2015/05/12		
COC Number		464671-02-01			464671-02-01		
	UNITS	ART-4 FIELD PRESERVED	RDL	QC Batch	BH95-32	RDL	QC Batch
<b>Calculated Parameters</b>							
Anion Sum	meq/L		N/A	7904047	3.9	N/A	7904047
Cation Sum	meq/L		N/A	7904047	4.2	N/A	7904047
Filter and HNO3 Preservation	N/A		N/A	ONSITE	FIELD	N/A	ONSITE
Ion Balance	N/A		0.010	7903958	1.1	0.010	7903958
Nitrate (N)	mg/L		0.0020	7903020	0.0524	0.0020	7903020
<b>Misc. Inorganics</b>							
Fluoride (F)	mg/L		0.010	7906097	0.040	0.010	7906097
Acidity (pH 4.5)	mg/L		0.50	7906927	<0.50	0.50	7906927
Alkalinity (Total as CaCO3)	mg/L		0.50	7906762	158	0.50	7906762
Total Organic Carbon (C)	mg/L		0.50	7908536	1.63	0.50	7908536
Acidity (pH 8.3)	mg/L		0.50	7906927	<0.50	0.50	7906927
Alkalinity (PP as CaCO3)	mg/L		0.50	7906762	<0.50	0.50	7906762
Bicarbonate (HCO3)	mg/L		0.50	7906762	193	0.50	7906762
Carbonate (CO3)	mg/L		0.50	7906762	<0.50	0.50	7906762
Hydroxide (OH)	mg/L		0.50	7906762	<0.50	0.50	7906762
<b>Anions</b>							
Orthophosphate (P)	mg/L		0.0010	7904503	<0.0010	0.0010	7904503
Dissolved Sulphate (SO4)	mg/L		0.50	7905975	35.7	0.50	7907298
Dissolved Chloride (Cl)	mg/L		0.50	7905974	<0.50	0.50	7905974
<b>Nutrients</b>							
Total Ammonia (N)	mg/L		0.0050	7906182	0.29	0.0050	7906182
Dissolved Phosphorus (P)	mg/L	0.0024	0.0020	7906159		0.0020	7906159
Total Total Kjeldahl Nitrogen (Calc)	mg/L		0.20	7903024	0.83	0.20	7903024
Nitrate plus Nitrite (N)	mg/L	<0.020 (1)	0.020	7904747	0.0524	0.0020	7904151
Nitrite (N)	mg/L				<0.0020	0.0020	7904159
Total Nitrogen (N)	mg/L				0.88 (1)	0.20	7908217
Total Phosphorus (P)	mg/L	0.0936	0.0020	7906172			
<b>Physical Properties</b>							
Conductivity	uS/cm				376	1.0	7906760
pH	pH				8.02	N/A	7906757
<b>Physical Properties</b>							
Total Dissolved Solids	mg/L				232	1.0	7905320
RDL = Reportable Detection Limit N/A = Not Applicable (1) RDL raised due to sample matrix interference.							

Maxxam Job #: B540423  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		MG3109			MG3110		
<b>Sampling Date</b>		2015/05/12			2015/05/12		
<b>COC Number</b>		464671-02-01			464671-02-01		
	<b>UNITS</b>	<b>ART-4 FIELD PRESERVED</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH95-32</b>	<b>RDL</b>	<b>QC Batch</b>
Turbidity	NTU				2570 (1)	1.0	7904142
RDL = Reportable Detection Limit							
(1) RDL raised due to sample dilution.							



Maxxam Job #: B540423  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		MG3111			MG3112		
Sampling Date		2015/05/12			2015/05/12		
COC Number		464671-02-01			464671-02-01		
	UNITS	BH95-32 FIELD PRESERVED	RDL	QC Batch	BH95G-33D	RDL	QC Batch
<b>Calculated Parameters</b>							
Anion Sum	meq/L		N/A	7904047	4.4	N/A	7904047
Cation Sum	meq/L		N/A	7904047	4.7	N/A	7904047
Filter and HNO3 Preservation	N/A		N/A	ONSITE	FIELD	N/A	ONSITE
Ion Balance	N/A		0.010	7903958	1.1	0.010	7903958
Nitrate (N)	mg/L		0.0020	7903020	0.177	0.0020	7903020
<b>Misc. Inorganics</b>							
Fluoride (F)	mg/L		0.010	7906097	0.061	0.010	7906097
Acidity (pH 4.5)	mg/L		0.50	7906927	<0.50	0.50	7906927
Alkalinity (Total as CaCO3)	mg/L		0.50	7906762	152	0.50	7906762
Total Organic Carbon (C)	mg/L		0.50	7908536	1.53	0.50	7908536
Acidity (pH 8.3)	mg/L		0.50	7906927	<0.50	0.50	7906927
Alkalinity (PP as CaCO3)	mg/L		0.50	7906762	<0.50	0.50	7906762
Bicarbonate (HCO3)	mg/L		0.50	7906762	186	0.50	7906762
Carbonate (CO3)	mg/L		0.50	7906762	<0.50	0.50	7906762
Hydroxide (OH)	mg/L		0.50	7906762	<0.50	0.50	7906762
<b>Anions</b>							
Orthophosphate (P)	mg/L		0.0010	7904503	<0.0010	0.0010	7904503
Dissolved Sulphate (SO4)	mg/L		0.50	7907298	62.3	0.50	7905975
Dissolved Chloride (Cl)	mg/L		0.50	7905974	<0.50	0.50	7905974
<b>Nutrients</b>							
Total Ammonia (N)	mg/L		0.0050	7906182	0.12	0.0050	7906182
Dissolved Phosphorus (P)	mg/L	0.0032	0.0020	7906159		0.0020	7906159
Total Total Kjeldahl Nitrogen (Calc)	mg/L		0.20	7903024	0.53	0.20	7903024
Nitrate plus Nitrite (N)	mg/L	<0.020 (1)	0.020	7904747	0.177	0.0020	7904151
Nitrite (N)	mg/L				<0.0020	0.0020	7904159
Total Nitrogen (N)	mg/L				0.71 (1)	0.20	7908208
Total Phosphorus (P)	mg/L	4.34	0.020	7906172		0.020	
<b>Physical Properties</b>							
Conductivity	uS/cm				408	1.0	7906760
pH	pH				8.07	N/A	7906757
<b>Physical Properties</b>							
Total Dissolved Solids	mg/L				280	1.0	7905320
RDL = Reportable Detection Limit N/A = Not Applicable (1) RDL raised due to sample matrix interference.							

Maxxam Job #: B540423  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		MG3111			MG3112		
<b>Sampling Date</b>		2015/05/12			2015/05/12		
<b>COC Number</b>		464671-02-01			464671-02-01		
	<b>UNITS</b>	<b>BH95-32 FIELD PRESERVED</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH95G-33D</b>	<b>RDL</b>	<b>QC Batch</b>
Turbidity	NTU				2140	0.10	7904142
RDL = Reportable Detection Limit							

Maxxam Job #: B540423  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		MG3113			MG3114	MG3114		
Sampling Date		2015/05/12			2015/05/15 12:35	2015/05/15 12:35		
COC Number		464671-02-01			464671-02-01	464671-02-01		
	UNITS	BH95G-33D FIELD PRESERVED	RDL	QC Batch	TRIP BLANK	TRIP BLANK Lab-Dup	RDL	QC Batch
<b>Calculated Parameters</b>								
Anion Sum	meq/L		N/A	7904047	0.011		N/A	7904047
Cation Sum	meq/L		N/A	7904047	0.0014		N/A	7904047
Ion Balance	N/A		0.010	7903958	0.13 (1)		0.010	7903958
Nitrate (N)	mg/L		0.0020	7903020	<0.0020		0.0020	7903020
<b>Misc. Inorganics</b>								
Fluoride (F)	mg/L		0.010	7906097	<0.010		0.010	7906099
Acidity (pH 4.5)	mg/L		0.50	7906927	<0.50		0.50	7906929
Alkalinity (Total as CaCO3)	mg/L		0.50	7906762	0.56		0.50	7906814
Total Organic Carbon (C)	mg/L		0.50	7908536	<0.50		0.50	7908536
Acidity (pH 8.3)	mg/L		0.50	7906927	<0.50		0.50	7906929
Alkalinity (PP as CaCO3)	mg/L		0.50	7906762	<0.50		0.50	7906814
Bicarbonate (HCO3)	mg/L		0.50	7906762	0.68		0.50	7906814
Carbonate (CO3)	mg/L		0.50	7906762	<0.50		0.50	7906814
Hydroxide (OH)	mg/L		0.50	7906762	<0.50		0.50	7906814
<b>Anions</b>								
Orthophosphate (P)	mg/L		0.0010	7904503	<0.0010		0.0010	7904503
Dissolved Sulphate (SO4)	mg/L		0.50	7905975	<0.50		0.50	7905975
Dissolved Chloride (Cl)	mg/L		0.50	7905974	<0.50		0.50	7905974
<b>Nutrients</b>								
Dissolved Phosphorus (P)	mg/L	<0.0020	0.0020	7906159	<0.0020	<0.0020	0.0020	7908403
Total Total Kjeldahl Nitrogen (Calc)	mg/L		0.20	7903024	<0.020		0.020	7903024
Total Ammonia (N)	mg/L				<0.0050	<0.0050	0.0050	7904732
Nitrate plus Nitrite (N)	mg/L	0.160	0.0020	7904747	<0.0020		0.0020	7904151
Nitrite (N)	mg/L		0.0020		<0.0020		0.0020	7904159
Total Nitrogen (N)	mg/L		0.20		<0.020		0.020	7908245
Total Phosphorus (P)	mg/L	3.48	0.020	7906172	<0.0020	<0.0020	0.0020	7908404
<b>Physical Properties</b>								
Conductivity	uS/cm		1.0		1.3		1.0	7906810
pH	pH		N/A		5.86		N/A	7906796
<b>Physical Properties</b>								
Total Dissolved Solids	mg/L		1.0		2.0		1.0	7909326
Turbidity	NTU		0.10		<0.10		0.10	7904142
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate (1) Ion balance out of optimal range due to high measurement uncertainty at this level (Ion Sum < 0.4 meq/L for both cations and anions).								

Maxxam Job #: B540423  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		MG3115		MG3116			MG3126		
Sampling Date		2015/05/12		2015/05/12			2015/05/12		
COC Number		464671-02-01		464671-02-01			464671-01-01		
	UNITS	BH95-2	QC Batch	BH95-2 FIELD PRESERVED	RDL	QC Batch	DUP 01	RDL	QC Batch

**Calculated Parameters**

Anion Sum	meq/L	2.9	7904047		N/A	7904047	4.2	N/A	7904047
Cation Sum	meq/L	2.7	7904047		N/A	7904047	4.4	N/A	7904047
Filter and HNO3 Preservation	N/A	FIELD	ONSITE		N/A	ONSITE	FIELD	N/A	ONSITE
Ion Balance	N/A	0.96	7903958		0.010	7903958	1.0	0.010	7903958
Nitrate (N)	mg/L	1.36	7903020		0.0020	7903020	0.0052	0.0020	7903020

**Misc. Inorganics**

Fluoride (F)	mg/L	0.040	7906097		0.010	7906097	0.100	0.010	7906097
Acidity (pH 4.5)	mg/L	<0.50	7906927		0.50	7906927	<0.50	0.50	7906927
Alkalinity (Total as CaCO3)	mg/L	128	7906762		0.50	7906762	163	0.50	7906762
Total Organic Carbon (C)	mg/L	9.14	7908536		0.50	7908536	1.07	0.50	7908536
Acidity (pH 8.3)	mg/L	<0.50	7906927		0.50	7906927	<0.50	0.50	7906927
Alkalinity (PP as CaCO3)	mg/L	<0.50	7906762		0.50	7906762	<0.50	0.50	7906762
Bicarbonate (HCO3)	mg/L	157	7906762		0.50	7906762	199	0.50	7906762
Carbonate (CO3)	mg/L	<0.50	7906762		0.50	7906762	<0.50	0.50	7906762
Hydroxide (OH)	mg/L	<0.50	7906762		0.50	7906762	<0.50	0.50	7906762

**Anions**

Orthophosphate (P)	mg/L	0.016	7904503		0.0010	7904503	<0.0010	0.0010	7904503
Dissolved Sulphate (SO4)	mg/L	7.43	7905975		0.50	7905975	45.9	0.50	7905975
Dissolved Chloride (Cl)	mg/L	1.2	7905974		0.50	7905974	0.51	0.50	7905974

**Nutrients**

Total Ammonia (N)	mg/L	0.051	7906182		0.0050	7906182	0.042	0.0050	7906182
Dissolved Phosphorus (P)	mg/L		7906159	0.0156	0.0020	7906159		0.0020	7906159
Total Total Kjeldahl Nitrogen (Calc)	mg/L	<1.0	7903024		1.0	7903024	0.35	0.20	7903024
Nitrate plus Nitrite (N)	mg/L	1.36	7904151	1.24	0.0020	7904747	0.0052	0.0020	7904151
Nitrite (N)	mg/L	<0.0020	7904159		0.0020		<0.0020	0.0020	7904159
Total Nitrogen (N)	mg/L	<1.0 (1)	7908217		1.0		0.35 (1)	0.20	7908217
Total Phosphorus (P)	mg/L			8.66	0.20	7906172			

**Physical Properties**

Conductivity	uS/cm	263	7906760		1.0		397	1.0	7906760
pH	pH	8.12	7906757		N/A		8.21	N/A	7906757

**Physical Properties**

Total Dissolved Solids	mg/L	176	7905320		1.0		250	1.0	7905320
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RDL = Reportable Detection Limit

N/A = Not Applicable

(1) RDL raised due to sample matrix interference.

Maxxam Job #: B540423  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		MG3115		MG3116			MG3126		
Sampling Date		2015/05/12		2015/05/12			2015/05/12		
COC Number		464671-02-01		464671-02-01			464671-01-01		
	UNITS	BH95-2	QC Batch	BH95-2 FIELD PRESERVED	RDL	QC Batch	DUP 01	RDL	QC Batch
Turbidity	NTU	1530	7904142		0.10		728	0.10	7904142
RDL = Reportable Detection Limit									

Maxxam ID		MG3126		MG3127		
Sampling Date		2015/05/12		2015/05/12		
COC Number		464671-01-01		464671-01-01		
	UNITS	DUP 01 Lab-Dup	QC Batch	DUP 01 FIELD PRESERVED	RDL	QC Batch
Anions						
Orthophosphate (P)	mg/L	<0.0010	7904503		0.0010	7904503
Nutrients						
Dissolved Phosphorus (P)	mg/L		7906159	0.0023	0.0020	7906159
Nitrate plus Nitrite (N)	mg/L	0.0039	7904151	0.0100	0.0020	7904747
Nitrite (N)	mg/L	<0.0020	7904159		0.0020	
Total Phosphorus (P)	mg/L			0.732	0.020	7906172
RDL = Reportable Detection Limit						
Lab-Dup = Laboratory Initiated Duplicate						

Maxxam Job #: B540423  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		MG3098	MG3100	MG3102	MG3104	MG3106		
Sampling Date		2015/05/12	2015/05/12	2015/05/12	2015/05/12	2015/05/12		
COC Number		464671-02-01	464671-02-01	464671-02-01	464671-02-01	464671-02-01		
	UNITS	BH95-25	BH95-146	BH95-21	BH95-22	ART - 3 (3)	RDL	QC Batch
<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO3)	mg/L	522	415	221	198	186	0.50	7903806
<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000020	7908099
<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	0.00076	0.00098	0.0236	0.0380	0.00135	0.00050	7906912
Dissolved Antimony (Sb)	mg/L	0.000026	0.000522	0.000088	0.000240	0.0424	0.000020	7906912
Dissolved Arsenic (As)	mg/L	0.00719	0.000605	0.00155	0.000195	0.181	0.000020	7906912
Dissolved Barium (Ba)	mg/L	0.0689	0.0150	0.0460	0.104	0.0167	0.000020	7906912
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000010	7906912
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	7906912
Dissolved Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	7906912
Dissolved Cadmium (Cd)	mg/L	<0.0000050	0.0000091	0.0000063	0.000194	0.000316	0.0000050	7906912
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	7906912
Dissolved Cobalt (Co)	mg/L	0.000183	0.0000562	0.0000781	0.000330	0.00130	0.0000050	7906912
Dissolved Copper (Cu)	mg/L	0.000112	0.000275	0.000150	0.00139	<0.000050	0.000050	7906912
Dissolved Iron (Fe)	mg/L	5.35	1.11	0.266	0.0855	5.66	0.0010	7906912
Dissolved Lead (Pb)	mg/L	0.0000138	0.0000133	0.0000854	0.000274	0.000734	0.0000050	7906912
Dissolved Lithium (Li)	mg/L	0.0118	0.0213	0.00604	0.00244	0.00459	0.00050	7906912
Dissolved Manganese (Mn)	mg/L	0.373	0.0242	0.0586	0.0307	0.428	0.000050	7906912
Dissolved Molybdenum (Mo)	mg/L	0.00152	0.000284	0.000392	0.000280	0.000814	0.000050	7906912
Dissolved Nickel (Ni)	mg/L	0.000630	0.000661	0.000301	0.000721	0.00189	0.000020	7906912
Dissolved Phosphorus (P)	mg/L	0.0030	0.0054	0.0048	0.0054	0.0024	0.0020	7906912
Dissolved Selenium (Se)	mg/L	<0.000040	<0.000040	<0.000040	0.000461	<0.000040	0.000040	7906912
Dissolved Silicon (Si)	mg/L	6.53	14.6	3.75	3.26	5.63	0.050	7906912
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	<0.0000050	0.0000057	<0.0000050	0.0000050	7906912
Dissolved Strontium (Sr)	mg/L	0.505	0.426	0.205	0.184	0.217	0.000050	7906912
Dissolved Thallium (Tl)	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.000174	0.0000020	7906912
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	7906912
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	<0.00050	0.00162	<0.00050	0.00050	7906912
Dissolved Uranium (U)	mg/L	0.00441	0.00182	0.00454	0.00261	0.00613	0.0000020	7906912
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	7906912
Dissolved Zinc (Zn)	mg/L	0.00050	0.0103	0.0194	0.00678	1.62	0.00010	7906912
Dissolved Zirconium (Zr)	mg/L	<0.00010	<0.00010	0.00011	<0.00010	0.00023	0.00010	7906912
Dissolved Calcium (Ca)	mg/L	140	128	68.5	62.4	60.7	0.050	7903097
Dissolved Magnesium (Mg)	mg/L	42.1	23.0	12.2	10.2	8.23	0.050	7903097
Dissolved Potassium (K)	mg/L	5.71	2.65	1.58	1.60	1.94	0.050	7903097
RDL = Reportable Detection Limit								

Maxxam Job #: B540423  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		MG3098	MG3100	MG3102	MG3104	MG3106		
Sampling Date		2015/05/12	2015/05/12	2015/05/12	2015/05/12	2015/05/12		
COC Number		464671-02-01	464671-02-01	464671-02-01	464671-02-01	464671-02-01		
	UNITS	BH95-25	BH95-146	BH95-21	BH95-22	ART - 3 (3)	RDL	QC Batch
Dissolved Sodium (Na)	mg/L	2.05	3.31	1.26	0.920	0.877	0.050	7903097
Dissolved Sulphur (S)	mg/L	71.9	91.2	15.3	17.9	30.4	3.0	7903097
RDL = Reportable Detection Limit								

Maxxam Job #: B540423  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		MG3108	MG3110	MG3112	MG3112	MG3114		
<b>Sampling Date</b>		2015/05/12	2015/05/12	2015/05/12	2015/05/12	2015/05/15 12:35		
<b>COC Number</b>		464671-02-01	464671-02-01	464671-02-01	464671-02-01	464671-02-01		
	<b>UNITS</b>	<b>ART-4</b>	<b>BH95-32</b>	<b>BH95G-33D</b>	<b>BH95G-33D Lab-Dup</b>	<b>TRIP BLANK</b>	<b>RDL</b>	<b>QC Batch</b>

**Misc. Inorganics**

Dissolved Hardness (CaCO3)	mg/L	209	201	230		<0.50	0.50	7903806
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**Elements**

Dissolved Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020		<0.0000020	0.0000020	7908099
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**Dissolved Metals by ICPMS**

Dissolved Aluminum (Al)	mg/L	0.00062	0.00202	0.00126	0.00124	<0.00050	0.00050	7906912
Dissolved Antimony (Sb)	mg/L	0.00127	0.000227	<0.000020	<0.000020	<0.000020	0.000020	7906912
Dissolved Arsenic (As)	mg/L	0.0118	0.000353	0.000215	0.000219	<0.000020	0.000020	7906912
Dissolved Barium (Ba)	mg/L	0.0319	0.168	0.0824	0.0768	<0.000020	0.000020	7906912
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000010	7906912
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	7906912
Dissolved Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	7906912
Dissolved Cadmium (Cd)	mg/L	<0.0000050	0.000130	<0.0000050	<0.0000050	<0.0000050	0.0000050	7906912
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	7906912
Dissolved Cobalt (Co)	mg/L	0.00254	0.000438	0.0000149	0.0000162	<0.0000050	0.0000050	7906912
Dissolved Copper (Cu)	mg/L	0.000123	0.000111	0.000132	0.000140	<0.000050	0.000050	7906912
Dissolved Iron (Fe)	mg/L	1.65	0.0382	0.0013	0.0013	<0.0010	0.0010	7906912
Dissolved Lead (Pb)	mg/L	<0.0000050	0.000141	0.0000062	0.0000053	<0.0000050	0.0000050	7906912
Dissolved Lithium (Li)	mg/L	0.0123	0.00161	0.00126	0.00087	<0.00050	0.00050	7906912
Dissolved Manganese (Mn)	mg/L	0.0328	0.0585	0.00131	0.00135	<0.000050	0.000050	7906912
Dissolved Molybdenum (Mo)	mg/L	0.0112	0.000714	0.00124	0.00123	<0.000050	0.000050	7906912
Dissolved Nickel (Ni)	mg/L	0.0169	0.00148	0.000781	0.000796	<0.000020	0.000020	7906912
Dissolved Phosphorus (P)	mg/L	0.0036	<0.0020	<0.0020	0.0023	<0.0020	0.0020	7906912
Dissolved Selenium (Se)	mg/L	<0.000040	0.000326	0.00383	0.00384	<0.000040	0.000040	7906912
Dissolved Silicon (Si)	mg/L	10.7	2.54	3.03	2.95	<0.050	0.050	7906912
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	7906912
Dissolved Strontium (Sr)	mg/L	0.259	0.281	0.237	0.230	<0.000050	0.000050	7906912
Dissolved Thallium (Tl)	mg/L	0.0000357	0.0000235	<0.0000020	<0.0000020	<0.0000020	0.0000020	7906912
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	7906912
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	7906912
Dissolved Uranium (U)	mg/L	0.0122	0.00130	0.00485	0.00486	<0.0000020	0.0000020	7906912
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	7906912
Dissolved Zinc (Zn)	mg/L	0.00021	0.00057	0.00040	0.00038	<0.00010	0.00010	7906912
Dissolved Zirconium (Zr)	mg/L	0.00015	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	7906912
Dissolved Calcium (Ca)	mg/L	58.4	73.4	77.5		<0.050	0.050	7903097
Dissolved Magnesium (Mg)	mg/L	15.4	4.24	8.82		<0.050	0.050	7903097

RDL = Reportable Detection Limit  
Lab-Dup = Laboratory Initiated Duplicate



Maxxam Job #: B540423  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		MG3108	MG3110	MG3112	MG3112	MG3114		
Sampling Date		2015/05/12	2015/05/12	2015/05/12	2015/05/12	2015/05/15 12:35		
COC Number		464671-02-01	464671-02-01	464671-02-01	464671-02-01	464671-02-01		
	UNITS	ART-4	BH95-32	BH95G-33D	BH95G-33D Lab-Dup	TRIP BLANK	RDL	QC Batch
Dissolved Potassium (K)	mg/L	2.22	4.53	1.01		<0.050	0.050	7903097
Dissolved Sodium (Na)	mg/L	2.08	0.687	0.759		<0.050	0.050	7903097
Dissolved Sulphur (S)	mg/L	17.7	11.8	20.4		<3.0	3.0	7903097

RDL = Reportable Detection Limit  
Lab-Dup = Laboratory Initiated Duplicate

Maxxam Job #: B540423  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		MG3115	MG3126		
Sampling Date		2015/05/12	2015/05/12		
COC Number		464671-02-01	464671-01-01		
	UNITS	BH95-2	DUP 01	RDL	QC Batch
<b>Misc. Inorganics</b>					
Dissolved Hardness (CaCO3)	mg/L	136	215	0.50	7903806
<b>Elements</b>					
Dissolved Mercury (Hg)	mg/L	<0.0000020	<0.0000020	0.0000020	7908099
<b>Dissolved Metals by ICPMS</b>					
Dissolved Aluminum (Al)	mg/L	0.00911	0.00202	0.00050	7906912
Dissolved Antimony (Sb)	mg/L	0.000098	0.000113	0.000020	7906912
Dissolved Arsenic (As)	mg/L	0.000163	0.00153	0.000020	7906912
Dissolved Barium (Ba)	mg/L	0.0315	0.0427	0.000020	7906912
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	0.000010	7906912
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	0.0000050	7906912
Dissolved Boron (B)	mg/L	<0.010	<0.010	0.010	7906912
Dissolved Cadmium (Cd)	mg/L	0.00123	<0.0000050	0.0000050	7906912
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	0.00010	7906912
Dissolved Cobalt (Co)	mg/L	0.0000257	0.0000674	0.0000050	7906912
Dissolved Copper (Cu)	mg/L	0.00309	0.000069	0.000050	7906912
Dissolved Iron (Fe)	mg/L	0.0177	0.295	0.0010	7906912
Dissolved Lead (Pb)	mg/L	0.0000554	0.0000144	0.0000050	7906912
Dissolved Lithium (Li)	mg/L	0.00095	0.00601	0.00050	7906912
Dissolved Manganese (Mn)	mg/L	0.00193	0.0582	0.000050	7906912
Dissolved Molybdenum (Mo)	mg/L	0.000339	0.000353	0.000050	7906912
Dissolved Nickel (Ni)	mg/L	0.00102	0.000319	0.000020	7906912
Dissolved Phosphorus (P)	mg/L	0.0164	0.0023	0.0020	7906912
Dissolved Selenium (Se)	mg/L	0.00136	<0.000040	0.000040	7906912
Dissolved Silicon (Si)	mg/L	2.94	3.96	0.050	7906912
Dissolved Silver (Ag)	mg/L	0.0000113	<0.0000050	0.0000050	7906912
Dissolved Strontium (Sr)	mg/L	0.103	0.204	0.000050	7906912
Dissolved Thallium (Tl)	mg/L	0.0000077	0.0000059	0.0000020	7906912
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	0.00020	7906912
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	0.00050	7906912
Dissolved Uranium (U)	mg/L	0.000254	0.00467	0.0000020	7906912
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	0.00020	7906912
Dissolved Zinc (Zn)	mg/L	0.0205	0.00043	0.00010	7906912
Dissolved Zirconium (Zr)	mg/L	0.00010	<0.00010	0.00010	7906912
Dissolved Calcium (Ca)	mg/L	34.7	66.2	0.050	7903097
Dissolved Magnesium (Mg)	mg/L	11.8	12.1	0.050	7903097
Dissolved Potassium (K)	mg/L	0.425	1.52	0.050	7903097
RDL = Reportable Detection Limit					

Maxxam Job #: B540423  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		MG3115	MG3126		
Sampling Date		2015/05/12	2015/05/12		
COC Number		464671-02-01	464671-01-01		
	UNITS	BH95-2	DUP 01	RDL	QC Batch
Dissolved Sodium (Na)	mg/L	0.377	0.944	0.050	7903097
Dissolved Sulphur (S)	mg/L	<3.0	16.3	3.0	7903097
RDL = Reportable Detection Limit					

Maxxam Job #: B540423  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		MG3100	MG3106		MG3114		
Sampling Date		2015/05/12	2015/05/12		2015/05/15 12:35		
COC Number		464671-02-01	464671-02-01		464671-02-01		
	UNITS	BH95-146	ART - 3 (3)	QC Batch	TRIP BLANK	RDL	QC Batch
<b>Calculated Parameters</b>							
Total Hardness (CaCO3)	mg/L	399	199	7903095	<0.50	0.50	7903095
<b>Elements</b>							
Total Mercury (Hg)	mg/L	0.0000031	<0.0000020	7908193	<0.0000020	0.0000020	7908212
<b>Total Metals by ICPMS</b>							
Total Aluminum (Al)	mg/L	0.540	0.00517	7905790	0.00064	0.00050	7905790
Total Antimony (Sb)	mg/L	0.00121	0.0425	7905790	<0.000020	0.000020	7905790
Total Arsenic (As)	mg/L	0.0108	0.168	7905790	<0.000020	0.000020	7905790
Total Barium (Ba)	mg/L	0.0306	0.0158	7905790	<0.000020	0.000020	7905790
Total Beryllium (Be)	mg/L	0.000032	<0.000010	7905790	<0.000010	0.000010	7905790
Total Bismuth (Bi)	mg/L	0.0000560	<0.0000050	7905790	<0.0000050	0.0000050	7905790
Total Boron (B)	mg/L	<0.010	<0.010	7905790	<0.010	0.010	7905790
Total Cadmium (Cd)	mg/L	0.000359	0.000298	7905790	<0.0000050	0.0000050	7905790
Total Chromium (Cr)	mg/L	0.00206	<0.00010	7905790	<0.00010	0.00010	7905790
Total Cobalt (Co)	mg/L	0.000465	0.00131	7905790	<0.0000050	0.0000050	7905790
Total Copper (Cu)	mg/L	0.00703	<0.000050	7905790	<0.000050	0.000050	7905790
Total Iron (Fe)	mg/L	2.23	5.59	7905790	0.0012	0.0010	7905790
Total Lead (Pb)	mg/L	0.0143	0.00112	7905790	<0.0000050	0.0000050	7905790
Total Lithium (Li)	mg/L	0.0209	0.00443	7905790	<0.00050	0.00050	7905790
Total Manganese (Mn)	mg/L	0.0371	0.435	7905790	<0.000050	0.000050	7905790
Total Molybdenum (Mo)	mg/L	0.000373	0.000724	7905790	<0.000050	0.000050	7905790
Total Nickel (Ni)	mg/L	0.00471	0.00192	7905790	<0.000020	0.000020	7905790
Total Phosphorus (P)	mg/L	0.0192	0.0057	7905790	<0.0020	0.0020	7905790
Total Selenium (Se)	mg/L	0.000075	<0.000040	7905790	<0.000040	0.000040	7905790
Total Silicon (Si)	mg/L	16.3	5.29	7905790	<0.050	0.050	7905790
Total Silver (Ag)	mg/L	0.0000439	0.0000159	7905790	<0.0000050	0.0000050	7905790
Total Strontium (Sr)	mg/L	0.410	0.208	7905790	<0.000050	0.000050	7905790
Total Thallium (Tl)	mg/L	0.0000362	0.000247	7905790	<0.0000020	0.0000020	7905790
Total Tin (Sn)	mg/L	0.00234	<0.00020	7905790	<0.00020	0.00020	7905790
Total Titanium (Ti)	mg/L	0.0408	<0.00050	7905790	<0.00050	0.00050	7905790
Total Uranium (U)	mg/L	0.00196	0.00614	7905790	<0.0000020	0.0000020	7905790
Total Vanadium (V)	mg/L	0.00099	<0.00020	7905790	<0.00020	0.00020	7905790
Total Zinc (Zn)	mg/L	0.0491	1.42	7905790	<0.00010	0.00010	7905790
Total Zirconium (Zr)	mg/L	0.00835	0.00033	7905790	<0.00010	0.00010	7905790
Total Calcium (Ca)	mg/L	121	66.1	7903099	<0.050	0.050	7903099
Total Magnesium (Mg)	mg/L	23.4	8.24	7903099	<0.050	0.050	7903099
Total Potassium (K)	mg/L	2.93	1.91	7903099	<0.050	0.050	7903099
RDL = Reportable Detection Limit							

Maxxam Job #: B540423  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		MG3100	MG3106		MG3114		
Sampling Date		2015/05/12	2015/05/12		2015/05/15 12:35		
COC Number		464671-02-01	464671-02-01		464671-02-01		
	UNITS	BH95-146	ART - 3 (3)	QC Batch	TRIP BLANK	RDL	QC Batch
Total Sodium (Na)	mg/L	3.45	0.866	7903099	<0.050	0.050	7903099
Total Sulphur (S)	mg/L	88.5	28.5	7903099	<3.0	3.0	7903099
RDL = Reportable Detection Limit							

Maxxam Job #: B540423  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		MG3098	MG3102	MG3104	MG3108	MG3110		
Sampling Date		2015/05/12	2015/05/12	2015/05/12	2015/05/12	2015/05/12		
COC Number		464671-02-01	464671-02-01	464671-02-01	464671-02-01	464671-02-01		
	UNITS	BH95-25	BH95-21	BH95-22	ART-4	BH95-32	RDL	QC Batch
<b>Calculated Parameters</b>								
Total Hardness (CaCO3)	mg/L	610	238	310	218	528	0.50	7903095
<b>Elements</b>								
Total Mercury (Hg)	mg/L	<0.000020	<0.000020	0.000065	<0.000020	<0.000020	0.000020	7908193
<b>Total Metals by ICPMS</b>								
Total Aluminum (Al)	mg/L	23.2	11.0	39.5	0.275	86.0	0.0030	7907046
Total Antimony (Sb)	mg/L	0.000396	0.000952	0.00423	0.0175	0.00124	0.000050	7907046
Total Arsenic (As)	mg/L	0.0390	0.0289	0.160	0.0831	0.0489	0.000020	7907046
Total Barium (Ba)	mg/L	0.408	1.62	1.09	0.0432	3.62	0.00010	7907046
Total Beryllium (Be)	mg/L	0.00149	0.000858	0.00208	0.000066	0.00434	0.000010	7907046
Total Bismuth (Bi)	mg/L	0.000846	0.000873	0.00442	0.000058	0.00302	0.000020	7907046
Total Boron (B)	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	7907046
Total Cadmium (Cd)	mg/L	0.000928	0.000612	0.0213	0.0000929	0.0109	0.000050	7907046
Total Chromium (Cr)	mg/L	0.0531	0.0142	0.0782	0.512	0.219	0.00050	7907046
Total Cobalt (Co)	mg/L	0.0191	0.00826	0.0691	0.0370	0.111	0.000010	7907046
Total Copper (Cu)	mg/L	0.0723	0.0834	0.887	0.849	0.308	0.00040	7907046
Total Iron (Fe)	mg/L	60.6	34.9	206	135	203	0.0050	7907046
Total Lead (Pb)	mg/L	0.0658	0.0446	0.532	0.0200	0.297	0.000050	7907046
Total Lithium (Li)	mg/L	0.0403	0.0125	0.0386	0.0104	0.0416	0.00050	7907046
Total Manganese (Mn)	mg/L	1.07	0.339	6.30	0.279	8.69	0.00010	7907046
Total Molybdenum (Mo)	mg/L	0.00246	0.00161	0.00673	0.253	0.00939	0.000050	7907046
Total Nickel (Ni)	mg/L	0.0463	0.0170	0.127	0.350	0.183	0.00010	7907046
Total Phosphorus (P)	mg/L	3.29	0.509	2.22	0.095	3.79	0.010	7907046
Total Selenium (Se)	mg/L	0.000222	0.00106	0.00281	0.000047	0.0202	0.000040	7907046
Total Silicon (Si)	mg/L	47.6	26.3	69.2	20.7	99.9	0.10	7907046
Total Silver (Ag)	mg/L	0.000342	0.000411	0.0168	0.000654	0.00532	0.000050	7907046
Total Strontium (Sr)	mg/L	0.597	0.281	0.281	0.274	0.544	0.000050	7907046
Total Thallium (Tl)	mg/L	0.000429	0.000149	0.000769	0.0000587	0.00136	0.000020	7907046
Total Tin (Sn)	mg/L	0.00186	0.00091	0.00609	0.0420	0.00471	0.00020	7907046
Total Titanium (Ti)	mg/L	1.01	0.217	1.17	0.0727	10.4	0.0050	7907046
Total Uranium (U)	mg/L	0.00875	0.00945	0.0129	0.205	0.0115	0.000050	7907046
Total Vanadium (V)	mg/L	0.0686	0.0220	0.124	0.0130	0.608	0.00050	7907046
Total Zinc (Zn)	mg/L	0.176	0.220	2.53	0.0852	0.904	0.0010	7907046
Total Zirconium (Zr)	mg/L	0.00254	0.0101	0.0111	0.0261	0.0207	0.00010	7907046
Total Calcium (Ca)	mg/L	152	66.9	75.7	61.6	130	0.25	7903099
Total Magnesium (Mg)	mg/L	56.1	17.1	29.3	15.5	49.5	0.25	7903099
Total Potassium (K)	mg/L	13.5	4.56	11.3	2.37	21.5	0.25	7903099
RDL = Reportable Detection Limit								

Maxxam Job #: B540423  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		MG3098	MG3102	MG3104	MG3108	MG3110		
Sampling Date		2015/05/12	2015/05/12	2015/05/12	2015/05/12	2015/05/12		
COC Number		464671-02-01	464671-02-01	464671-02-01	464671-02-01	464671-02-01		
	UNITS	BH95-25	BH95-21	BH95-22	ART-4	BH95-32	RDL	QC Batch
Total Sodium (Na)	mg/L	2.35	1.36	1.31	2.13	2.13	0.25	7903099
Total Sulphur (S)	mg/L	67	17	15	43	<15	15	7903099
RDL = Reportable Detection Limit								

Maxxam Job #: B540423  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		MG3112	MG3115	MG3126	MG3126		
Sampling Date		2015/05/12	2015/05/12	2015/05/12	2015/05/12		
COC Number		464671-02-01	464671-02-01	464671-01-01	464671-01-01		
	UNITS	BH95G-33D	BH95-2	DUP 01	DUP 01 Lab-Dup	RDL	QC Batch
<b>Calculated Parameters</b>							
Total Hardness (CaCO3)	mg/L	430	226	248		0.50	7903095
<b>Elements</b>							
Total Mercury (Hg)	mg/L	<0.0000020	0.0000024	<0.0000020	<0.0000020	0.0000020	7908212
<b>Total Metals by ICPMS</b>							
Total Aluminum (Al)	mg/L	43.8	12.7	11.2		0.0030	7907046
Total Antimony (Sb)	mg/L	0.000513	0.00140	0.00101		0.000050	7907046
Total Arsenic (As)	mg/L	0.149	0.0451	0.0275		0.000020	7907046
Total Barium (Ba)	mg/L	0.839	0.307	1.69		0.00010	7907046
Total Beryllium (Be)	mg/L	0.00218	0.000647	0.000922		0.000010	7907046
Total Bismuth (Bi)	mg/L	0.00105	0.000480	0.000882		0.000020	7907046
Total Boron (B)	mg/L	<0.050	<0.050	<0.050		0.050	7907046
Total Cadmium (Cd)	mg/L	0.000724	0.0255	0.000602		0.0000050	7907046
Total Chromium (Cr)	mg/L	0.0629	0.0349	0.0145		0.00050	7907046
Total Cobalt (Co)	mg/L	0.0794	0.0394	0.00770		0.000010	7907046
Total Copper (Cu)	mg/L	0.185	0.330	0.0815		0.00040	7907046
Total Iron (Fe)	mg/L	150	59.9	36.8		0.0050	7907046
Total Lead (Pb)	mg/L	0.0683	0.169	0.0473		0.000050	7907046
Total Lithium (Li)	mg/L	0.0264	0.0110	0.0119		0.00050	7907046
Total Manganese (Mn)	mg/L	6.57	0.894	0.328		0.00010	7907046
Total Molybdenum (Mo)	mg/L	0.0140	0.0246	0.00176		0.000050	7907046
Total Nickel (Ni)	mg/L	0.296	0.201	0.0168		0.00010	7907046
Total Phosphorus (P)	mg/L	3.35	5.61	0.550		0.010	7907046
Total Selenium (Se)	mg/L	0.0103	0.00503	0.00110		0.000040	7907046
Total Silicon (Si)	mg/L	62.4	21.5	25.6		0.10	7907046
Total Silver (Ag)	mg/L	0.00180	0.00460	0.000529		0.0000050	7907046
Total Strontium (Sr)	mg/L	0.396	0.212	0.265		0.000050	7907046
Total Thallium (Tl)	mg/L	0.000389	0.000307	0.000156		0.0000020	7907046
Total Tin (Sn)	mg/L	0.00271	0.00223	0.00093		0.00020	7907046
Total Titanium (Ti)	mg/L	0.504	0.284	0.230		0.0050	7907046
Total Uranium (U)	mg/L	0.0161	0.00482	0.0118		0.0000050	7907046
Total Vanadium (V)	mg/L	0.148	0.0970	0.0208		0.00050	7907046
Total Zinc (Zn)	mg/L	0.578	2.20	0.215		0.0010	7907046
Total Zirconium (Zr)	mg/L	0.0187	0.0223	0.00905		0.00010	7907046
Total Calcium (Ca)	mg/L	119	54.5	71.7		0.25	7903099
Total Magnesium (Mg)	mg/L	32.4	21.7	16.6		0.25	7903099
RDL = Reportable Detection Limit							
Lab-Dup = Laboratory Initiated Duplicate							



Maxxam Job #: B540423  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		MG3112	MG3115	MG3126	MG3126		
Sampling Date		2015/05/12	2015/05/12	2015/05/12	2015/05/12		
COC Number		464671-02-01	464671-02-01	464671-01-01	464671-01-01		
	UNITS	BH95G-33D	BH95-2	DUP 01	DUP 01 Lab-Dup	RDL	QC Batch
Total Potassium (K)	mg/L	5.79	3.29	4.48		0.25	7903099
Total Sodium (Na)	mg/L	1.59	0.50	1.32		0.25	7903099
Total Sulphur (S)	mg/L	19	<15	15		15	7903099
RDL = Reportable Detection Limit							
Lab-Dup = Laboratory Initiated Duplicate							

Maxxam Job #: B540423  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01

### GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	8.0°C
Package 2	5.3°C
Package 3	4.3°C

Samples MG3099, MG3101, MG3103, MG3105, MG3107, MG3109, MG3111, MG3113, MG3116 & MG3127 bottles field preserved for Low Level N + N.

Revised report V2: Updated Client sample IDs for MG3112 and MG3113 per client request (MM4).

Revised report (V3): Client ID corrected per client request for samples MG3106 and MG3107 (MM4).

Sample MG3099-01 : Sample preserved in the field by client to prolong hold time for Nitrate plus Nitrite. Reported detection limit (RDL) for preserved N&N has not been established at this concentration. Results less than 0.02mg/L should be used with caution and are not suitable for compliance purposes.

Sample MG3101-01 : Sample preserved in the field by client to prolong hold time for Nitrate plus Nitrite. Reported detection limit (RDL) for preserved N&N has not been established at this concentration. Results less than 0.02mg/L should be used with caution and are not suitable for compliance purposes.

Sample MG3103-01 : Sample preserved in the field by client to prolong hold time for Nitrate plus Nitrite. Reported detection limit (RDL) for preserved N&N has not been established at this concentration. Results less than 0.02mg/L should be used with caution and are not suitable for compliance purposes.

Sample MG3105-01 : Sample preserved in the field by client to prolong hold time for Nitrate plus Nitrite. Reported detection limit (RDL) for preserved N&N has not been established at this concentration. Results less than 0.02mg/L should be used with caution and are not suitable for compliance purposes.

Sample MG3107-01 : Sample preserved in the field by client to prolong hold time for Nitrate plus Nitrite. Reported detection limit (RDL) for preserved N&N has not been established at this concentration. Results less than 0.02mg/L should be used with caution and are not suitable for compliance purposes.

Sample MG3109-01 : Sample preserved in the field by client to prolong hold time for Nitrate plus Nitrite. Reported detection limit (RDL) for preserved N&N has not been established at this concentration. Results less than 0.02mg/L should be used with caution and are not suitable for compliance purposes.

Sample MG3111-01 : Sample preserved in the field by client to prolong hold time for Nitrate plus Nitrite. Reported detection limit (RDL) for preserved N&N has not been established at this concentration. Results less than 0.02mg/L should be used with caution and are not suitable for compliance purposes.

Sample MG3113-01 : Sample preserved in the field by client to prolong hold time for Nitrate plus Nitrite. Reported detection limit (RDL) for preserved N&N has not been established at this concentration. Results less than 0.02mg/L should be used with caution and are not suitable for compliance purposes.

Sample MG3116-01 : Sample preserved in the field by client to prolong hold time for Nitrate plus Nitrite. Reported detection limit (RDL) for preserved N&N has not been established at this concentration. Results less than 0.02mg/L should be used with caution and are not suitable for compliance purposes.

Sample MG3127-01 : Sample preserved in the field by client to prolong hold time for Nitrate plus Nitrite. Reported detection limit (RDL) for preserved N&N has not been established at this concentration. Results less than 0.02mg/L should be used with caution and are not suitable for compliance purposes.

**Results relate only to the items tested.**

Maxxam Job #: B540423  
Report Date: 2016/01/19

**QUALITY ASSURANCE REPORT**

TETRATECH EBA  
Client Project #: ENVMIN03071-01

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
7904142	Turbidity	2015/05/18			102	80 - 120	<0.10	NTU	4.6	20
7904151	Nitrate plus Nitrite (N)	2015/05/15	108	80 - 120	105	80 - 120	<0.0020	mg/L	NC	25
7904159	Nitrite (N)	2015/05/15	104	80 - 120	102	80 - 120	<0.0020	mg/L	NC	25
7904503	Orthophosphate (P)	2015/05/15	98	80 - 120	106	80 - 120	<0.0010	mg/L	NC	20
7904732	Total Ammonia (N)	2015/05/20	95	80 - 120	106	80 - 120	<0.0050	mg/L	NC	20
7904747	Nitrate plus Nitrite (N)	2015/05/16	103	80 - 120	104	80 - 120	<0.0020	mg/L	NC	25
7905320	Total Dissolved Solids	2015/05/20	101	80 - 120	92	80 - 120	1.2, RDL=1.0	mg/L	1.5	20
7905790	Total Aluminum (Al)	2015/05/20	96	80 - 120	105	80 - 120	<0.00050	mg/L	0.59	20
7905790	Total Antimony (Sb)	2015/05/20	99	80 - 120	103	80 - 120	<0.000020	mg/L	NC	20
7905790	Total Arsenic (As)	2015/05/20	99	80 - 120	100	80 - 120	<0.000020	mg/L	0.54	20
7905790	Total Barium (Ba)	2015/05/20	98	80 - 120	105	80 - 120	<0.000020	mg/L	1.1	20
7905790	Total Beryllium (Be)	2015/05/20	96	80 - 120	100	80 - 120	<0.000010	mg/L	NC	20
7905790	Total Bismuth (Bi)	2015/05/20	96	80 - 120	97	80 - 120	<0.0000050	mg/L	NC	20
7905790	Total Boron (B)	2015/05/20					<0.010	mg/L	NC	20
7905790	Total Cadmium (Cd)	2015/05/20	94	80 - 120	98	80 - 120	<0.0000050	mg/L	NC	20
7905790	Total Chromium (Cr)	2015/05/20	96	80 - 120	97	80 - 120	<0.00010	mg/L	NC	20
7905790	Total Cobalt (Co)	2015/05/20	95	80 - 120	97	80 - 120	<0.0000050	mg/L	NC	20
7905790	Total Copper (Cu)	2015/05/20	95	80 - 120	98	80 - 120	<0.000050	mg/L	0.36	20
7905790	Total Iron (Fe)	2015/05/20	97	80 - 120	104	80 - 120	<0.0010	mg/L	2.5	20
7905790	Total Lead (Pb)	2015/05/20	103	80 - 120	104	80 - 120	<0.0000050	mg/L	NC	20
7905790	Total Lithium (Li)	2015/05/20	95	80 - 120	97	80 - 120	<0.00050	mg/L	NC	20
7905790	Total Manganese (Mn)	2015/05/20	95	80 - 120	96	80 - 120	<0.000050	mg/L	1.2	20
7905790	Total Molybdenum (Mo)	2015/05/20	96	80 - 120	99	80 - 120	<0.000050	mg/L	NC	20
7905790	Total Nickel (Ni)	2015/05/20	96	80 - 120	98	80 - 120	<0.000020	mg/L	NC	20
7905790	Total Phosphorus (P)	2015/05/20					<0.0020	mg/L		
7905790	Total Selenium (Se)	2015/05/20	89	80 - 120	96	80 - 120	<0.000040	mg/L	NC	20
7905790	Total Silicon (Si)	2015/05/20					<0.050	mg/L	3.8	20
7905790	Total Silver (Ag)	2015/05/20	97	80 - 120	86	80 - 120	<0.0000050	mg/L	NC	20
7905790	Total Strontium (Sr)	2015/05/20	NC	80 - 120	93	80 - 120	<0.000050	mg/L	4.2	20
7905790	Total Thallium (Tl)	2015/05/20	96	80 - 120	98	80 - 120	<0.0000020	mg/L	NC	20
7905790	Total Tin (Sn)	2015/05/20	98	80 - 120	100	80 - 120	<0.00020	mg/L	NC	20
7905790	Total Titanium (Ti)	2015/05/20	95	80 - 120	94	80 - 120	<0.00050	mg/L	NC	20

Maxxam Job #: B540423  
Report Date: 2016/01/19

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMIN03071-01

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
7905790	Total Uranium (U)	2015/05/20	104	80 - 120	102	80 - 120	<0.000020	mg/L	2.6	20
7905790	Total Vanadium (V)	2015/05/20	96	80 - 120	100	80 - 120	<0.00020	mg/L	NC	20
7905790	Total Zinc (Zn)	2015/05/20	NC	80 - 120	99	80 - 120	<0.00010	mg/L	0.33	20
7905790	Total Zirconium (Zr)	2015/05/20					<0.00010	mg/L	NC	20
7905974	Dissolved Chloride (Cl)	2015/05/19	NC	80 - 120	98	80 - 120	<0.50	mg/L	2.7	20
7905975	Dissolved Sulphate (SO4)	2015/05/19	NC	80 - 120	91	80 - 120	<0.50	mg/L	1.5	20
7906097	Fluoride (F)	2015/05/19	NC	80 - 120	96	80 - 120	<0.010	mg/L	0	20
7906099	Fluoride (F)	2015/05/19	101	80 - 120	98	80 - 120	<0.010	mg/L	NC	20
7906159	Dissolved Phosphorus (P)	2015/05/19	104	80 - 120	93	80 - 120	<0.0020	mg/L	NC	20
7906172	Total Phosphorus (P)	2015/05/19	NC	80 - 120	100	80 - 120	<0.0020	mg/L	0.044	20
7906174	Total Phosphorus (P)	2015/05/19	96	80 - 120	93	80 - 120	<0.0020	mg/L	NC	20
7906182	Total Ammonia (N)	2015/05/19	101	80 - 120	92	80 - 120	<0.0050	mg/L	NC	20
7906757	pH	2015/05/20			101	97 - 103			0.45	N/A
7906760	Conductivity	2015/05/20			101	80 - 120	1.2, RDL=1.0	uS/cm	0.36	20
7906762	Alkalinity (PP as CaCO3)	2015/05/20					<0.50	mg/L		
7906762	Alkalinity (Total as CaCO3)	2015/05/20	NC	80 - 120	100	80 - 120	0.80, RDL=0.50	mg/L		
7906762	Bicarbonate (HCO3)	2015/05/20					0.98, RDL=0.50	mg/L		
7906762	Carbonate (CO3)	2015/05/20					<0.50	mg/L		
7906762	Hydroxide (OH)	2015/05/20					<0.50	mg/L		
7906796	pH	2015/05/21			101	97 - 103				
7906810	Conductivity	2015/05/21			102	80 - 120	1.2, RDL=1.0	uS/cm		
7906814	Alkalinity (PP as CaCO3)	2015/05/21					<0.50	mg/L	NC	20
7906814	Alkalinity (Total as CaCO3)	2015/05/21	NC	80 - 120	91	80 - 120	<0.50	mg/L	2.0	20
7906814	Bicarbonate (HCO3)	2015/05/21					<0.50	mg/L	2.0	20
7906814	Carbonate (CO3)	2015/05/21					<0.50	mg/L	NC	20
7906814	Hydroxide (OH)	2015/05/21					<0.50	mg/L	NC	20
7906912	Dissolved Aluminum (Al)	2015/05/20	102	80 - 120	104	80 - 120	<0.00050	mg/L	NC	20
7906912	Dissolved Antimony (Sb)	2015/05/20	102	80 - 120	104	80 - 120	<0.000020	mg/L	NC	20
7906912	Dissolved Arsenic (As)	2015/05/20	106	80 - 120	102	80 - 120	<0.000020	mg/L	1.6	20
7906912	Dissolved Barium (Ba)	2015/05/20	NC	80 - 120	107	80 - 120	<0.000020	mg/L	7.1	20
7906912	Dissolved Beryllium (Be)	2015/05/20	101	80 - 120	99	80 - 120	<0.000010	mg/L	NC	20
7906912	Dissolved Bismuth (Bi)	2015/05/20	95	80 - 120	99	80 - 120	<0.0000050	mg/L	NC	20

Maxxam Job #: B540423  
Report Date: 2016/01/19

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMIN03071-01

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
7906912	Dissolved Boron (B)	2015/05/20					<0.010	mg/L	NC	20
7906912	Dissolved Cadmium (Cd)	2015/05/20	93	80 - 120	100	80 - 120	<0.000050	mg/L	NC	20
7906912	Dissolved Chromium (Cr)	2015/05/20	98	80 - 120	98	80 - 120	<0.00010	mg/L	NC	20
7906912	Dissolved Cobalt (Co)	2015/05/20	94	80 - 120	98	80 - 120	<0.000050	mg/L	NC	20
7906912	Dissolved Copper (Cu)	2015/05/20	92	80 - 120	98	80 - 120	<0.000050	mg/L	NC	20
7906912	Dissolved Iron (Fe)	2015/05/20	102	80 - 120	107	80 - 120	<0.0010	mg/L	NC	20
7906912	Dissolved Lead (Pb)	2015/05/20	102	80 - 120	106	80 - 120	<0.000050	mg/L	NC	20
7906912	Dissolved Lithium (Li)	2015/05/20	102	80 - 120	108	80 - 120	<0.00050	mg/L	NC	20
7906912	Dissolved Manganese (Mn)	2015/05/20	96	80 - 120	98	80 - 120	<0.000050	mg/L	3.2	20
7906912	Dissolved Molybdenum (Mo)	2015/05/20	NC	80 - 120	98	80 - 120	<0.000050	mg/L	1.1	20
7906912	Dissolved Nickel (Ni)	2015/05/20	95	80 - 120	99	80 - 120	<0.000020	mg/L	2.0	20
7906912	Dissolved Phosphorus (P)	2015/05/20					<0.0020	mg/L	NC	20
7906912	Dissolved Selenium (Se)	2015/05/20	96	80 - 120	96	80 - 120	<0.000040	mg/L	0.034	20
7906912	Dissolved Silicon (Si)	2015/05/20					<0.050	mg/L	2.5	20
7906912	Dissolved Silver (Ag)	2015/05/20	98	80 - 120	88	80 - 120	<0.000050	mg/L	NC	20
7906912	Dissolved Strontium (Sr)	2015/05/20	NC	80 - 120	96	80 - 120	<0.000050	mg/L	3.0	20
7906912	Dissolved Thallium (Tl)	2015/05/20	87	80 - 120	100	80 - 120	<0.000020	mg/L	NC	20
7906912	Dissolved Tin (Sn)	2015/05/20	102	80 - 120	103	80 - 120	<0.00020	mg/L	NC	20
7906912	Dissolved Titanium (Ti)	2015/05/20	95	80 - 120	98	80 - 120	<0.00050	mg/L	NC	20
7906912	Dissolved Uranium (U)	2015/05/20	100	80 - 120	104	80 - 120	<0.000020	mg/L	0.33	20
7906912	Dissolved Vanadium (V)	2015/05/20	101	80 - 120	104	80 - 120	<0.00020	mg/L	NC	20
7906912	Dissolved Zinc (Zn)	2015/05/20	91	80 - 120	99	80 - 120	<0.00010	mg/L	NC	20
7906912	Dissolved Zirconium (Zr)	2015/05/20					<0.00010	mg/L	NC	20
7906927	Acidity (pH 4.5)	2015/05/20					<0.50	mg/L	NC	20
7906927	Acidity (pH 8.3)	2015/05/20			95	80 - 120	<0.50	mg/L	3.0	20
7906929	Acidity (pH 4.5)	2015/05/20					<0.50	mg/L	0.96	20
7906929	Acidity (pH 8.3)	2015/05/20			105	80 - 120	<0.50	mg/L	1.6	20
7907046	Total Aluminum (Al)	2015/05/23	NC	80 - 120	116	80 - 120	<0.0030	mg/L	3.3	20
7907046	Total Antimony (Sb)	2015/05/23	107	80 - 120	111	80 - 120	<0.000050	mg/L	NC	20
7907046	Total Arsenic (As)	2015/05/23	103	80 - 120	99	80 - 120	<0.000020	mg/L	7.5	20
7907046	Total Barium (Ba)	2015/05/23	NC	80 - 120	112	80 - 120	<0.00010	mg/L	3.5	20
7907046	Total Beryllium (Be)	2015/05/23	100	80 - 120	97	80 - 120	<0.000010	mg/L	NC	20

Maxxam Job #: B540423  
Report Date: 2016/01/19

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMIN03071-01

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
7907046	Total Bismuth (Bi)	2015/05/23	110	80 - 120	107	80 - 120	<0.000020	mg/L	NC	20
7907046	Total Boron (B)	2015/05/23					<0.050	mg/L	NC	20
7907046	Total Cadmium (Cd)	2015/05/23	104	80 - 120	101	80 - 120	<0.0000050	mg/L	NC	20
7907046	Total Chromium (Cr)	2015/05/23	107	80 - 120	103	80 - 120	<0.00050	mg/L	NC	20
7907046	Total Cobalt (Co)	2015/05/23	107	80 - 120	103	80 - 120	<0.000010	mg/L	3.6	20
7907046	Total Copper (Cu)	2015/05/23	103	80 - 120	106	80 - 120	0.00042, RDL=0.00040 (2)	mg/L	4.4	20
7907046	Total Iron (Fe)	2015/05/23	NC	80 - 120	106	80 - 120	<0.0050	mg/L	19	20
7907046	Total Lead (Pb)	2015/05/23	115	80 - 120	113	80 - 120	<0.000050	mg/L	NC	20
7907046	Total Lithium (Li)	2015/05/23	102	80 - 120	101	80 - 120	<0.00050	mg/L	NC	20
7907046	Total Manganese (Mn)	2015/05/23	NC	80 - 120	106	80 - 120	<0.00010	mg/L	3.2	20
7907046	Total Molybdenum (Mo)	2015/05/23	121 (1)	80 - 120	110	80 - 120	<0.000050	mg/L	3.8	20
7907046	Total Nickel (Ni)	2015/05/23	105	80 - 120	102	80 - 120	<0.00010	mg/L	3.6	20
7907046	Total Phosphorus (P)	2015/05/23					<0.010	mg/L		
7907046	Total Selenium (Se)	2015/05/23	89	80 - 120	83	80 - 120	<0.000040	mg/L	NC	20
7907046	Total Silicon (Si)	2015/05/23					<0.10	mg/L		
7907046	Total Silver (Ag)	2015/05/23	113	80 - 120	113	80 - 120	<0.0000050	mg/L	NC	20
7907046	Total Strontium (Sr)	2015/05/23	NC	80 - 120	106	80 - 120	<0.000050	mg/L	8.2	20
7907046	Total Thallium (Tl)	2015/05/23	111	80 - 120	106	80 - 120	<0.0000020	mg/L	NC	20
7907046	Total Tin (Sn)	2015/05/23	112	80 - 120	113	80 - 120	<0.00020	mg/L	NC	20
7907046	Total Titanium (Ti)	2015/05/23	NC	80 - 120	109	80 - 120	<0.0050	mg/L		
7907046	Total Uranium (U)	2015/05/23	120	80 - 120	115	80 - 120	<0.0000050	mg/L	7.2	20
7907046	Total Vanadium (V)	2015/05/23	107	80 - 120	105	80 - 120	<0.00050	mg/L	NC	20
7907046	Total Zinc (Zn)	2015/05/23	90	80 - 120	95	80 - 120	<0.0010	mg/L	NC	20
7907046	Total Zirconium (Zr)	2015/05/23					<0.00010	mg/L		
7907298	Dissolved Sulphate (SO4)	2015/05/20			96	80 - 120	<0.50	mg/L	2.1	20
7908099	Dissolved Mercury (Hg)	2015/05/21	99	80 - 120	109	80 - 120	<0.0000020	mg/L	NC	20
7908193	Total Mercury (Hg)	2015/05/21	88	80 - 120	104	80 - 120	<0.0000020	mg/L	NC	20
7908208	Total Nitrogen (N)	2015/05/21	NC	80 - 120	91	80 - 120	<0.020	mg/L	0.43	20
7908212	Total Mercury (Hg)	2015/05/21	97	80 - 120	108	80 - 120	<0.0000020	mg/L	NC	20
7908217	Total Nitrogen (N)	2015/05/21	NC	80 - 120	94	80 - 120	<0.020	mg/L	3.5	20

Maxxam Job #: B540423  
Report Date: 2016/01/19

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMIN03071-01

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
7908245	Total Nitrogen (N)	2015/05/21	NC	80 - 120	92	80 - 120	<0.020	mg/L	2.2	20
7908403	Dissolved Phosphorus (P)	2015/05/20	109	80 - 120	92	80 - 120	<0.0020	mg/L	NC	20
7908404	Total Phosphorus (P)	2015/05/20	103	80 - 120	92	80 - 120	<0.0020	mg/L	NC	20
7908536	Total Organic Carbon (C)	2015/05/21	104	80 - 120	108	80 - 120	<0.50	mg/L	NC	20
7909326	Total Dissolved Solids	2015/05/24	101	80 - 120	106	80 - 120	<1.0	mg/L	5.4	20

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

(2) BLANK outside acceptance criteria, detection limit adjusted accordingly

Maxxam Job #: B540423  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



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David Huang, BBY Scientific Specialist

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



<b>INVOICE TO:</b>		<b>Report Information</b>		<b>Project Information</b>		<b>Laboratory Use Only</b>	
Company Name: #11954 BMC MINERAL (NO. 1) LTD.	Company Name: #31161 TETRATECH EBA	Quotation #: B50743	Maxxam Job #: B540423	Bottle Order #: 464971	Chain Of Custody Record		
Contact Name: ACCOUNTS PAYABLE	Contact Name: KRISTEN RANGE	P.O. #: ENVMIN030	Project #: 71-01	Project Manager: Morgan Melnychuk		Project Name: _____	
Address: 530-1130 West Pender Street, Vancouver BC V6E 4A4	Address: 61 WASSON PLACE WHITEHORSE YT V1A 0H7	Site #: _____	Sampled By: _____	Turnaround Time (TAT) Required: _____			
Phone: _____ Fax: _____	Phone: (867) 668-9225 Fax: _____	Special Instructions: _____		Regulatory Criteria:		Please provide advance notice for rush projects	
Email: kdbergh@gmail.com	Email: Kristen.Range@tetrattech.com	Metals Field Filtered? (Y/N):		ANALYSIS REQUESTED (PLEASE BE SPECIFIC):		Regular (Standard) TAT: <input checked="" type="checkbox"/> (will be applied if Rush TAT is not specified)	

Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered? (Y/N)	ROUTINE (incl. TDS)	MAJOR IONS	NUTRIENTS	Low Level Dissolved Metals with CV Hg	Low Level Total Metals with CV Hg	Nitrate/Nitrite	Dis. Phosphorus	Tot. Phosphorus	# of Bottles	Comments
M63098 M63099	BH95-25					X	X	X	X	X	α	α	α	13 All samples were field filtered and/or preserved as required. TSS not required for any of the samples.	
M63100 M63101	BH95-146					X	X	X	X	α	α	α			
M63102 M63103	BH95-21					X	X	X	X	α	α	α			
M63104 M63105	BH95-22					X	X	X	X	α	α	α			
M63106 M63107	ART-3					X	X	X	X	α	α	α			
M63108 M63109	ART-4					X	X	X	X	α	α	α			
M63110 M63111	BH95-32					X	X	X	X	α	α	α			
M63112 M63113	BH95-33					X	X	X	X	α	α	α			
M63114	TRIP BLANK					X	X	X	X	α	α	α			
M63115 M63116	BH95-2					α	α	α	α	α	α	α			

RELINQUISHED BY: (Signature/Print) <i>Elaine Ray</i>	Date: (YY/MM/DD) 2015/05/14	Time: 4pm	RECEIVED BY: (Signature/Print) <i>Lauren Berthier</i>	Date: (YY/MM/DD) 2015/05/15	Time: 12:35	# Jars used and not submitted	Time Sensitive <input type="checkbox"/>	Temperature (°C) on Receipt: 888/565	Custody Seal on Cooler? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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\* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

4.4.5



Maxxam Analytics International Corporation o/a Maxxam Analytics  
4606 Canada Way, Burnaby, British Columbia Canada V5G 1K5 Tel: (604) 734-7276 Toll-Free: 800-563-6266 Fax: (604) 731-2386 www.maxxam.ca

Chain Of Custody Record

<b>INVOICE TO:</b>		<b>Report Information</b>		<b>Project Information</b>		<b>Laboratory Use Only</b>	
Company Name: #11954 BMC MINERAL (NO. 1) LTD.	Company Name: #31161 TETRATECH EBA	Quotation #: B50743	Maxxam Job #: B540423	Bottle Order #:	Barcode: 804671		
Contact Name: ACCOUNTS PAYABLE	Contact Name: KRISTEN RANGE	P.O. #:	Chain Of Custody Record:	Project Manager:		Morgan Melnychuk	
Address: 530-1130 West Pender Street, Vancouver BC V6E 4A4	Address: 61 WASSON PLACE WHITEHORSE YT V1A 0H7	Project #: ENVMIN0304-41-01	Site #:	Barcode: 04454571-01-01			
Phone: Fax: Email: kdbergh@gmail.com	Phone: (857) 668-9225 Fax: Email: Kristen.Range@tetrattech.com	Project Name:	Sampled By:				

Regulatory Criteria: <input type="checkbox"/> CSR <input checked="" type="checkbox"/> CCME <input type="checkbox"/> BC Water Quality <input type="checkbox"/> Other: _____	Special Instructions:	ANALYSIS REQUESTED (PLEASE BE SPECIFIC): ROUTINE (inc. TDS) MAJOR IONS NUTRIENTS Low Level Dissolved Metals with CV Hg Low Level Total Metals with CV Hg Ds. Phosphorus Tot. Phosphorus Nitrate/Nitrite	Turnaround Time (TAT) Required: Please provide advance notice for rush projects. Regular (Standard) TAT: (will be applied if Rush TAT is not specified) Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dioxin/Furans are > 5 days - contact your Project Manager for details. Job Specific Rush TAT (if applies to entire submission) 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> 3 Day <input type="checkbox"/> Date Required: _____ Rush Confirmation Number: _____ (call lab for #)
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**SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM**

Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Panel Filtered? (Y/N)	ROUTINE (inc. TDS)	MAJOR IONS	NUTRIENTS	Low Level Dissolved Metals with CV Hg	Low Level Total Metals with CV Hg	Ds. Phosphorus	Tot. Phosphorus	Nitrate/Nitrite	# of Bottles	Comments
1 MG3126	Dup 01					X	X	X	X	X				13	
2 MG3127						X	X	X	X	X					
3						X	X	X	X	X					
4						X	X	X	X	X					
5						X	X	X	X	X					
6						X	X	X	X	X					
7						X	X	X	X	X					
8						X	X	X	X	X					
9						X	X	X	X	X					
10						X	X	X	X	X					

RELINQUISHED BY: (Signature/Print) <i>Eliana Rey</i>	Date: (YY/MM/DD) 2015/05/14	Time 4pm	RECEIVED BY: (Signature/Print) <i>Laurel Bentler</i>	Date: (YY/MM/DD) 2015/05/15	Time 12:35	# Jars used and not submitted	Temp Sensor <input type="checkbox"/>	Temperature (°C) on Receipt 8.88 / 56.5	Custody Seal Intact on Codes? <input type="checkbox"/> Yes <input type="checkbox"/> No
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\* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

Maxxam Analytics International Corporation o/a Maxxam Analytics

44.5

Your Project #: ENVMIN03071-01  
Your C.O.C. #: 08412558

**Attention:KRISTEN RANGE**

TETRATECH EBA  
61 WASSON PLACE  
WHITEHORSE, YT  
Canada Y1A 0H7

**Report Date: 2015/08/12**  
Report #: R2022705  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B567068**

**Received: 2015/08/06, 08:30**

Sample Matrix: Water  
# Samples Received: 1

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Analytical Method</b>
Acidity pH 4.5 & pH 8.3 (as CaCO3)	1	N/A	2015/08/06	BBY6SOP-00037	SM 22 2310 B m
Alkalinity - Water	1	2015/08/06	2015/08/07	BBY6SOP-00026	SM 22 2320 B m
Biochemical Oxygen Demand	1	2015/08/06	2015/08/06	BBY6SOP-00045	SM 22 5210 B m
Chloride by Automated Colourimetry	1	N/A	2015/08/10	BBY6SOP-00011	SM 22 4500-Cl- G m
Conductance - water	1	N/A	2015/08/07	BBY6SOP-00026	SM 22 2510 B m
Fluoride	1	N/A	2015/08/07	BBY6SOP-00048	SM 22 4500-F C m
Hardness Total (calculated as CaCO3)	1	N/A	2015/08/10	BBY7SOP-00002	EPA 6020a R1 m
Hardness (calculated as CaCO3)	1	N/A	2015/08/07	BBY7SOP-00002	EPA 6020a R1 m
Mercury (Dissolved-LowLevel) by CVAF	1	N/A	2015/08/10	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total-LowLevel) by CVAF	1	2015/08/10	2015/08/10	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Ion Balance	1	N/A	2015/08/10	BBY WI-00033	SM 22 1030E
Sum of cations, anions	1	N/A	2015/08/07	Calc	
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	1	N/A	2015/08/07	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Low Level (dissolved)	1	N/A	2015/08/07	BBY7SOP-00002	EPA 6020A R1 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	1	N/A	2015/08/10	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Low Level (total)	1	N/A	2015/08/07	BBY7SOP-00002	EPA 6020A R1 m
Filter and HNO3 Preserve for Metals	1	N/A	2015/08/07	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (2)	1	N/A	2015/08/07	BBY6SOP-00026	SM 22 4500-H+ B m
Sulphate by Automated Colourimetry	1	N/A	2015/08/10	BBY6SOP-00017	SM 22 4500-SO42- E m
Total Dissolved Solids - Low Level	1	N/A	2015/08/10	BBY6SOP-00033	SM 22 2540 C m
Carbon (Total Organic) (1, 3)	1	N/A	2015/08/12	CAL SOP-00077	MMCW 119 1996 m
Total Suspended Solids-Low Level	1	2015/08/07	2015/08/08	BBY6SOP-00034	SM 22 2540 D
Turbidity	1	N/A	2015/08/06	BBY6SOP-00027	SM 22 2130 B m

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Maxxam Calgary Environmental

(2) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

(3) TOC present in the sample should be considered as non-purgeable TOC.

Your Project #: ENVMIN03071-01  
Your C.O.C. #: 08412558

**Attention:KRISTEN RANGE**

TETRATECH EBA  
61 WASSON PLACE  
WHITEHORSE, YT  
Canada Y1A 0H7

**Report Date: 2015/08/12**  
Report #: R2022705  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B567068**

**Received: 2015/08/06, 08:30**

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.  
Morgan Melnychuk, Burnaby Project Manager  
Email: MMelnychuk@maxxam.ca  
Phone# (604)638-8034 Ext:8034

=====  
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B567068  
Report Date: 2015/08/12

TETRATECH EBA  
Client Project #: ENVMIN03071-01

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		MV2007	MV2007		
Sampling Date		2015/08/04 10:00	2015/08/04 10:00		
COC Number		08412558	08412558		
	Units	WW15-01	WW15-01 Lab-Dup	RDL	QC Batch
<b>Misc. Inorganics</b>					
Acidity (pH 4.5)	mg/L	<0.50		0.50	7993632
Acidity (pH 8.3)	mg/L	17.6		0.50	7993632
<b>Calculated Parameters</b>					
Anion Sum	meq/L	2.7		N/A	7993148
Cation Sum	meq/L	2.9		N/A	7993148
Filter and HNO3 Preservation	N/A	LAB		N/A	7994325
Ion Balance	N/A	1.1		0.010	7993147
<b>Demand Parameters</b>					
Biochemical Oxygen Demand	mg/L	<6.0		6.0	7992898
<b>Misc. Inorganics</b>					
Fluoride (F)	mg/L	0.081	0.079	0.010	7994997
Alkalinity (Total as CaCO3)	mg/L	32.0		0.50	7994156
Total Organic Carbon (C)	mg/L	1.2		0.50	7999241
Alkalinity (PP as CaCO3)	mg/L	<0.50		0.50	7994156
Bicarbonate (HCO3)	mg/L	39.0		0.50	7994156
Carbonate (CO3)	mg/L	<0.50		0.50	7994156
Hydroxide (OH)	mg/L	<0.50		0.50	7994156
<b>Anions</b>					
Dissolved Sulphate (SO4)	mg/L	98.0		0.50	7997044
Dissolved Chloride (Cl)	mg/L	<0.50		0.50	7997040
<b>Physical Properties</b>					
Conductivity	uS/cm	267		1.0	7994161
pH	pH	6.94		N/A	7994162
<b>Physical Properties</b>					
Total Suspended Solids	mg/L	52.9		1.0	7993687
Total Dissolved Solids	mg/L	248		1.0	7993649
Turbidity	NTU	79.6		0.10	7993153
RDL = Reportable Detection Limit					
Lab-Dup = Laboratory Initiated Duplicate					

Maxxam Job #: B567068  
Report Date: 2015/08/12

TETRATECH EBA  
Client Project #: ENVMIN03071-01

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		MV2007		
<b>Sampling Date</b>		2015/08/04 10:00		
<b>COC Number</b>		08412558		
	<b>Units</b>	<b>WW15-01</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Misc. Inorganics</b>				
Dissolved Hardness (CaCO <sub>3</sub> )	mg/L	112	0.50	7992800
<b>Elements</b>				
Dissolved Mercury (Hg)	mg/L	<0.0000020	0.0000020	7996412
<b>Dissolved Metals by ICPMS</b>				
Dissolved Aluminum (Al)	mg/L	0.00502	0.00050	7993405
Dissolved Antimony (Sb)	mg/L	0.00110	0.000020	7993405
Dissolved Arsenic (As)	mg/L	0.00746	0.000020	7993405
Dissolved Barium (Ba)	mg/L	0.0472	0.000020	7993405
Dissolved Beryllium (Be)	mg/L	<0.000010	0.000010	7993405
Dissolved Bismuth (Bi)	mg/L	<0.0000050	0.0000050	7993405
Dissolved Boron (B)	mg/L	<0.010	0.010	7993405
Dissolved Cadmium (Cd)	mg/L	0.0316	0.0000050	7993405
Dissolved Chromium (Cr)	mg/L	<0.00010	0.00010	7993405
Dissolved Cobalt (Co)	mg/L	0.00456	0.0000050	7993405
Dissolved Copper (Cu)	mg/L	0.00133	0.000050	7993405
Dissolved Iron (Fe)	mg/L	10.4	0.0010	7993405
Dissolved Lead (Pb)	mg/L	0.000782	0.0000050	7993405
Dissolved Lithium (Li)	mg/L	0.00238	0.00050	7993405
Dissolved Manganese (Mn)	mg/L	0.735	0.000050	7993405
Dissolved Molybdenum (Mo)	mg/L	0.000898	0.000050	7993405
Dissolved Nickel (Ni)	mg/L	0.0272	0.000020	7993405
Dissolved Phosphorus (P)	mg/L	<0.0020	0.0020	7993405
Dissolved Selenium (Se)	mg/L	0.000280	0.000040	7993405
Dissolved Silicon (Si)	mg/L	6.68	0.050	7993405
Dissolved Silver (Ag)	mg/L	<0.0000050	0.0000050	7993405
Dissolved Strontium (Sr)	mg/L	0.110	0.000050	7993405
Dissolved Thallium (Tl)	mg/L	0.000114	0.0000020	7993405
Dissolved Tin (Sn)	mg/L	<0.00020	0.00020	7993405
Dissolved Titanium (Ti)	mg/L	<0.00050	0.00050	7993405
Dissolved Uranium (U)	mg/L	0.0000630	0.0000020	7993405
Dissolved Vanadium (V)	mg/L	<0.00020	0.00020	7993405
Dissolved Zinc (Zn)	mg/L	3.61	0.00010	7993405
Dissolved Zirconium (Zr)	mg/L	<0.00010	0.00010	7993405
Dissolved Calcium (Ca)	mg/L	35.1	0.050	7993010
Dissolved Magnesium (Mg)	mg/L	6.01	0.050	7993010
Dissolved Potassium (K)	mg/L	2.14	0.050	7993010
RDL = Reportable Detection Limit				

Maxxam Job #: B567068  
Report Date: 2015/08/12

TETRATECH EBA  
Client Project #: ENVMIN03071-01

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		MV2007		
<b>Sampling Date</b>		2015/08/04 10:00		
<b>COC Number</b>		08412558		
	<b>Units</b>	<b>WW15-01</b>	<b>RDL</b>	<b>QC Batch</b>
Dissolved Sodium (Na)	mg/L	3.10	0.050	7993010
Dissolved Sulphur (S)	mg/L	29.7	3.0	7993010
RDL = Reportable Detection Limit				

Maxxam Job #: B567068  
Report Date: 2015/08/12

TETRATECH EBA  
Client Project #: ENVMIN03071-01

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		MV2007		
<b>Sampling Date</b>		2015/08/04 10:00		
<b>COC Number</b>		08412558		
	<b>Units</b>	<b>WW15-01</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>				
Total Hardness (CaCO3)	mg/L	125	0.50	7992901
<b>Elements</b>				
Total Mercury (Hg)	mg/L	<0.0000020	0.0000020	7996755
<b>Total Metals by ICPMS</b>				
Total Aluminum (Al)	mg/L	0.256	0.00050	7994245
Total Antimony (Sb)	mg/L	0.00203	0.000020	7994245
Total Arsenic (As)	mg/L	0.0376	0.000020	7994245
Total Barium (Ba)	mg/L	0.0528	0.000020	7994245
Total Beryllium (Be)	mg/L	0.000013	0.000010	7994245
Total Bismuth (Bi)	mg/L	0.0000235	0.0000050	7994245
Total Boron (B)	mg/L	<0.010	0.010	7994245
Total Cadmium (Cd)	mg/L	0.0581	0.0000050	7994245
Total Chromium (Cr)	mg/L	0.00043	0.00010	7994245
Total Cobalt (Co)	mg/L	0.00474	0.0000050	7994245
Total Copper (Cu)	mg/L	0.00402	0.000050	7994245
Total Iron (Fe)	mg/L	22.8	0.0010	7994245
Total Lead (Pb)	mg/L	0.126	0.0000050	7994245
Total Lithium (Li)	mg/L	0.00302	0.00050	7994245
Total Manganese (Mn)	mg/L	0.717	0.000050	7994245
Total Molybdenum (Mo)	mg/L	0.00139	0.000050	7994245
Total Nickel (Ni)	mg/L	0.0273	0.000020	7994245
Total Phosphorus (P)	mg/L	0.0115	0.0020	7994245
Total Selenium (Se)	mg/L	0.000308	0.000040	7994245
Total Silicon (Si)	mg/L	12.0	0.050	7994245
Total Silver (Ag)	mg/L	0.0000452	0.0000050	7994245
Total Strontium (Sr)	mg/L	0.114	0.000050	7994245
Total Thallium (Tl)	mg/L	0.000251	0.0000020	7994245
Total Tin (Sn)	mg/L	0.00025	0.00020	7994245
Total Titanium (Ti)	mg/L	0.0138	0.00050	7994245
Total Uranium (U)	mg/L	0.000194	0.0000020	7994245
Total Vanadium (V)	mg/L	0.00026	0.00020	7994245
Total Zinc (Zn)	mg/L	3.61	0.00010	7994245
Total Zirconium (Zr)	mg/L	0.00050	0.00010	7994245
Total Calcium (Ca)	mg/L	41.3	0.050	7993011
Total Magnesium (Mg)	mg/L	5.42	0.050	7993011
Total Potassium (K)	mg/L	2.11	0.050	7993011
RDL = Reportable Detection Limit				



Maxxam Job #: B567068  
Report Date: 2015/08/12

TETRATECH EBA  
Client Project #: ENVMIN03071-01

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		MV2007		
<b>Sampling Date</b>		2015/08/04 10:00		
<b>COC Number</b>		08412558		
	<b>Units</b>	<b>WW15-01</b>	<b>RDL</b>	<b>QC Batch</b>
Total Sodium (Na)	mg/L	2.80	0.050	7993011
Total Sulphur (S)	mg/L	29.6	3.0	7993011
RDL = Reportable Detection Limit				

Maxxam Job #: B567068  
Report Date: 2015/08/12

TETRATECH EBA  
Client Project #: ENVMIN03071-01

**GENERAL COMMENTS**

**Results relate only to the items tested.**

Maxxam Job #: B567068  
Report Date: 2015/08/12

**QUALITY ASSURANCE REPORT**

TETRATECH EBA  
Client Project #: ENVMIN03071-01

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
7992898	Biochemical Oxygen Demand	2015/08/06			106	85 - 115	<6.0	mg/L	0.52	20
7993153	Turbidity	2015/08/06			101	80 - 120	<0.10	NTU	NC	20
7993405	Dissolved Aluminum (Al)	2015/08/07	101	80 - 120	100	80 - 120	<0.00050	mg/L	NC	20
7993405	Dissolved Antimony (Sb)	2015/08/07	100	80 - 120	97	80 - 120	<0.000020	mg/L	NC	20
7993405	Dissolved Arsenic (As)	2015/08/07	97	80 - 120	94	80 - 120	<0.000020	mg/L	NC	20
7993405	Dissolved Barium (Ba)	2015/08/07	102	80 - 120	101	80 - 120	<0.000020	mg/L	NC	20
7993405	Dissolved Beryllium (Be)	2015/08/07	106	80 - 120	103	80 - 120	<0.000010	mg/L	NC	20
7993405	Dissolved Bismuth (Bi)	2015/08/07	98	80 - 120	99	80 - 120	<0.0000050	mg/L	NC	20
7993405	Dissolved Boron (B)	2015/08/07					<0.010	mg/L	NC	20
7993405	Dissolved Cadmium (Cd)	2015/08/07	98	80 - 120	96	80 - 120	<0.0000050	mg/L	NC	20
7993405	Dissolved Chromium (Cr)	2015/08/07	103	80 - 120	103	80 - 120	<0.00010	mg/L	NC	20
7993405	Dissolved Cobalt (Co)	2015/08/07	104	80 - 120	105	80 - 120	<0.0000050	mg/L	NC	20
7993405	Dissolved Copper (Cu)	2015/08/07	106	80 - 120	106	80 - 120	<0.000050	mg/L	NC	20
7993405	Dissolved Iron (Fe)	2015/08/07	104	80 - 120	101	80 - 120	<0.0010	mg/L	NC	20
7993405	Dissolved Lead (Pb)	2015/08/07	102	80 - 120	104	80 - 120	<0.0000050	mg/L	NC	20
7993405	Dissolved Lithium (Li)	2015/08/07	99	80 - 120	92	80 - 120	<0.00050	mg/L	NC	20
7993405	Dissolved Manganese (Mn)	2015/08/07	99	80 - 120	100	80 - 120	<0.000050	mg/L	NC	20
7993405	Dissolved Molybdenum (Mo)	2015/08/07	99	80 - 120	95	80 - 120	<0.000050	mg/L	NC	20
7993405	Dissolved Nickel (Ni)	2015/08/07	104	80 - 120	104	80 - 120	<0.000020	mg/L	NC	20
7993405	Dissolved Phosphorus (P)	2015/08/07					<0.0020	mg/L		
7993405	Dissolved Selenium (Se)	2015/08/07	98	80 - 120	95	80 - 120	<0.000040	mg/L	NC	20
7993405	Dissolved Silicon (Si)	2015/08/07					<0.050	mg/L	NC	20
7993405	Dissolved Silver (Ag)	2015/08/07	98	80 - 120	90	80 - 120	<0.0000050	mg/L	NC	20
7993405	Dissolved Strontium (Sr)	2015/08/07	90	80 - 120	88	80 - 120	<0.000050	mg/L	NC	20
7993405	Dissolved Thallium (Tl)	2015/08/07	98	80 - 120	101	80 - 120	<0.0000020	mg/L	NC	20
7993405	Dissolved Tin (Sn)	2015/08/07	97	80 - 120	95	80 - 120	<0.00020	mg/L	NC	20
7993405	Dissolved Titanium (Ti)	2015/08/07	93	80 - 120	95	80 - 120	<0.00050	mg/L	NC	20
7993405	Dissolved Uranium (U)	2015/08/07	108	80 - 120	110	80 - 120	<0.0000020	mg/L	NC	20
7993405	Dissolved Vanadium (V)	2015/08/07	104	80 - 120	103	80 - 120	<0.00020	mg/L	NC	20
7993405	Dissolved Zinc (Zn)	2015/08/07	105	80 - 120	104	80 - 120	<0.00010	mg/L	NC	20
7993405	Dissolved Zirconium (Zr)	2015/08/07					<0.00010	mg/L	NC	20
7993632	Acidity (pH 4.5)	2015/08/06					<0.50	mg/L		

Maxxam Job #: B567068  
Report Date: 2015/08/12

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMIN03071-01

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
7993632	Acidity (pH 8.3)	2015/08/06			98	80 - 120	<0.50	mg/L		
7993649	Total Dissolved Solids	2015/08/10	103	80 - 120	112	80 - 120	<1.0	mg/L	3.5	20
7993687	Total Suspended Solids	2015/08/08			102	80 - 120	<1.0	mg/L		
7994156	Alkalinity (PP as CaCO3)	2015/08/07					<0.50	mg/L	NC	20
7994156	Alkalinity (Total as CaCO3)	2015/08/07	NC	80 - 120	99	80 - 120	0.71, RDL=0.50	mg/L	1.4	20
7994156	Bicarbonate (HCO3)	2015/08/07					0.87, RDL=0.50	mg/L	1.4	20
7994156	Carbonate (CO3)	2015/08/07					<0.50	mg/L	NC	20
7994156	Hydroxide (OH)	2015/08/07					<0.50	mg/L	NC	20
7994161	Conductivity	2015/08/07			100	80 - 120	1.7, RDL=1.0	uS/cm	0.50	20
7994162	pH	2015/08/07			101	97 - 103				
7994245	Total Aluminum (Al)	2015/08/07	106	80 - 120	100	80 - 120	<0.00050	mg/L	NC	20
7994245	Total Antimony (Sb)	2015/08/07	110	80 - 120	100	80 - 120	<0.000020	mg/L	NC	20
7994245	Total Arsenic (As)	2015/08/07	108	80 - 120	96	80 - 120	<0.000020	mg/L	3.1	20
7994245	Total Barium (Ba)	2015/08/07	NC	80 - 120	101	80 - 120	<0.000020	mg/L	4.0	20
7994245	Total Beryllium (Be)	2015/08/07	105	80 - 120	99	80 - 120	<0.000010	mg/L	NC	20
7994245	Total Bismuth (Bi)	2015/08/07	105	80 - 120	106	80 - 120	<0.0000050	mg/L	NC	20
7994245	Total Boron (B)	2015/08/07					<0.010	mg/L	NC	20
7994245	Total Cadmium (Cd)	2015/08/07	106	80 - 120	98	80 - 120	<0.0000050	mg/L	7.4	20
7994245	Total Chromium (Cr)	2015/08/07	108	80 - 120	100	80 - 120	<0.00010	mg/L	NC	20
7994245	Total Cobalt (Co)	2015/08/07	104	80 - 120	103	80 - 120	<0.0000050	mg/L	1.2	20
7994245	Total Copper (Cu)	2015/08/07	NC	80 - 120	103	80 - 120	<0.000050	mg/L	1.4	20
7994245	Total Iron (Fe)	2015/08/07	111	80 - 120	102	80 - 120	<0.0010	mg/L	NC	20
7994245	Total Lead (Pb)	2015/08/07	112	80 - 120	107	80 - 120	<0.0000050	mg/L	3.0	20
7994245	Total Lithium (Li)	2015/08/07	102	80 - 120	95	80 - 120	<0.00050	mg/L	NC	20
7994245	Total Manganese (Mn)	2015/08/07	NC	80 - 120	99	80 - 120	<0.000050	mg/L	1.8	20
7994245	Total Molybdenum (Mo)	2015/08/07	NC	80 - 120	96	80 - 120	<0.000050	mg/L	3.1	20
7994245	Total Nickel (Ni)	2015/08/07	NC	80 - 120	101	80 - 120	<0.000020	mg/L	1.3	20
7994245	Total Phosphorus (P)	2015/08/07					<0.0020	mg/L	NC	20
7994245	Total Selenium (Se)	2015/08/07	106	80 - 120	94	80 - 120	<0.000040	mg/L	2.0	20
7994245	Total Silicon (Si)	2015/08/07					<0.050	mg/L	5.6	20
7994245	Total Silver (Ag)	2015/08/07	109	80 - 120	94	80 - 120	<0.0000050	mg/L	NC	20
7994245	Total Strontium (Sr)	2015/08/07	NC	80 - 120	92	80 - 120	<0.000050	mg/L	0.64	20

Maxxam Job #: B567068  
Report Date: 2015/08/12

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMIN03071-01

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
7994245	Total Thallium (Tl)	2015/08/07	110	80 - 120	104	80 - 120	<0.0000020	mg/L	NC	20
7994245	Total Tin (Sn)	2015/08/07	100	80 - 120	102	80 - 120	<0.00020	mg/L	NC	20
7994245	Total Titanium (Ti)	2015/08/07	108	80 - 120	97	80 - 120	<0.00050	mg/L	NC	20
7994245	Total Uranium (U)	2015/08/07	NC	80 - 120	106	80 - 120	<0.0000020	mg/L	4.7	20
7994245	Total Vanadium (V)	2015/08/07	110	80 - 120	98	80 - 120	<0.00020	mg/L	NC	20
7994245	Total Zinc (Zn)	2015/08/07	NC	80 - 120	103	80 - 120	<0.00010	mg/L	1.2	20
7994245	Total Zirconium (Zr)	2015/08/07					<0.00010	mg/L	NC	20
7994997	Fluoride (F)	2015/08/07	100	80 - 120	100	80 - 120	<0.010	mg/L	2.5	20
7996412	Dissolved Mercury (Hg)	2015/08/10	82	80 - 120	95	80 - 120	<0.0000020	mg/L	NC	20
7996755	Total Mercury (Hg)	2015/08/10	103	80 - 120	96	80 - 120	<0.0000020	mg/L	NC	20
7997040	Dissolved Chloride (Cl)	2015/08/10	116	80 - 120	103	80 - 120	<0.50	mg/L	6.5	20
7997044	Dissolved Sulphate (SO4)	2015/08/10			95	80 - 120	<0.50	mg/L		
7999241	Total Organic Carbon (C)	2015/08/12	NC	80 - 120	95	80 - 120	<0.50	mg/L	8.5	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

Maxxam Job #: B567068  
Report Date: 2015/08/12

TETRATECH EBA  
Client Project #: ENVMIN03071-01

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Rob Reinert, Data Validation Coordinator

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Invoice Information		Report Information (if differs from invoice)			Project Information		Turnaround Time (TAT) Required					
Company Name: BMC MINERALS LTD.	Company Name: TETRATECH EBA	Quotation #: B50743	<input type="checkbox"/> Regular TAT 5 days (Most analyses)		PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS							
Contact Name: ACCOUNTS PAYABLE	Contact Name: Stephan Klump	P.O. #/ AFE#:	<input type="checkbox"/> Same Day <input checked="" type="checkbox"/> 2 Days <input type="checkbox"/> 3 Days									
Address: 530-1130 WEST PENDER ST Vancouver, BC PC: V6E 4A4	Address: 61 WASSON PLACE Whitehorse, YK PC: V1A 0H7	Project #: ENVMIN03071-01	Rush TAT (Surcharges will be applied)									
Phone:	Phone: (867) 668-9220	Site Location:	<input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days									
Email:	Email: STEPHAN.KLUMP@TETRATECH.COM	Site #:	Date Required:									
Sampled By:												
Regulatory Criteria		Special Instructions		Analysis Requested				Rush Confirmation #:				
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> BC CSR Water <input type="checkbox"/> CCME (Specify) <input type="checkbox"/> Other (Specify) <input checked="" type="checkbox"/> Drinking Water (Camp Well) <input type="checkbox"/> BC Water Quality		<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify) USE SCENARIO # 12485		ROUTINE (incl. TDS, Aik, EC, pH, TOC, TSS (All Turbidity)) MAJOR IONS (Chloride, Fluoride, Sulphate) NUTRIENTS (Total Nitrogen, NH4, NO2, NO3, PO4, TP, TN) LOW LEVEL DISSOLVED METALS (incl. CV/Hg) LOW LEVEL TOTAL METALS (incl. CV/Hg)				LABORATORY USE ONLY CUSTODY SEAL Y/N Present Intact COOLING MEDIA PRESENT Y/N				
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM												
Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	ROUTINE	MAJOR IONS	NUTRIENTS	LOW LEVEL DISSOLVED METALS	LOW LEVEL TOTAL METALS	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	COMMENTS
1	Camp Well	MV2006	4/8/15	9	W							
2	WW15-01	MV2007	4/8/15	10	W	✓	✓	✓	✓			MV2007
3												
4												
5												
6												
7												
8												
9												
10												
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #				
<i>Adam Seckey</i>		5/8/2015	12:30	<i>Laurel Perthuis</i>		2015/08/06	08:30	2015/08/06 B566989 NA B567068				

Your Project #: ENVMINO3071-01  
Your C.O.C. #: 08412729

**Attention:KRISTEN RANGE**

TETRATECH EBA  
61 WASSON PLACE  
WHITEHORSE, YT  
Canada Y1A 0H7

**Report Date: 2015/08/19**

Report #: R2027103

Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B569283**

**Received: 2015/08/12, 14:10**

Sample Matrix: Water  
# Samples Received: 7

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Analytical Method</b>
Acidity pH 4.5 & pH 8.3 (as CaCO3)	7	N/A	2015/08/14	BBY6SOP-00037	SM 22 2310 B m
Alkalinity - Water	2	2015/08/13	2015/08/13	BBY6SOP-00026	SM 22 2320 B m
Alkalinity - Water	5	2015/08/13	2015/08/14	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry	7	N/A	2015/08/13	BBY6SOP-00011	SM 22 4500-Cl- G m
Conductance - water	2	N/A	2015/08/13	BBY6SOP-00026	SM 22 2510 B m
Conductance - water	5	N/A	2015/08/14	BBY6SOP-00026	SM 22 2510 B m
Fluoride	7	N/A	2015/08/14	BBY6SOP-00048	SM 22 4500-F C m
Hardness Total (calculated as CaCO3)	7	N/A	2015/08/18	BBY7SOP-00002	EPA 6020a R1 m
Hardness (calculated as CaCO3)	7	N/A	2015/08/17	BBY7SOP-00002	EPA 6020a R1 m
Mercury (Dissolved-LowLevel) by CVAf	7	N/A	2015/08/17	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total-LowLevel) by CVAf	1	2015/08/17	2015/08/17	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total-LowLevel) by CVAf	6	2015/08/17	2015/08/18	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Ion Balance	6	N/A	2015/08/17	BBY WI-00033	SM 22 1030E
Ion Balance	1	N/A	2015/08/18	BBY WI-00033	SM 22 1030E
Sum of cations, anions	6	N/A	2015/08/17	Calc	
Sum of cations, anions	1	N/A	2015/08/18	Calc	
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	7	N/A	2015/08/17	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Low Level (dissolved)	6	N/A	2015/08/15	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Low Level (dissolved)	1	N/A	2015/08/17	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Digested LL (total)	6	2015/08/13	2015/08/17	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Digested LL (total)	1	2015/08/13	2015/08/18	BBY7SOP-00002	EPA 6020A R1 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	7	N/A	2015/08/18	BBY7SOP-00002	EPA 6020A R1 m
Nitrogen (Total)	7	2015/08/14	2015/08/17	BBY6SOP-00016	SM 22 4500-N C m
Ammonia-N (Preserved)	6	N/A	2015/08/14	BBY6SOP-00009	SM 22 4500-NH3- G m
Ammonia-N (Preserved)	1	N/A	2015/08/18	BBY6SOP-00009	SM 22 4500-NH3- G m
Nitrate+Nitrite (N) (low level)	7	N/A	2015/08/13	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) (low level)	7	N/A	2015/08/13	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N)	7	N/A	2015/08/13	BBY6SOP-00010	SM 22 4500-NO3- I m
Filter and HNO3 Preserve for Metals	7	N/A	2015/08/14	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (2)	2	N/A	2015/08/13	BBY6SOP-00026	SM 22 4500-H+ B m



Your Project #: ENVMINO3071-01  
Your C.O.C. #: 08412729

**Attention:KRISTEN RANGE**

TETRATECH EBA  
61 WASSON PLACE  
WHITEHORSE, YT  
Canada Y1A 0H7

**Report Date: 2015/08/19**  
Report #: R2027103  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B569283**

**Received: 2015/08/12, 14:10**

Sample Matrix: Water  
# Samples Received: 7

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
pH Water (2)	5	N/A	2015/08/14	BBY6SOP-00026	SM 22 4500-H+ B m
Orthophosphate by Konelab (low level)	6	N/A	2015/08/14	BBY6SOP-00013	SM 22 4500-P E m
Orthophosphate by Konelab (low level)	1	N/A	2015/08/18	BBY6SOP-00013	SM 22 4500-P E m
Sulphate by Automated Colourimetry	7	N/A	2015/08/13	BBY6SOP-00017	SM 22 4500-SO42- E m
Total Dissolved Solids - Low Level	7	N/A	2015/08/15	BBY6SOP-00033	SM 22 2540 C m
TKN (Calc. TN, N/N) total	7	N/A	2015/08/17	BBY WI-00033	Calculation
Carbon (Total Organic) (1, 3)	7	N/A	2015/08/18	EENVSOP-00060	MMCW 119 1996 m
Phosphorus-P (LL Tot, dissolved) - FF/FP	6	2015/08/14	2015/08/14	BBY6SOP-00013	SM 22 4500-P E m
Phosphorus-P (LL Tot, dissolved) - FF/FP	1	2015/08/18	2015/08/18	BBY6SOP-00013	SM 22 4500-P E m
Total Phosphorus - unpreserved	6	N/A	2015/08/14	BBY6SOP-00013	SM 22 4500-P E m
Total Phosphorus - unpreserved	1	N/A	2015/08/18	BBY6SOP-00013	SM 22 4500-P E m
Total Suspended Solids-Low Level	3	2015/08/13	2015/08/14	BBY6SOP-00034	SM 22 2540 D
Total Suspended Solids-Low Level	4	2015/08/14	2015/08/17	BBY6SOP-00034	SM 22 2540 D
Turbidity	7	N/A	2015/08/13	BBY6SOP-00027	SM 22 2130 B m

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Maxxam Edmonton Environmental

(2) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

(3) TOC present in the sample should be considered as non-purgeable TOC.

**Encryption Key**

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Morgan Melnychuk, Burnaby Project Manager

Email: MMelnychuk@maxxam.ca

Phone# (604)638-8034 Ext:8034

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B569283  
Report Date: 2015/08/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Sampler Initials: KR

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		MW4346			MW4347	MW4347		MW4348		
Sampling Date		2015/08/07 15:30			2015/08/06 16:08	2015/08/06 16:08		2015/08/06 17:40		
COC Number		08412729			08412729	08412729		08412729		
	UNITS	BHG5G-22	RDL	QC Batch	BH95G-21	BH95G-21 Lab-Dup	RDL	BH95G-25S	RDL	QC Batch
<b>Misc. Inorganics</b>										
Acidity (pH 4.5)	mg/L	<0.50	0.50	8003336	<0.50		0.50	<0.50	0.50	8003336
Acidity (pH 8.3)	mg/L	0.96	0.50	8003336	<0.50		0.50	4.29	0.50	8003336
<b>Calculated Parameters</b>										
Anion Sum	meq/L	3.4	N/A	8000694	4.3		N/A	11	N/A	8000694
Cation Sum	meq/L	3.3	N/A	8000694	4.2		N/A	11	N/A	8000694
Filter and HNO3 Preservation	N/A	FIELD	N/A	ONSITE	FIELD		N/A	FIELD	N/A	ONSITE
Ion Balance	N/A	0.96	0.010	8000602	0.97		0.010	1.0	0.010	8000602
Nitrate (N)	mg/L	0.168	0.0020	8000606	0.0024		0.0020	<0.0020	0.0020	8000606
<b>Misc. Inorganics</b>										
Fluoride (F)	mg/L	0.052	0.010	8002150	0.091		0.010	0.120	0.010	8002150
Alkalinity (Total as CaCO3)	mg/L	127	0.50	8002048	167		0.50	332	0.50	8002048
Total Organic Carbon (C)	mg/L	3.2	0.50	8005787	2.1		0.50	3.2	0.50	8005787
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8002048	<0.50		0.50	<0.50	0.50	8002048
Bicarbonate (HCO3)	mg/L	155	0.50	8002048	204		0.50	405	0.50	8002048
Carbonate (CO3)	mg/L	<0.50	0.50	8002048	<0.50		0.50	<0.50	0.50	8002048
Hydroxide (OH)	mg/L	<0.50	0.50	8002048	<0.50		0.50	<0.50	0.50	8002048
<b>Anions</b>										
Orthophosphate (P)	mg/L	<0.0010 (1)	0.0010	8002731	<0.0010 (1)		0.0010	0.0017 (1)	0.0010	8002731
Dissolved Sulphate (SO4)	mg/L	40.8	0.50	8002070	46.0	45.0	0.50	203	5.0	8002070
Dissolved Chloride (Cl)	mg/L	<0.50	0.50	8002061	<0.50	<0.50	0.50	0.63	0.50	8002061
<b>Nutrients</b>										
Total Ammonia (N)	mg/L	0.083	0.0050	8002818	0.044		0.0050	0.40	0.0050	8002818
Dissolved Phosphorus (P)	mg/L	0.0025	0.0020	8002764	<0.0020		0.0020	0.0043	0.0020	8002764
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.414	0.020	8000532	0.295		0.020	0.482	0.020	8000532
Nitrate plus Nitrite (N)	mg/L	0.175 (1)	0.0020	8001537	0.0062 (1)		0.0020	0.0093 (1)	0.0020	8001537
Nitrite (N)	mg/L	0.0071 (1)	0.0020	8001538	0.0038 (1)		0.0020	0.0095 (1)	0.0020	8001538
Total Nitrogen (N)	mg/L	0.589	0.020	8002942	0.301		0.020	0.491	0.020	8002942
Total Phosphorus (P)	mg/L	0.0192 (1)	0.0020	8002745	0.0072 (1)		0.0020	0.0080 (1)	0.0020	8002745
<b>Physical Properties</b>										
Conductivity	uS/cm	328	1.0	8002053	403		1.0	961	1.0	8002053
pH	pH	7.80	N/A	8002054	8.02		N/A	7.88	N/A	8002054
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable (1) Sample arrived to laboratory past recommended hold time.										

Maxxam Job #: B569283  
Report Date: 2015/08/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Sampler Initials: KR

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		MW4346			MW4347	MW4347		MW4348		
<b>Sampling Date</b>		2015/08/07 15:30			2015/08/06 16:08	2015/08/06 16:08		2015/08/06 17:40		
<b>COC Number</b>		08412729			08412729	08412729		08412729		
	<b>UNITS</b>	<b>BHG5G-22</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH95G-21</b>	<b>BH95G-21 Lab-Dup</b>	<b>RDL</b>	<b>BH95G-25S</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Physical Properties</b>										
Total Suspended Solids	mg/L	2060 (1)	10	8001524	2830		1.0	3320	1.0	7999178
Total Dissolved Solids	mg/L	222	1.0	8000647	240 (2)		1.0	668 (2)	1.0	8000647
Turbidity	NTU	989 (3)	0.10	8000731	2120 (3)		0.10	665 (3)	0.10	8000731

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

- (1) RDL raised due to high concentration of solids in the sample.
- (2) Sample analysed past recommended hold time.
- (3) Sample arrived to laboratory past recommended hold time.

Maxxam Job #: B569283  
Report Date: 2015/08/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Sampler Initials: KR

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		MW4349			MW4350	MW4350		
Sampling Date		2015/08/06 18:36			2015/08/09 10:35	2015/08/09 10:35		
COC Number		08412729			08412729	08412729		
	UNITS	BH95G-25D	RDL	QC Batch	BH95G-23	BH95G-23 Lab-Dup	RDL	QC Batch
<b>Misc. Inorganics</b>								
Acidity (pH 4.5)	mg/L	<0.50	0.50	8003336	<0.50		0.50	8003336
Acidity (pH 8.3)	mg/L	9.70	0.50	8003336	5.15		0.50	8003336
<b>Calculated Parameters</b>								
Anion Sum	meq/L	12	N/A	8000694	2.6		N/A	8000694
Cation Sum	meq/L	11	N/A	8000694	3.0		N/A	8000694
Filter and HNO3 Preservation	N/A	FIELD	N/A	ONSITE	FIELD		N/A	ONSITE
Ion Balance	N/A	0.98	0.010	8000602	1.1		0.010	8000602
Nitrate (N)	mg/L	0.0095	0.0020	8000606	<0.0020		0.0020	8000606
<b>Misc. Inorganics</b>								
Fluoride (F)	mg/L	0.098	0.010	8002150	0.060	0.058	0.010	8002150
Alkalinity (Total as CaCO3)	mg/L	349	0.50	8002048	53.9		0.50	8002048
Total Organic Carbon (C)	mg/L	1.7	0.50	8005787	3.7		0.50	8005787
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8002048	<0.50		0.50	8002048
Bicarbonate (HCO3)	mg/L	425	0.50	8002048	65.7		0.50	8002048
Carbonate (CO3)	mg/L	<0.50	0.50	8002048	<0.50		0.50	8002048
Hydroxide (OH)	mg/L	<0.50	0.50	8002048	<0.50		0.50	8002048
<b>Anions</b>								
Orthophosphate (P)	mg/L	0.0015 (1)	0.0010	8002731	0.0016 (2)		0.0010	8002731
Dissolved Sulphate (SO4)	mg/L	220	5.0	8002070	72.8	71.3	0.50	8002070
Dissolved Chloride (Cl)	mg/L	1.0	0.50	8002061	<0.50	<0.50	0.50	8002061
<b>Nutrients</b>								
Total Ammonia (N)	mg/L	0.10	0.0050	8006712	0.50		0.0050	8002820
Dissolved Phosphorus (P)	mg/L	0.0034	0.0020	8002764	0.0214		0.0020	8002764
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.215	0.020	8000532	2.47		0.20	8000532
Nitrate plus Nitrite (N)	mg/L	0.0095 (1)	0.0020	8001537	<0.0020 (2)		0.0020	8001537
Nitrite (N)	mg/L	<0.0020 (1)	0.0020	8001538	<0.0020 (2)		0.0020	8001538
Total Nitrogen (N)	mg/L	0.225	0.020	8002942	2.47 (3)		0.20	8002943
Total Phosphorus (P)	mg/L	0.0087 (1)	0.0020	8002745	0.0918 (2)		0.0020	8002745
<b>Physical Properties</b>								
Conductivity	uS/cm	1020	1.0	8002053	267		1.0	8002053
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable (1) Sample arrived to laboratory past recommended hold time. (2) Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis. (3) RDL raised due to sample matrix interference.								

Maxxam Job #: B569283  
Report Date: 2015/08/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Sampler Initials: KR

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		MW4349			MW4350	MW4350		
Sampling Date		2015/08/06 18:36			2015/08/09 10:35	2015/08/09 10:35		
COC Number		08412729			08412729	08412729		
	UNITS	BH95G-25D	RDL	QC Batch	BH95G-23	BH95G-23 Lab-Dup	RDL	QC Batch
pH	pH	7.66	N/A	8002054	7.33		N/A	8002054
<b>Physical Properties</b>								
Total Suspended Solids	mg/L	1560	1.0	7999178	7320 (1)		20	8001524
Total Dissolved Solids	mg/L	734 (2)	1.0	8000647	180		1.0	8000647
Turbidity	NTU	476 (3)	0.10	8000731	2960 (4)		0.50	8000731
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable (1) RDL raised due to high concentration of solids in the sample. (2) Sample analysed past recommended hold time. (3) Sample arrived to laboratory past recommended hold time. (4) Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis. RDL raised due to sample dilution.								

Maxxam Job #: B569283  
Report Date: 2015/08/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Sampler Initials: KR

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		MW4351			MW4352	MW4352		
Sampling Date		2015/08/09 13:30			2015/08/09 12:20	2015/08/09 12:20		
COC Number		08412729			08412729	08412729		
	UNITS	BH95G-24	RDL	QC Batch	BH95G-29	BH95G-29 Lab-Dup	RDL	QC Batch
<b>Misc. Inorganics</b>								
Acidity (pH 4.5)	mg/L	<0.50	0.50	8003336	<0.50		0.50	8003336
Acidity (pH 8.3)	mg/L	4.68	0.50	8003336	<0.50		0.50	8003336
<b>Calculated Parameters</b>								
Anion Sum	meq/L	8.7	N/A	8000694	4.6		N/A	8000694
Cation Sum	meq/L	8.0	N/A	8000694	4.5		N/A	8000694
Filter and HNO3 Preservation	N/A	FIELD	N/A	ONSITE	FIELD		N/A	ONSITE
Ion Balance	N/A	0.92	0.010	8000602	0.99		0.010	8000602
Nitrate (N)	mg/L	0.0054	0.0020	8000606	<0.0020		0.0020	8000606
<b>Misc. Inorganics</b>								
Fluoride (F)	mg/L	0.067	0.010	8002150	0.110		0.010	8002150
Alkalinity (Total as CaCO3)	mg/L	293	0.50	8002048	181		0.50	8002048
Total Organic Carbon (C)	mg/L	1.3	0.50	8005787	2.0		0.50	8005787
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8002048	<0.50		0.50	8002048
Bicarbonate (HCO3)	mg/L	358	0.50	8002048	221		0.50	8002048
Carbonate (CO3)	mg/L	<0.50	0.50	8002048	<0.50		0.50	8002048
Hydroxide (OH)	mg/L	<0.50	0.50	8002048	<0.50		0.50	8002048
<b>Anions</b>								
Orthophosphate (P)	mg/L	0.0010 (1)	0.0010	8002731	0.060 (1)		0.0010	8006741
Dissolved Sulphate (SO4)	mg/L	135	0.50	8002070	44.0		0.50	8002070
Dissolved Chloride (Cl)	mg/L	0.63	0.50	8002061	0.88		0.50	8002061
<b>Nutrients</b>								
Total Ammonia (N)	mg/L	0.062	0.0050	8002818	0.22		0.0050	8002818
Dissolved Phosphorus (P)	mg/L	0.0040	0.0020	8002764	0.264		0.0020	8006747
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.200	0.020	8000532	1.06		0.020	8000532
Nitrate plus Nitrite (N)	mg/L	0.0116 (1)	0.0020	8001537	<0.0020 (1)	0.0032	0.0020	8001537
Nitrite (N)	mg/L	0.0062 (1)	0.0020	8001538	<0.0020 (1)	<0.0020	0.0020	8001538
Total Nitrogen (N)	mg/L	0.211	0.020	8002942	1.06		0.020	8002942
Total Phosphorus (P)	mg/L	0.0065 (1)	0.0020	8002745	0.0598 (1)		0.0020	8006746
<b>Physical Properties</b>								
Conductivity	uS/cm	768	1.0	8002053	435		1.0	8002053
pH	pH	7.81	N/A	8002054	8.03		N/A	8002054
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable (1) Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis.								

Maxxam Job #: B569283  
Report Date: 2015/08/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Sampler Initials: KR

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		MW4351			MW4352	MW4352		
<b>Sampling Date</b>		2015/08/09 13:30			2015/08/09 12:20	2015/08/09 12:20		
<b>COC Number</b>		08412729			08412729	08412729		
	<b>UNITS</b>	<b>BH95G-24</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH95G-29</b>	<b>BH95G-29 Lab-Dup</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Physical Properties</b>								
Total Suspended Solids	mg/L	983 (1)	10	8001524	9360 (1)		20	8001524
Total Dissolved Solids	mg/L	502	1.0	8000647	258		1.0	8000647
Turbidity	NTU	198 (2)	0.10	8000731	2240 (3)		0.50	8000731
<p>RDL = Reportable Detection Limit            Lab-Dup = Laboratory Initiated Duplicate            (1) RDL raised due to high concentration of solids in the sample.            (2) Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis.            (3) Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis. RDL raised due to sample dilution.</p>								

Maxxam Job #: B569283  
Report Date: 2015/08/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Sampler Initials: KR

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		MW4346	MW4347	MW4348	MW4349	MW4350		
Sampling Date		2015/08/07 15:30	2015/08/06 16:08	2015/08/06 17:40	2015/08/06 18:36	2015/08/09 10:35		
COC Number		08412729	08412729	08412729	08412729	08412729		
	UNITS	BHG5G-22	BH95G-21	BH95G-25S	BH95G-25D	BH95G-23	RDL	QC Batch

**Misc. Inorganics**

Dissolved Hardness (CaCO3)	mg/L	159	204	517	556	126	0.50	800563
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**Elements**

Dissolved Mercury (Hg)	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000020	8004814
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**Dissolved Metals by ICPMS**

Dissolved Aluminum (Al)	mg/L	0.00158	0.00710	0.00361	0.00330	0.00583	0.00050	8001107
Dissolved Antimony (Sb)	mg/L	0.000088	0.000069	<0.000020	0.000057	0.00303	0.000020	8001107
Dissolved Arsenic (As)	mg/L	0.000024	0.00134	0.00661	0.00163	0.0747	0.000020	8001107
Dissolved Barium (Ba)	mg/L	0.105	0.0465	0.0879	0.0229	0.0490	0.000020	8001107
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000010	8001107
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8001107
Dissolved Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	8001107
Dissolved Cadmium (Cd)	mg/L	0.000129	0.000078	0.000074	<0.000050	0.00169	0.000050	8001107
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	8001107
Dissolved Cobalt (Co)	mg/L	0.0000060	0.0000457	0.000307	0.000112	0.00470	0.0000050	8001107
Dissolved Copper (Cu)	mg/L	0.00644	0.000052	<0.000050	0.00370	0.000119	0.000050	8001107
Dissolved Iron (Fe)	mg/L	0.0024	0.523	5.97	1.86	6.48	0.0010	8001107
Dissolved Lead (Pb)	mg/L	<0.0000050	0.0000233	<0.0000050	0.0000658	0.000361	0.0000050	8001107
Dissolved Lithium (Li)	mg/L	<0.00050	0.00515	0.00980	0.0142	0.00185	0.00050	8001107
Dissolved Manganese (Mn)	mg/L	0.000624	0.0601	0.439	0.320	0.622	0.000050	8001107
Dissolved Molybdenum (Mo)	mg/L	0.000192	0.000336	0.00130	0.000217	0.000185	0.000050	8001107
Dissolved Nickel (Ni)	mg/L	0.000201	0.000105	0.000691	0.000339	0.00686	0.000020	8001107
Dissolved Phosphorus (P)	mg/L	0.0059	<0.0020	0.0105	0.0078	0.0052	0.0020	8001107
Dissolved Selenium (Se)	mg/L	0.000706	<0.000040	<0.000040	<0.000040	<0.000040	0.000040	8001107
Dissolved Silicon (Si)	mg/L	2.83	4.79	6.24	6.30	6.50	0.050	8001107
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	<0.0000050	0.0000051	<0.0000050	0.0000050	8001107
Dissolved Strontium (Sr)	mg/L	0.148	0.199	0.501	0.536	0.103	0.000050	8001107
Dissolved Thallium (Tl)	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000387	0.0000020	8001107
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8001107
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	8001107
Dissolved Uranium (U)	mg/L	0.00190	0.00428	0.00427	0.00597	0.000113	0.0000020	8001107
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8001107
Dissolved Zinc (Zn)	mg/L	0.00596	0.00110	0.00071	0.0125	2.03	0.00010	8001107
Dissolved Zirconium (Zr)	mg/L	<0.00010	<0.00010	0.00036	0.00302	<0.00010	0.00010	8001107
Dissolved Calcium (Ca)	mg/L	49.4	61.2	134	132	42.8	0.050	8000603
Dissolved Magnesium (Mg)	mg/L	8.71	12.4	44.3	54.9	4.76	0.050	8000603

RDL = Reportable Detection Limit



Maxxam Job #: B569283  
Report Date: 2015/08/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Sampler Initials: KR

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		MW4346	MW4347	MW4348	MW4349	MW4350		
Sampling Date		2015/08/07 15:30	2015/08/06 16:08	2015/08/06 17:40	2015/08/06 18:36	2015/08/09 10:35		
COC Number		08412729	08412729	08412729	08412729	08412729		
	UNITS	BHG5G-22	BH95G-21	BH95G-25S	BH95G-25D	BH95G-23	RDL	QC Batch
Dissolved Potassium (K)	mg/L	1.35	1.50	5.95	4.43	2.13	0.050	8000603
Dissolved Sodium (Na)	mg/L	0.817	1.01	2.08	2.09	0.716	0.050	8000603
Dissolved Sulphur (S)	mg/L	13.2	15.1	73.1	78.2	25.5	3.0	8000603
RDL = Reportable Detection Limit								

Maxxam Job #: B569283  
Report Date: 2015/08/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Sampler Initials: KR

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		MW4351		MW4352		
Sampling Date		2015/08/09 13:30		2015/08/09 12:20		
COC Number		08412729		08412729		
	UNITS	BH95G-24	QC Batch	BH95G-29	RDL	QC Batch
<b>Misc. Inorganics</b>						
Dissolved Hardness (CaCO3)	mg/L	387	8000563	217	0.50	8000563
<b>Elements</b>						
Dissolved Mercury (Hg)	mg/L	<0.0000020	8004814	<0.0000020	0.0000020	8004814
<b>Dissolved Metals by ICPMS</b>						
Dissolved Aluminum (Al)	mg/L	0.00139	8001107	0.00966	0.00050	8001107
Dissolved Antimony (Sb)	mg/L	0.000528	8001107	0.000253	0.000020	8001107
Dissolved Arsenic (As)	mg/L	0.0103	8001107	0.00782	0.000020	8001107
Dissolved Barium (Ba)	mg/L	0.0602	8001107	0.0459	0.000020	8001107
Dissolved Beryllium (Be)	mg/L	<0.000010	8001107	<0.000010	0.000010	8001107
Dissolved Bismuth (Bi)	mg/L	<0.0000050	8001107	<0.0000050	0.0000050	8001107
Dissolved Boron (B)	mg/L	<0.010	8001107	<0.010	0.010	8001107
Dissolved Cadmium (Cd)	mg/L	0.00375	8001107	<0.0000050	0.0000050	8001107
Dissolved Chromium (Cr)	mg/L	<0.00010	8001107	<0.00010	0.00010	8001107
Dissolved Cobalt (Co)	mg/L	0.00665	8001107	0.000347	0.0000050	8001107
Dissolved Copper (Cu)	mg/L	0.000408	8001107	<0.000050	0.000050	8001107
Dissolved Iron (Fe)	mg/L	0.571	8001107	0.438	0.0010	8001107
Dissolved Lead (Pb)	mg/L	0.00406	8001107	0.0000303	0.0000050	8001107
Dissolved Lithium (Li)	mg/L	0.00563	8001107	0.00290	0.00050	8001107
Dissolved Manganese (Mn)	mg/L	0.820	8001107	0.315	0.000050	8001107
Dissolved Molybdenum (Mo)	mg/L	0.00170	8001107	0.000887	0.000050	8001107
Dissolved Nickel (Ni)	mg/L	0.00212	8001107	0.000449	0.000020	8001107
Dissolved Phosphorus (P)	mg/L	<0.0020	8007960	0.302	0.0020	8001107
Dissolved Selenium (Se)	mg/L	<0.000040	8001107	<0.000040	0.000040	8001107
Dissolved Silicon (Si)	mg/L	5.17	8001107	3.24	0.050	8001107
Dissolved Silver (Ag)	mg/L	<0.0000050	8001107	<0.0000050	0.0000050	8001107
Dissolved Strontium (Sr)	mg/L	0.385	8001107	0.364	0.000050	8001107
Dissolved Thallium (Tl)	mg/L	0.000105	8001107	0.0000092	0.0000020	8001107
Dissolved Tin (Sn)	mg/L	<0.00020	8001107	<0.00020	0.00020	8001107
Dissolved Titanium (Ti)	mg/L	<0.00050	8001107	<0.00050	0.00050	8001107
Dissolved Uranium (U)	mg/L	0.00465	8001107	0.00338	0.0000020	8001107
Dissolved Vanadium (V)	mg/L	<0.00020	8001107	<0.00020	0.00020	8001107
Dissolved Zinc (Zn)	mg/L	0.845	8001107	0.00110	0.00010	8001107
Dissolved Zirconium (Zr)	mg/L	<0.00010	8001107	<0.00010	0.00010	8001107
Dissolved Calcium (Ca)	mg/L	117	8000603	67.1	0.050	8000603
Dissolved Magnesium (Mg)	mg/L	23.3	8000603	12.0	0.050	8000603
RDL = Reportable Detection Limit						

Maxxam Job #: B569283  
Report Date: 2015/08/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Sampler Initials: KR

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		MW4351		MW4352		
<b>Sampling Date</b>		2015/08/09 13:30		2015/08/09 12:20		
<b>COC Number</b>		08412729		08412729		
	<b>UNITS</b>	<b>BH95G-24</b>	<b>QC Batch</b>	<b>BH95G-29</b>	<b>RDL</b>	<b>QC Batch</b>
Dissolved Potassium (K)	mg/L	4.42	8000603	3.57	0.050	8000603
Dissolved Sodium (Na)	mg/L	2.44	8000603	1.52	0.050	8000603
Dissolved Sulphur (S)	mg/L	43.3	8000603	18.8	3.0	8000603
RDL = Reportable Detection Limit						

Maxxam Job #: B569283  
Report Date: 2015/08/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Sampler Initials: KR

**LL TOTAL METALS (DIGESTED) WITH CV HG**

<b>Maxxam ID</b>		MW4346	MW4347	MW4348	MW4349	MW4350		
<b>Sampling Date</b>		2015/08/07 15:30	2015/08/06 16:08	2015/08/06 17:40	2015/08/06 18:36	2015/08/09 10:35		
<b>COC Number</b>		08412729	08412729	08412729	08412729	08412729		
	<b>UNITS</b>	<b>BHG5G-22</b>	<b>BH95G-21</b>	<b>BH95G-25S</b>	<b>BH95G-25D</b>	<b>BH95G-23</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Calculated Parameters</b>								
Total Hardness (CaCO3)	mg/L	229	344	639	616	306	0.50	8000562

<b>Elements</b>								
Total Mercury (Hg)	mg/L	0.0000039	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000020	8005280

<b>Total Metals by ICPMS</b>								
Total Aluminum (Al)	mg/L	18.6	29.7	20.9	6.72	58.1	0.0030	8001419
Total Antimony (Sb)	mg/L	0.00326	0.00216	0.000366	0.000780	0.135	0.000050	8001419
Total Arsenic (As)	mg/L	0.0717	0.0813	0.0439	0.0158	1.36	0.000020	8001419
Total Barium (Ba)	mg/L	0.509	11.4	0.402	0.629	3.39	0.00010	8001419
Total Beryllium (Be)	mg/L	0.000959	0.00167	0.00157	0.000617	0.00212	0.000010	8001419
Total Bismuth (Bi)	mg/L	0.00191	0.00257	0.000844	0.000398	0.0393	0.000020	8001419
Total Boron (B)	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	8001419
Total Cadmium (Cd)	mg/L	0.00994	0.00165	0.00108	0.000438	0.857	0.0000050	8001419
Total Chromium (Cr)	mg/L	0.0385	0.0520	0.0546	0.00886	0.167	0.00050	8001419
Total Cobalt (Co)	mg/L	0.0334	0.0279	0.0180	0.00476	0.0937	0.000010	8001419
Total Copper (Cu)	mg/L	0.360	0.333	0.0856	0.0221	4.45	0.00020	8001419
Total Iron (Fe)	mg/L	62.0	133	57.6	19.3	276	0.0050	8001419
Total Lead (Pb)	mg/L	0.191	0.132	0.0629	0.0287	17.7	0.000050	8001419
Total Lithium (Li)	mg/L	0.0166	0.0272	0.0393	0.0176	0.0453	0.00050	8001419
Total Manganese (Mn)	mg/L	2.79	0.918	0.907	0.566	2.96	0.00010	8001419
Total Molybdenum (Mo)	mg/L	0.00256	0.00288	0.00209	0.000760	0.00669	0.000050	8001419
Total Nickel (Ni)	mg/L	0.0578	0.0599	0.0478	0.0100	0.221	0.00010	8001419
Total Phosphorus (P)	mg/L	0.723	2.47	1.14	0.347	5.24	0.010	8001419
Total Selenium (Se)	mg/L	0.00129	0.00243	0.000283	0.000181	0.0225	0.000040	8001419
Total Silicon (Si)	mg/L	31.7	44.9	41.3	17.3	60.7	0.10	8001419
Total Silver (Ag)	mg/L	0.00733	0.00175	0.000275	0.000133	0.150	0.0000050	8001419
Total Strontium (Sr)	mg/L	0.186	0.514	0.577	0.589	0.243	0.000050	8001419
Total Thallium (Tl)	mg/L	0.000365	0.000398	0.000383	0.000110	0.0133	0.0000020	8001419
Total Tin (Sn)	mg/L	0.00242	0.00110	0.00109	0.00078	0.00570	0.00020	8001419
Total Titanium (Ti)	mg/L	0.635	0.556	0.751	0.122	3.38	0.0050	8001419
Total Uranium (U)	mg/L	0.00674	0.0192	0.00916	0.00856	0.0391	0.0000050	8001419
Total Vanadium (V)	mg/L	0.0543	0.0750	0.0612	0.0123	0.191	0.00050	8001419
Total Zinc (Zn)	mg/L	1.07	0.814	0.182	0.509	25.1	0.0010	8001419
Total Zirconium (Zr)	mg/L	0.00266	0.0132	0.00144	0.00288	0.0129	0.00010	8001419
Total Calcium (Ca)	mg/L	61.9	90.1	160	145	66.1	0.25	8000604
Total Magnesium (Mg)	mg/L	18.2	28.8	58.3	61.5	34.3	0.25	8000604

RDL = Reportable Detection Limit

Maxxam Job #: B569283  
Report Date: 2015/08/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Sampler Initials: KR

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		MW4346	MW4347	MW4348	MW4349	MW4350		
Sampling Date		2015/08/07 15:30	2015/08/06 16:08	2015/08/06 17:40	2015/08/06 18:36	2015/08/09 10:35		
COC Number		08412729	08412729	08412729	08412729	08412729		
	UNITS	BHG5G-22	BH95G-21	BH95G-25S	BH95G-25D	BH95G-23	RDL	QC Batch
Total Potassium (K)	mg/L	6.14	8.35	12.3	6.49	11.8	0.25	8000604
Total Sodium (Na)	mg/L	1.09	1.71	2.49	2.15	1.02	0.25	8000604
Total Sulphur (S)	mg/L	<15	19	73	78	26	15	8000604
RDL = Reportable Detection Limit								

Maxxam Job #: B569283  
Report Date: 2015/08/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Sampler Initials: KR

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		MW4351		MW4352		
Sampling Date		2015/08/09 13:30		2015/08/09 12:20		
COC Number		08412729		08412729		
	UNITS	BH95G-24	QC Batch	BH95G-29	RDL	QC Batch
<b>Calculated Parameters</b>						
Total Hardness (CaCO3)	mg/L	484	8000562	775	0.50	8000562
<b>Elements</b>						
Total Mercury (Hg)	mg/L	0.0000251	8004830	<0.0000020	0.0000020	8005280
<b>Total Metals by ICPMS</b>						
Total Aluminum (Al)	mg/L	13.4	8001419	79.8	0.0030	8001419
Total Antimony (Sb)	mg/L	0.00600	8001419	0.00207	0.000050	8001419
Total Arsenic (As)	mg/L	0.0750	8001419	0.134	0.000020	8001419
Total Barium (Ba)	mg/L	1.04	8001419	1.97	0.00010	8001419
Total Beryllium (Be)	mg/L	0.000628	8001419	0.00617	0.000010	8001419
Total Bismuth (Bi)	mg/L	0.00127	8001419	0.00482	0.000020	8001419
Total Boron (B)	mg/L	<0.050	8001419	0.052	0.050	8001419
Total Cadmium (Cd)	mg/L	0.0540	8001419	0.0212	0.0000050	8001419
Total Chromium (Cr)	mg/L	0.0349	8001419	0.173	0.00050	8001419
Total Cobalt (Co)	mg/L	0.0227	8001419	0.0836	0.000010	8001419
Total Copper (Cu)	mg/L	1.56	8001419	0.565	0.00020	8001419
Total Iron (Fe)	mg/L	34.1	8001419	161	0.0050	8001419
Total Lead (Pb)	mg/L	0.243	8001419	0.786	0.000050	8001419
Total Lithium (Li)	mg/L	0.0188	8001419	0.104	0.00050	8001419
Total Manganese (Mn)	mg/L	1.60	8001419	5.44	0.00010	8001419
Total Molybdenum (Mo)	mg/L	0.00364	8001419	0.00390	0.000050	8001419
Total Nickel (Ni)	mg/L	0.0364	8001419	0.228	0.00010	8001419
Total Phosphorus (P)	mg/L	0.744	8001419	12.1	0.010	8001419
Total Selenium (Se)	mg/L	0.00290	8001419	0.00239	0.000040	8001419
Total Silicon (Si)	mg/L	26.4	8001419	106	0.10	8001419
Total Silver (Ag)	mg/L	0.00286	8001419	0.00426	0.0000050	8001419
Total Strontium (Sr)	mg/L	0.464	8001419	1.33	0.000050	8001419
Total Thallium (Tl)	mg/L	0.00139	8001419	0.00186	0.0000020	8001419
Total Tin (Sn)	mg/L	0.00107	8001419	0.00190	0.00020	8001419
Total Titanium (Ti)	mg/L	0.917	8001419	0.876	0.0050	8001419
Total Uranium (U)	mg/L	0.00664	8001419	0.0486	0.0000050	8001419
Total Vanadium (V)	mg/L	0.0433	8001419	0.225	0.00050	8001419
Total Zinc (Zn)	mg/L	3.17	8001419	3.07	0.0010	8001419
Total Zirconium (Zr)	mg/L	0.00267	8001419	0.00558	0.00010	8001419
Total Calcium (Ca)	mg/L	139	8000604	202	0.25	8000604
Total Magnesium (Mg)	mg/L	33.2	8000604	65.5	0.25	8000604
RDL = Reportable Detection Limit						

Maxxam Job #: B569283  
Report Date: 2015/08/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Sampler Initials: KR

**LL TOTAL METALS (DIGESTED) WITH CV HG**

<b>Maxxam ID</b>		MW4351		MW4352		
<b>Sampling Date</b>		2015/08/09 13:30		2015/08/09 12:20		
<b>COC Number</b>		08412729		08412729		
	<b>UNITS</b>	<b>BH95G-24</b>	<b>QC Batch</b>	<b>BH95G-29</b>	<b>RDL</b>	<b>QC Batch</b>
Total Potassium (K)	mg/L	9.42	8000604	22.7	0.25	8000604
Total Sodium (Na)	mg/L	2.53	8000604	2.65	0.25	8000604
Total Sulphur (S)	mg/L	45	8000604	19	15	8000604
RDL = Reportable Detection Limit						

Maxxam Job #: B569283  
Report Date: 2015/08/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Sampler Initials: KR

### GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	7.7°C
Package 2	7.3°C

Sample MW4352-01 : Total Phosphorus is less than dissolved Phosphorus; Re-analysis yields similar results.

Sample MW4351, Elements by ICPMS Low Level (dissolved): Test repeated.

**Results relate only to the items tested.**



Maxxam Job #: B569283  
Report Date: 2015/08/19

**QUALITY ASSURANCE REPORT**

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Sampler Initials: KR

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
7999178	Total Suspended Solids	2015/08/13			100	80 - 120	<1.0	mg/L		
8000647	Total Dissolved Solids	2015/08/15	94	80 - 120	100	80 - 120	1.2, RDL=1.0	mg/L	0.50	20
8000731	Turbidity	2015/08/13			102	80 - 120	<0.10	NTU	0.73	20
8001107	Dissolved Aluminum (Al)	2015/08/15	104	80 - 120	105	80 - 120	<0.00050	mg/L	1.1	20
8001107	Dissolved Antimony (Sb)	2015/08/15	104	80 - 120	103	80 - 120	<0.000020	mg/L	NC	20
8001107	Dissolved Arsenic (As)	2015/08/15	108	80 - 120	98	80 - 120	<0.000020	mg/L	NC	20
8001107	Dissolved Barium (Ba)	2015/08/15	NC	80 - 120	105	80 - 120	<0.000020	mg/L	0.15	20
8001107	Dissolved Beryllium (Be)	2015/08/15	102	80 - 120	102	80 - 120	<0.000010	mg/L	NC	20
8001107	Dissolved Bismuth (Bi)	2015/08/15	100	80 - 120	101	80 - 120	<0.0000050	mg/L	NC	20
8001107	Dissolved Boron (B)	2015/08/15					<0.010	mg/L	NC	20
8001107	Dissolved Cadmium (Cd)	2015/08/15	97	80 - 120	101	80 - 120	<0.0000050	mg/L	0.080	20
8001107	Dissolved Chromium (Cr)	2015/08/15	101	80 - 120	102	80 - 120	<0.00010	mg/L	NC	20
8001107	Dissolved Cobalt (Co)	2015/08/15	100	80 - 120	102	80 - 120	<0.0000050	mg/L	5.4	20
8001107	Dissolved Copper (Cu)	2015/08/15	99	80 - 120	104	80 - 120	<0.000050	mg/L	5.8	20
8001107	Dissolved Iron (Fe)	2015/08/15	98	80 - 120	102	80 - 120	<0.0010	mg/L	15	20
8001107	Dissolved Lead (Pb)	2015/08/15	104	80 - 120	103	80 - 120	<0.0000050	mg/L	2.5	20
8001107	Dissolved Lithium (Li)	2015/08/15	NC	80 - 120	96	80 - 120	<0.00050	mg/L	3.4	20
8001107	Dissolved Manganese (Mn)	2015/08/15	NC	80 - 120	102	80 - 120	<0.000050	mg/L	0.50	20
8001107	Dissolved Molybdenum (Mo)	2015/08/15	111	80 - 120	97	80 - 120	<0.000050	mg/L	1.5	20
8001107	Dissolved Nickel (Ni)	2015/08/15	99	80 - 120	103	80 - 120	<0.000020	mg/L	10	20
8001107	Dissolved Phosphorus (P)	2015/08/15					<0.0020	mg/L		
8001107	Dissolved Selenium (Se)	2015/08/15	106	80 - 120	95	80 - 120	<0.000040	mg/L	16	20
8001107	Dissolved Silicon (Si)	2015/08/15					<0.050	mg/L	1.0	20
8001107	Dissolved Silver (Ag)	2015/08/15	105	80 - 120	101	80 - 120	<0.0000050	mg/L	NC	20
8001107	Dissolved Strontium (Sr)	2015/08/15	NC	80 - 120	96	80 - 120	<0.000050	mg/L	0.19	20
8001107	Dissolved Thallium (Tl)	2015/08/15	116	80 - 120	102	80 - 120	<0.0000020	mg/L	7.4	20
8001107	Dissolved Tin (Sn)	2015/08/15	116	80 - 120	106	80 - 120	<0.00020	mg/L	NC	20
8001107	Dissolved Titanium (Ti)	2015/08/15	105	80 - 120	95	80 - 120	<0.00050	mg/L	NC	20
8001107	Dissolved Uranium (U)	2015/08/15	110	80 - 120	102	80 - 120	<0.0000020	mg/L	3.2	20
8001107	Dissolved Vanadium (V)	2015/08/15	106	80 - 120	101	80 - 120	<0.00020	mg/L	NC	20
8001107	Dissolved Zinc (Zn)	2015/08/15	NC	80 - 120	103	80 - 120	<0.00010	mg/L	3.0	20

Maxxam Job #: B569283  
Report Date: 2015/08/19

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Sampler Initials: KR

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8001107	Dissolved Zirconium (Zr)	2015/08/15					<0.00010	mg/L	NC	20
8001419	Total Aluminum (Al)	2015/08/17	NC	80 - 120	108	80 - 120	<0.0030	mg/L	1.3	20
8001419	Total Antimony (Sb)	2015/08/17	NC	80 - 120	98	80 - 120	<0.000050	mg/L	1.2	20
8001419	Total Arsenic (As)	2015/08/17	108	80 - 120	99	80 - 120	<0.000020	mg/L	12	20
8001419	Total Barium (Ba)	2015/08/17	NC	80 - 120	99	80 - 120	<0.00010	mg/L	1.9	20
8001419	Total Beryllium (Be)	2015/08/17	94	80 - 120	97	80 - 120	<0.000010	mg/L	0.55	20
8001419	Total Bismuth (Bi)	2015/08/17	96	80 - 120	102	80 - 120	<0.000020	mg/L	NC	20
8001419	Total Boron (B)	2015/08/17					<0.050	mg/L	2.4	20
8001419	Total Cadmium (Cd)	2015/08/17	102	80 - 120	99	80 - 120	<0.0000050	mg/L	12	20
8001419	Total Chromium (Cr)	2015/08/17	89	80 - 120	108	80 - 120	<0.00050	mg/L	8.1	20
8001419	Total Cobalt (Co)	2015/08/17	100	80 - 120	106	80 - 120	<0.000010	mg/L	2.6	20
8001419	Total Copper (Cu)	2015/08/17	106	80 - 120	105	80 - 120	<0.00020	mg/L	11	20
8001419	Total Iron (Fe)	2015/08/17	NC	80 - 120	111	80 - 120	<0.0050	mg/L	3.8	20
8001419	Total Lead (Pb)	2015/08/17	97	80 - 120	107	80 - 120	<0.000050	mg/L	6.3	20
8001419	Total Lithium (Li)	2015/08/17	NC	80 - 120	97	80 - 120	<0.00050	mg/L	2.5	20
8001419	Total Manganese (Mn)	2015/08/17	NC	80 - 120	103	80 - 120	<0.00010	mg/L	7.0	20
8001419	Total Molybdenum (Mo)	2015/08/17	NC	80 - 120	100	80 - 120	<0.000050	mg/L	7.1	20
8001419	Total Nickel (Ni)	2015/08/17	NC	80 - 120	105	80 - 120	<0.00010	mg/L	7.9	20
8001419	Total Phosphorus (P)	2015/08/17					<0.010	mg/L		
8001419	Total Selenium (Se)	2015/08/17	94	80 - 120	88	80 - 120	<0.000040	mg/L	1.2	20
8001419	Total Silicon (Si)	2015/08/17					<0.10	mg/L	8.8	20
8001419	Total Silver (Ag)	2015/08/17	106	80 - 120	94	80 - 120	<0.0000050	mg/L	8.0	20
8001419	Total Strontium (Sr)	2015/08/17	NC	80 - 120	95	80 - 120	<0.000050	mg/L	3.7	20
8001419	Total Thallium (Tl)	2015/08/17	91	80 - 120	101	80 - 120	<0.0000020	mg/L	19	20
8001419	Total Tin (Sn)	2015/08/17	85	80 - 120	96	80 - 120	<0.00020	mg/L	NC	20
8001419	Total Titanium (Ti)	2015/08/17	NC	80 - 120	99	80 - 120	<0.0050	mg/L	8.2	20
8001419	Total Uranium (U)	2015/08/17	104	80 - 120	108	80 - 120	<0.0000050	mg/L	2.3	20
8001419	Total Vanadium (V)	2015/08/17	NC	80 - 120	99	80 - 120	<0.00050	mg/L	8.1	20
8001419	Total Zinc (Zn)	2015/08/17	105	80 - 120	107	80 - 120	<0.0010	mg/L	NC	20
8001419	Total Zirconium (Zr)	2015/08/17					<0.00010	mg/L	8.9	20
8001524	Total Suspended Solids	2015/08/17			104	80 - 120	<1.0	mg/L		

Maxxam Job #: B569283  
Report Date: 2015/08/19

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Sampler Initials: KR

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8001537	Nitrate plus Nitrite (N)	2015/08/13	103	80 - 120	106	80 - 120	<0.0020	mg/L	NC	25
8001538	Nitrite (N)	2015/08/13	100	80 - 120	104	80 - 120	<0.0020	mg/L	NC	25
8002048	Alkalinity (PP as CaCO3)	2015/08/13					<0.50	mg/L		
8002048	Alkalinity (Total as CaCO3)	2015/08/13	NC	80 - 120	100	80 - 120	<0.50	mg/L		
8002048	Bicarbonate (HCO3)	2015/08/13					<0.50	mg/L		
8002048	Carbonate (CO3)	2015/08/13					<0.50	mg/L		
8002048	Hydroxide (OH)	2015/08/13					<0.50	mg/L		
8002053	Conductivity	2015/08/13			102	80 - 120	<1.0	uS/cm		
8002054	pH	2015/08/13			102	97 - 103				
8002061	Dissolved Chloride (Cl)	2015/08/13	115	80 - 120	99	80 - 120	<0.50	mg/L	NC	20
8002070	Dissolved Sulphate (SO4)	2015/08/13	NC	80 - 120	94	80 - 120	<0.50	mg/L	2.0	20
8002150	Fluoride (F)	2015/08/14	104	80 - 120	100	80 - 120	<0.010	mg/L	3.4	20
8002731	Orthophosphate (P)	2015/08/14	99	80 - 120	93	80 - 120			NC	20
8002745	Total Phosphorus (P)	2015/08/14	92	80 - 120	104	80 - 120	<0.0020	mg/L	NC	20
8002764	Dissolved Phosphorus (P)	2015/08/14			99	80 - 120	<0.0020	mg/L		
8002818	Total Ammonia (N)	2015/08/14	NC	80 - 120	108	80 - 120	<0.0050	mg/L	0.28	20
8002820	Total Ammonia (N)	2015/08/14	113	80 - 120	110	80 - 120	0.0077, RDL=0.0050	mg/L	5.0	20
8002942	Total Nitrogen (N)	2015/08/17	NC	80 - 120	86	80 - 120	<0.020	mg/L	3.6	20
8002943	Total Nitrogen (N)	2015/08/17	112	80 - 120	84	80 - 120	<0.020	mg/L	NC	20
8003336	Acidity (pH 4.5)	2015/08/14					<0.50	mg/L		
8003336	Acidity (pH 8.3)	2015/08/14			99	80 - 120	<0.50	mg/L		
8004814	Dissolved Mercury (Hg)	2015/08/17	89	80 - 120	86	80 - 120	<0.0000020	mg/L	NC	20
8004830	Total Mercury (Hg)	2015/08/17	87	80 - 120	104	80 - 120	<0.0000020	mg/L	NC	20
8005280	Total Mercury (Hg)	2015/08/18	89	80 - 120	90	80 - 120	<0.0000020	mg/L	NC	20
8005787	Total Organic Carbon (C)	2015/08/18	96	80 - 120	99	80 - 120	<0.50	mg/L	NC	20
8006712	Total Ammonia (N)	2015/08/18	NC	80 - 120	107	80 - 120	<0.0050	mg/L	0.74	20
8006741	Orthophosphate (P)	2015/08/18	97	80 - 120	95	80 - 120	<0.0010	mg/L	0.71	20
8006746	Total Phosphorus (P)	2015/08/18	96	80 - 120	112	80 - 120	<0.0020	mg/L	NC	20
8006747	Dissolved Phosphorus (P)	2015/08/18			112	80 - 120	<0.0020	mg/L		

Maxxam Job #: B569283  
Report Date: 2015/08/19

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Sampler Initials: KR

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8007960	Dissolved Phosphorus (P)	2015/08/19					<0.0020	mg/L		

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

Maxxam Job #: B569283  
Report Date: 2015/08/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Sampler Initials: KR

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Andy Lu, Data Validation Coordinator



Suwan Fock, Senior Analyst

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



**CHAIN OF CUSTODY RECORD**

Burnaby: 4 BS69283

1566

CO



08412729

Invoice Information			Project Information [Job #]											around Time (TAT) Required										
Company Name: #11954 BMC Mineral (NO. 1) LTD.			Company Name: #31161 Tatra Tech EBA			Quotation #: 850743			<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses)			PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS Rush TAT (Surcharges will be applied) <input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days <input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days												
Contact Name: ACCOUNTS PAYABLE			Contact Name: Kristen Range			P.O. #/AFER:			Date Required:															
Address: 530-1130 West Pender Street, Vancouver BC V6E 4A4			Address: 63 Watson Place Whitehorse, YT Y1A 0K3			Project #: ENVMIN03071-01																		
Phone:			Phone: 867-668-6225			Site Location: Kudu Ze Kayah																		
Email: kdbergh@gmail.com			Email: kristen.range@tetrattech.com			Site #:			Sampled By: Kristen Range															
Regulatory Criteria			Special Instructions			Analysis Requested											Rush Confirmation #:							
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> BC CSR Water <input type="checkbox"/> CCME (Specify) <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Drinking Water <input type="checkbox"/> DL Water Quality			<input type="checkbox"/> Pesticide Cooler <input type="checkbox"/> Dirty Sample Bottles (Please Specify)			ROUTINE (incl. TOA)      MAJOR IONS      NUTRIENTS INCLUDING NH4, NO3, TOTAL P      Low Level Dissolved Metals with CV Pq Low Level Total Metals with CV Hg      Phosphorus (L, Tris, dissolved) H Pp											LABORATORY USE ONLY CUSTODY SEAL: <input checked="" type="checkbox"/> N/A COOLER TEMPERATURES: Present      Intact N      N N      N N      N 10.7.6 9.10.3/88.4 6.9.9.0							
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM																								
Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	Analysis Requested											# OF CONTAINERS SUBMITTED	COOLING MEDIA PRESENT	COMMENTS						
1	BH95G-22	MW4346	8/7/2015	15:30	water	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	13		Dissolved metals and phosphorus were field filtered and preserved.
2	BH95G-21	MW4347	8/6/2015	16:08	water	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	13		Total metals were field preserved.
3	BH95G-255	MW4348	8/6/2015	17:40	water	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	13		Project number on bottles incorrect
4	BH95G-250	MW4349	8/6/2015	18:36	water	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	13		Please change to project number above
5	BH95G-23	MW4350	8/9/2015	10:35	water	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	13		
6	BH95G-24	MW4351	8/9/2015	13:30	water	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	13		
7	BH95G-29	MW4352	8/9/2015	12:20	water	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	13		
8																								
9																								
10																								
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #																
Kristen Range		2015/08/09		Julia Cousins		2015/08/12	14:10	B 569283																

Your Project #: ENVMINO3071-01

Site Location: KUDZ ZE KAYAH

Your C.O.C. #: 08404951

**Attention:KRISTEN RANGE**

TETRATECH EBA  
61 WASSON PLACE  
WHITEHORSE, YT  
Canada Y1A 0H7

**Report Date: 2016/01/19**

Report #: R2119190

Version: 2 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**MAXXAM JOB #: B569978**

**Received: 2015/08/14, 13:00**

Sample Matrix: Water

# Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Acidity pH 4.5 & pH 8.3 (as CaCO3)	3	N/A	2015/08/20	BBY6SOP-00037	SM 22 2310 B m
Alkalinity - Water	3	2015/08/15	2015/08/15	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry	3	N/A	2015/08/17	BBY6SOP-00011	SM 22 4500-Cl- G m
Conductance - water	3	N/A	2015/08/15	BBY6SOP-00026	SM 22 2510 B m
Fluoride	3	N/A	2015/08/17	BBY6SOP-00048	SM 22 4500-F C m
Hardness Total (calculated as CaCO3)	3	N/A	2015/08/19	BBY7SOP-00002	EPA 6020a R1 m
Hardness (calculated as CaCO3)	3	N/A	2015/08/19	BBY7SOP-00002	EPA 6020a R1 m
Mercury (Dissolved-LowLevel) by CVAf	3	N/A	2015/08/20	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total-LowLevel) by CVAf	3	2015/08/19	2015/08/20	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Ion Balance	3	N/A	2015/08/19	BBY WI-00033	SM 22 1030E
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	3	N/A	2015/08/19	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Low Level (dissolved)	3	N/A	2015/08/19	BBY7SOP-00002	EPA 6020A R1 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	3	N/A	2015/08/19	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Low Level (total)	3	N/A	2015/08/19	BBY7SOP-00002	EPA 6020A R1 m
Nitrogen (Total)	3	2015/08/18	2015/08/19	BBY6SOP-00016	SM 22 4500-N C m
Ammonia-N (Preserved)	3	N/A	2015/08/18	BBY6SOP-00009	SM 22 4500-NH3- G m
Nitrate+Nitrite (N) (low level)	3	N/A	2015/08/15	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) (low level)	3	N/A	2015/08/15	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N)	3	N/A	2015/08/15	BBY6SOP-00010	SM 22 4500-NO3- I m
Filter and HNO3 Preserve for Metals	3	N/A	2015/08/19	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (2)	3	N/A	2015/08/15	BBY6SOP-00026	SM 22 4500-H+ B m
Orthophosphate by Konelab (low level)	3	N/A	2015/08/15	BBY6SOP-00013	SM 22 4500-P E m
Sulphate by Automated Colourimetry	2	N/A	2015/08/17	BBY6SOP-00017	SM 22 4500-SO42- E m
Sulphate by Automated Colourimetry	1	N/A	2015/08/18	BBY6SOP-00017	SM 22 4500-SO42- E m
Total Dissolved Solids - Low Level	3	N/A	2015/08/17	BBY6SOP-00033	SM 22 2540 C m
TKN (Calc. TN, N/N) total	3	N/A	2015/08/19	BBY WI-00033	Calculation
Carbon (Total Organic) (1, 3)	3	N/A	2015/08/20	EENVSOP-00060	MMCW 119 1996 m
Phosphorus-P (LL Tot, dissolved) - FF/FP	3	2015/08/17	2015/08/17	BBY6SOP-00013	SM 22 4500-P E m
Total Phosphorus	3	N/A	2015/08/17	BBY6SOP-00013	SM 22 4500-P E m
Total Suspended Solids-Low Level	3	2015/08/18	2015/08/19	BBY6SOP-00034	SM 22 2540 D

Your Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Your C.O.C. #: 08404951

**Attention:KRISTEN RANGE**

TETRATECH EBA  
61 WASSON PLACE  
WHITEHORSE, YT  
Canada Y1A 0H7

**Report Date: 2016/01/19**  
Report #: R2119190  
Version: 2 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**MAXXAM JOB #: B569978**

**Received: 2015/08/14, 13:00**

Sample Matrix: Water  
# Samples Received: 3

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Analytical Method</b>
Turbidity	3	N/A	2015/08/15	BBY6SOP-00027	SM 22 2130 B m

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

- (1) This test was performed by Maxxam Edmonton Environmental
- (2) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.
- (3) TOC present in the sample should be considered as non-purgeable TOC.

**Encryption Key**

Please direct all questions regarding this Certificate of Analysis to your Project Manager.  
Morgan Melnychuk, Burnaby Project Manager  
Email: MMelnychuk@maxxam.ca  
Phone# (604)638-8034 Ext:8034

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Maxxam Job #: B569978  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		MW8217	MW8217		MW8218	MW8218		MW8219		
Sampling Date		2015/08/11	2015/08/11		2015/08/11	2015/08/11		2015/08/11		
COC Number		08404951	08404951		08404951	08404951		08404951		
	UNITS	ART - 3 (1)	ART - 3 (1) Lab-Dup	QC Batch	ART - 3 (3)	ART - 3 (3) Lab-Dup	RDL	BH95G-146	RDL	QC Batch

Calculated Parameters										
Filter and HNO3 Preservation	N/A	FIELD		ONSITE	FIELD		N/A	FIELD	N/A	ONSITE
Ion Balance	N/A	1.0		8001732	1.1		0.010	1.1	0.010	8001732
Nitrate (N)	mg/L	<0.0020		8001957	<0.0020		0.0020	<0.0020	0.0020	8001957

Misc. Inorganics										
Fluoride (F)	mg/L	0.150		8005224	0.160		0.010	0.300	0.010	8005224
Acidity (pH 4.5)	mg/L	<0.50		8009106	<0.50		0.50	<0.50	0.50	8009106
Alkalinity (Total as CaCO3)	mg/L	103		8003392	105		0.50	133	0.50	8003392
Total Organic Carbon (C)	mg/L	0.58		8008842	0.58		0.50	1.2	0.50	8008842
Acidity (pH 8.3)	mg/L	4.18		8009106	2.04		0.50	<0.50	0.50	8009106
Alkalinity (PP as CaCO3)	mg/L	<0.50		8003392	<0.50		0.50	<0.50	0.50	8003392
Bicarbonate (HCO3)	mg/L	126		8003392	128		0.50	163	0.50	8003392
Carbonate (CO3)	mg/L	<0.50		8003392	<0.50		0.50	<0.50	0.50	8003392
Hydroxide (OH)	mg/L	<0.50		8003392	<0.50		0.50	<0.50	0.50	8003392

Anions										
Orthophosphate (P)	mg/L	0.0013 (1)		8003354	0.0012 (1)	0.0010	0.0010	0.0018 (1)	0.0010	8003354
Dissolved Sulphate (SO4)	mg/L	100		8006693	88.5		0.50	255	5.0	8005936
Dissolved Chloride (Cl)	mg/L	<0.50		8005938	<0.50	<0.50	0.50	<0.50	0.50	8005938

Nutrients										
Total Ammonia (N)	mg/L	0.033		8006760	0.045		0.0050	0.13	0.0050	8006712
Dissolved Phosphorus (P)	mg/L	0.0204	0.0197	8004798	0.0141		0.0020	<0.0020	0.0020	8004798
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.176		8001960	0.096		0.020	0.151	0.020	8001960
Nitrate plus Nitrite (N)	mg/L	0.0089 (1)		8003598	0.0047 (1)		0.0020	<0.0020 (1)	0.0020	8003598
Nitrite (N)	mg/L	0.0073 (1)		8003599	0.0077 (1)		0.0020	<0.0020 (1)	0.0020	8003599
Total Nitrogen (N)	mg/L	0.185		8006752	0.101		0.020	0.151	0.020	8006752
Total Phosphorus (P)	mg/L	0.0235	0.0227	8004800	0.0189		0.0020	0.0971	0.0020	8004800

Physical Properties										
Conductivity	uS/cm	387		8003391	392		1.0	771	1.0	8003391
pH	pH	7.44		8003389	7.42		N/A	7.92	N/A	8003389

Physical Properties										
Total Suspended Solids	mg/L	9.3		8006050	10.1		1.0	31.5	1.0	8006050

RDL = Reportable Detection Limit  
 Lab-Dup = Laboratory Initiated Duplicate  
 N/A = Not Applicable  
 (1) Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis.

Maxxam Job #: B569978  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		MW8217	MW8217		MW8218	MW8218		MW8219		
Sampling Date		2015/08/11	2015/08/11		2015/08/11	2015/08/11		2015/08/11		
COC Number		08404951	08404951		08404951	08404951		08404951		
	UNITS	ART - 3 (1)	ART - 3 (1) Lab-Dup	QC Batch	ART - 3 (3)	ART - 3 (3) Lab-Dup	RDL	BH95G-146	RDL	QC Batch
Total Dissolved Solids	mg/L	268	276	8003313	262		1.0	612	1.0	8003313
Turbidity	NTU	36.9 (1)		8003152	46.4 (1)		0.10	44.1 (1)	0.10	8003152

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

(1) Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis.

Maxxam ID		MW8219		
Sampling Date		2015/08/11		
COC Number		08404951		
	UNITS	BH95G-146 Lab-Dup	RDL	QC Batch

Misc. Inorganics				
Fluoride (F)	mg/L	0.300	0.010	8005224
Anions				
Dissolved Sulphate (SO4)	mg/L	255	5.0	8005936
Nutrients				
Nitrate plus Nitrite (N)	mg/L	<0.0020	0.0020	8003598
Nitrite (N)	mg/L	<0.0020	0.0020	8003599
RDL = Reportable Detection Limit				
Lab-Dup = Laboratory Initiated Duplicate				

Maxxam Job #: B569978  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		MW8217	MW8218		MW8219		
Sampling Date		2015/08/11	2015/08/11		2015/08/11		
COC Number		08404951	08404951		08404951		
	UNITS	ART - 3 (1)	ART - 3 (3)	QC Batch	BH95G-146	RDL	QC Batch
<b>Misc. Inorganics</b>							
Dissolved Hardness (CaCO3)	mg/L	191	199	8001731	413	0.50	8001731
<b>Elements</b>							
Dissolved Mercury (Hg)	mg/L	<0.000020	<0.000020	8009266	<0.000020	0.000020	8009266
<b>Dissolved Metals by ICPMS</b>							
Dissolved Aluminum (Al)	mg/L	0.00186	0.00193	8004455	0.00315	0.00050	8004455
Dissolved Antimony (Sb)	mg/L	0.0390	0.0332	8004455	0.00112	0.000020	8004455
Dissolved Arsenic (As)	mg/L	0.156	0.140	8004455	0.00452	0.000020	8004455
Dissolved Barium (Ba)	mg/L	0.0176	0.0192	8004455	0.0126	0.000020	8004455
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	8004455	<0.000010	0.000010	8004455
Dissolved Bismuth (Bi)	mg/L	0.0000184	0.0000053	8004455	0.0000060	0.0000050	8004455
Dissolved Boron (B)	mg/L	<0.010	<0.010	8004455	<0.010	0.010	8004455
Dissolved Cadmium (Cd)	mg/L	0.000424	0.000877	8004455	<0.0000050	0.0000050	8004455
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	8004455	<0.00010	0.00010	8004455
Dissolved Cobalt (Co)	mg/L	0.00167	0.00186	8004455	0.0000607	0.0000050	8004455
Dissolved Copper (Cu)	mg/L	<0.000050	<0.000050	8004455	0.000074	0.000050	8004455
Dissolved Iron (Fe)	mg/L	6.68	6.75	8004455	0.982	0.0010	8004455
Dissolved Lead (Pb)	mg/L	0.000626	0.00211	8004455	<0.0000050	0.0000050	8004455
Dissolved Lithium (Li)	mg/L	0.00476	0.00446	8013419	0.0234	0.00050	8004455
Dissolved Manganese (Mn)	mg/L	0.507	0.531	8004455	0.0508	0.000050	8004455
Dissolved Molybdenum (Mo)	mg/L	0.000647	0.000596	8004455	0.000291	0.000050	8004455
Dissolved Nickel (Ni)	mg/L	0.00242	0.00267	8004455	0.000246	0.000020	8004455
Dissolved Phosphorus (P)	mg/L	<0.0020	0.0024	8004455	<0.0020	0.0020	8004455
Dissolved Selenium (Se)	mg/L	<0.000040	<0.000040	8004455	<0.000040	0.000040	8004455
Dissolved Silicon (Si)	mg/L	5.72	5.68	8004455	14.0	0.050	8004455
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	8004455	<0.0000050	0.0000050	8004455
Dissolved Strontium (Sr)	mg/L	0.204	0.209	8004455	0.390	0.000050	8004455
Dissolved Thallium (Tl)	mg/L	0.000256	0.000478	8004455	0.0000269	0.0000020	8004455
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	8004455	<0.00020	0.00020	8004455
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	8004455	<0.00050	0.00050	8004455
Dissolved Uranium (U)	mg/L	0.00523	0.00555	8004455	0.00231	0.0000020	8004455
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	8004455	<0.00020	0.00020	8004455
Dissolved Zinc (Zn)	mg/L	2.27	2.35	8004455	0.00383	0.00010	8004455
Dissolved Zirconium (Zr)	mg/L	0.00013	0.00014	8004455	<0.00010	0.00010	8004455
Dissolved Calcium (Ca)	mg/L	63.1	65.6	8001955	129	0.050	8001955
Dissolved Magnesium (Mg)	mg/L	8.18	8.44	8001955	22.0	0.050	8001955
RDL = Reportable Detection Limit							

Maxxam Job #: B569978  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		MW8217	MW8218		MW8219		
Sampling Date		2015/08/11	2015/08/11		2015/08/11		
COC Number		08404951	08404951		08404951		
	UNITS	ART - 3 (1)	ART - 3 (3)	QC Batch	BH95G-146	RDL	QC Batch
Dissolved Potassium (K)	mg/L	1.76	1.76	8001955	2.36	0.050	8001955
Dissolved Sodium (Na)	mg/L	0.874	0.893	8001955	3.39	0.050	8001955
Dissolved Sulphur (S)	mg/L	29.8	29.8	8001955	86.9	3.0	8001955
RDL = Reportable Detection Limit							

Maxxam Job #: B569978  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		MW8217	MW8218	MW8219		
Sampling Date		2015/08/11	2015/08/11	2015/08/11		
COC Number		08404951	08404951	08404951		
	UNITS	ART - 3 (1)	ART - 3 (3)	BH95G-146	RDL	QC Batch
<b>Calculated Parameters</b>						
Total Hardness (CaCO3)	mg/L	199	196	437	0.50	8001954
<b>Elements</b>						
Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	0.0000020	8007815
<b>Total Metals by ICPMS</b>						
Total Aluminum (Al)	mg/L	0.00571	0.00831	0.0958	0.00050	8007424
Total Antimony (Sb)	mg/L	0.0436	0.0331	0.00569	0.000020	8007424
Total Arsenic (As)	mg/L	0.172	0.148	0.0250	0.000020	8007424
Total Barium (Ba)	mg/L	0.0183	0.0196	0.0180	0.000020	8007424
Total Beryllium (Be)	mg/L	<0.000010	<0.000010	0.000014	0.000010	8007424
Total Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	0.0000050	8007424
Total Boron (B)	mg/L	<0.010	<0.010	<0.010	0.010	8007424
Total Cadmium (Cd)	mg/L	0.000482	0.000953	0.0000837	0.0000050	8007424
Total Chromium (Cr)	mg/L	<0.00010	<0.00010	0.00036	0.00010	8007424
Total Cobalt (Co)	mg/L	0.00174	0.00186	0.000112	0.0000050	8007424
Total Copper (Cu)	mg/L	0.000155	0.000263	0.00118	0.000050	8007424
Total Iron (Fe)	mg/L	7.05	6.57	1.98	0.0010	8007424
Total Lead (Pb)	mg/L	0.000788	0.00234	0.00620	0.0000050	8007424
Total Lithium (Li)	mg/L	0.00504	0.00484	0.0220	0.00050	8007424
Total Manganese (Mn)	mg/L	0.526	0.543	0.0468	0.000050	8007424
Total Molybdenum (Mo)	mg/L	0.000662	0.000571	0.000322	0.000050	8007424
Total Nickel (Ni)	mg/L	0.00260	0.00271	0.000438	0.000020	8007424
Total Phosphorus (P)	mg/L	<0.0020	0.0032	0.0055	0.0020	8007424
Total Selenium (Se)	mg/L	<0.000040	<0.000040	<0.000040	0.000040	8007424
Total Silicon (Si)	mg/L	6.22	6.11	15.9	0.050	8007424
Total Silver (Ag)	mg/L	<0.0000050	<0.0000050	0.0000087	0.0000050	8007424
Total Strontium (Sr)	mg/L	0.222	0.216	0.448	0.000050	8007424
Total Thallium (Tl)	mg/L	0.000267	0.000517	0.0000254	0.0000020	8007424
Total Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	0.00020	8007424
Total Titanium (Ti)	mg/L	<0.00050	<0.00050	0.00595	0.00050	8007424
Total Uranium (U)	mg/L	0.00552	0.00594	0.00240	0.0000020	8007424
Total Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	0.00020	8007424
Total Zinc (Zn)	mg/L	2.30	2.39	0.0702	0.00010	8007424
Total Zirconium (Zr)	mg/L	0.00015	0.00018	0.00016	0.00010	8007424
Total Calcium (Ca)	mg/L	65.1	63.5	131	0.050	8001956
Total Magnesium (Mg)	mg/L	8.83	9.01	26.4	0.050	8001956
RDL = Reportable Detection Limit						

Maxxam Job #: B569978  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		MW8217	MW8218	MW8219		
Sampling Date		2015/08/11	2015/08/11	2015/08/11		
COC Number		08404951	08404951	08404951		
	UNITS	ART - 3 (1)	ART - 3 (3)	BH95G-146	RDL	QC Batch
Total Potassium (K)	mg/L	2.06	2.04	2.92	0.050	8001956
Total Sodium (Na)	mg/L	1.34	0.976	4.11	0.050	8001956
Total Sulphur (S)	mg/L	34.7	34.7	104	3.0	8001956
RDL = Reportable Detection Limit						

Maxxam Job #: B569978  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

### GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	5.7°C
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Revised report (V2): Client ID corrected per client request for samples MW8217 and MW8218 (MM4).

Sample MW8218-01 : Revised report V2: Updated Client Sample ID for MW8217 and MW8218 per client request (MM4)

Sample MW8217, Elements by ICPMS Low Level (dissolved): Test repeated.

Sample MW8218, Elements by ICPMS Low Level (dissolved): Test repeated.

**Results relate only to the items tested.**

Maxxam Job #: B569978  
Report Date: 2016/01/19

**QUALITY ASSURANCE REPORT**

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8003152	Turbidity	2015/08/15			103	80 - 120	<0.10	NTU	NC (1)	20
8003313	Total Dissolved Solids	2015/08/17	102	80 - 120	106	80 - 120	1.2, RDL=1.0	mg/L	2.9	20
8003354	Orthophosphate (P)	2015/08/15	99	80 - 120	95	80 - 120	<0.0010	mg/L	NC	20
8003389	pH	2015/08/15			102	97 - 103	5.39	pH	0.49	N/A
8003391	Conductivity	2015/08/15			97	80 - 120	<1.0	uS/cm	0.39	20
8003392	Alkalinity (PP as CaCO3)	2015/08/15					<0.50	mg/L	NC	20
8003392	Alkalinity (Total as CaCO3)	2015/08/15	NC	80 - 120	101	80 - 120	<0.50	mg/L	1.4	20
8003392	Bicarbonate (HCO3)	2015/08/15					<0.50	mg/L	1.4	20
8003392	Carbonate (CO3)	2015/08/15					<0.50	mg/L	NC	20
8003392	Hydroxide (OH)	2015/08/15					<0.50	mg/L	NC	20
8003598	Nitrate plus Nitrite (N)	2015/08/15	96	80 - 120	110	80 - 120	<0.0020	mg/L	NC	25
8003599	Nitrite (N)	2015/08/15	97	80 - 120	102	80 - 120	<0.0020	mg/L	NC	25
8004455	Dissolved Aluminum (Al)	2015/08/19	101	80 - 120	108	80 - 120	<0.00050	mg/L	11	20
8004455	Dissolved Antimony (Sb)	2015/08/19	102	80 - 120	103	80 - 120	<0.000020	mg/L	14	20
8004455	Dissolved Arsenic (As)	2015/08/19	106	80 - 120	100	80 - 120	<0.000020	mg/L	1.9	20
8004455	Dissolved Barium (Ba)	2015/08/19	NC	80 - 120	108	80 - 120	<0.000020	mg/L	0.29	20
8004455	Dissolved Beryllium (Be)	2015/08/19	103	80 - 120	99	80 - 120	<0.000010	mg/L	NC	20
8004455	Dissolved Bismuth (Bi)	2015/08/19	98	80 - 120	103	80 - 120	<0.0000050	mg/L	NC	20
8004455	Dissolved Boron (B)	2015/08/19					<0.010	mg/L	4.4	20
8004455	Dissolved Cadmium (Cd)	2015/08/19	99	80 - 120	98	80 - 120	<0.0000050	mg/L	NC	20
8004455	Dissolved Chromium (Cr)	2015/08/19	106	80 - 120	103	80 - 120	<0.00010	mg/L	NC	20
8004455	Dissolved Cobalt (Co)	2015/08/19	103	80 - 120	106	80 - 120	<0.0000050	mg/L	13	20
8004455	Dissolved Copper (Cu)	2015/08/19	101	80 - 120	107	80 - 120	<0.000050	mg/L	6.6	20
8004455	Dissolved Iron (Fe)	2015/08/19	91	80 - 120	110	80 - 120	<0.0010	mg/L	8.9	20
8004455	Dissolved Lead (Pb)	2015/08/19	102	80 - 120	108	80 - 120	<0.0000050	mg/L	NC	20
8004455	Dissolved Lithium (Li)	2015/08/19	NC	80 - 120	101	80 - 120	<0.00050	mg/L	0.29	20
8004455	Dissolved Manganese (Mn)	2015/08/19	91	80 - 120	102	80 - 120	<0.000050	mg/L	0.65	20
8004455	Dissolved Molybdenum (Mo)	2015/08/19	NC	80 - 120	101	80 - 120	<0.000050	mg/L	3.0	20
8004455	Dissolved Nickel (Ni)	2015/08/19	97	80 - 120	105	80 - 120	<0.000020	mg/L	2.8	20
8004455	Dissolved Phosphorus (P)	2015/08/19					<0.0020	mg/L		
8004455	Dissolved Selenium (Se)	2015/08/19	102	80 - 120	96	80 - 120	<0.000040	mg/L	NC	20



Maxxam Job #: B569978  
Report Date: 2016/01/19

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8004455	Dissolved Silicon (Si)	2015/08/19					<0.050	mg/L	1.8	20
8004455	Dissolved Silver (Ag)	2015/08/19	104	80 - 120	100	80 - 120	<0.0000050	mg/L	NC	20
8004455	Dissolved Strontium (Sr)	2015/08/19	NC	80 - 120	98	80 - 120	<0.000050	mg/L	0.45	20
8004455	Dissolved Thallium (Tl)	2015/08/19	94	80 - 120	103	80 - 120	<0.0000020	mg/L	NC	20
8004455	Dissolved Tin (Sn)	2015/08/19	105	80 - 120	102	80 - 120	<0.00020	mg/L	NC	20
8004455	Dissolved Titanium (Ti)	2015/08/19	100	80 - 120	96	80 - 120	<0.00050	mg/L	NC	20
8004455	Dissolved Uranium (U)	2015/08/19	103	80 - 120	104	80 - 120	<0.0000020	mg/L	1.3	20
8004455	Dissolved Vanadium (V)	2015/08/19	107	80 - 120	102	80 - 120	<0.00020	mg/L	NC	20
8004455	Dissolved Zinc (Zn)	2015/08/19	102	80 - 120	103	80 - 120	<0.00010	mg/L		
8004455	Dissolved Zirconium (Zr)	2015/08/19					<0.00010	mg/L	NC	20
8004798	Dissolved Phosphorus (P)	2015/08/17	88	80 - 120	96	80 - 120	<0.0020	mg/L	3.8	20
8004800	Total Phosphorus (P)	2015/08/17	89	80 - 120	99	80 - 120	<0.0020	mg/L	NC	20
8005224	Fluoride (F)	2015/08/17			100	80 - 120	<0.010	mg/L	0	20
8005936	Dissolved Sulphate (SO4)	2015/08/17	NC	80 - 120	103	80 - 120	<0.50	mg/L	0.12	20
8005938	Dissolved Chloride (Cl)	2015/08/17			99	80 - 120	<0.50	mg/L	NC	20
8006050	Total Suspended Solids	2015/08/19			104	80 - 120	<1.0	mg/L		
8006693	Dissolved Sulphate (SO4)	2015/08/18			98	80 - 120	0.55, RDL=0.50	mg/L	NC (2)	20
8006712	Total Ammonia (N)	2015/08/18	NC	80 - 120	107	80 - 120	<0.0050	mg/L	0.74	20
8006752	Total Nitrogen (N)	2015/08/19	NC	80 - 120	105	80 - 120	<0.020	mg/L	5.8	20
8006760	Total Ammonia (N)	2015/08/18	NC	80 - 120	114	80 - 120	<0.0050	mg/L	3.5	20
8007424	Total Aluminum (Al)	2015/08/19	108	80 - 120	107	80 - 120	<0.00050	mg/L	1.1	20
8007424	Total Antimony (Sb)	2015/08/19	107	80 - 120	103	80 - 120	<0.000020	mg/L	4.3	20
8007424	Total Arsenic (As)	2015/08/19	102	80 - 120	101	80 - 120	<0.000020	mg/L	NC	20
8007424	Total Barium (Ba)	2015/08/19	112	80 - 120	107	80 - 120	<0.000020	mg/L	0.99	20
8007424	Total Beryllium (Be)	2015/08/19	102	80 - 120	106	80 - 120	<0.000010	mg/L	NC	20
8007424	Total Bismuth (Bi)	2015/08/19	105	80 - 120	103	80 - 120	<0.0000050	mg/L	NC	20
8007424	Total Boron (B)	2015/08/19					<0.010	mg/L	NC	20
8007424	Total Cadmium (Cd)	2015/08/19	104	80 - 120	105	80 - 120	<0.0000050	mg/L	6.0	20
8007424	Total Chromium (Cr)	2015/08/19	106	80 - 120	108	80 - 120	<0.00010	mg/L	0.064	20
8007424	Total Cobalt (Co)	2015/08/19	106	80 - 120	108	80 - 120	<0.0000050	mg/L	6.8	20
8007424	Total Copper (Cu)	2015/08/19	106	80 - 120	108	80 - 120	<0.000050	mg/L	6.6	20

Maxxam Job #: B569978  
Report Date: 2016/01/19

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8007424	Total Iron (Fe)	2015/08/19	105	80 - 120	111	80 - 120	<0.0010	mg/L	2.0	20
8007424	Total Lead (Pb)	2015/08/19	112	80 - 120	109	80 - 120	<0.0000050	mg/L	2.7	20
8007424	Total Lithium (Li)	2015/08/19	99	80 - 120	107	80 - 120	<0.00050	mg/L	5.9	20
8007424	Total Manganese (Mn)	2015/08/19	101	80 - 120	103	80 - 120	<0.000050	mg/L	0.74	20
8007424	Total Molybdenum (Mo)	2015/08/19	102	80 - 120	96	80 - 120	<0.000050	mg/L	0.91	20
8007424	Total Nickel (Ni)	2015/08/19	104	80 - 120	105	80 - 120	<0.000020	mg/L	6.0	20
8007424	Total Phosphorus (P)	2015/08/19					<0.0020	mg/L	5.9	20
8007424	Total Selenium (Se)	2015/08/19	97	80 - 120	102	80 - 120	<0.000040	mg/L	NC	20
8007424	Total Silicon (Si)	2015/08/19					<0.050	mg/L	0.41	20
8007424	Total Silver (Ag)	2015/08/19	89	80 - 120	95	80 - 120	<0.0000050	mg/L	NC	20
8007424	Total Strontium (Sr)	2015/08/19	99	80 - 120	98	80 - 120	<0.000050	mg/L	1.5	20
8007424	Total Thallium (Tl)	2015/08/19	107	80 - 120	103	80 - 120	<0.0000020	mg/L	NC	20
8007424	Total Tin (Sn)	2015/08/19	108	80 - 120	104	80 - 120	<0.00020	mg/L	NC	20
8007424	Total Titanium (Ti)	2015/08/19	103	80 - 120	103	80 - 120	<0.00050	mg/L	NC	20
8007424	Total Uranium (U)	2015/08/19	110	80 - 120	107	80 - 120	<0.0000020	mg/L	0.51	20
8007424	Total Vanadium (V)	2015/08/19	101	80 - 120	104	80 - 120	<0.00020	mg/L	NC	20
8007424	Total Zinc (Zn)	2015/08/19	101	80 - 120	109	80 - 120	<0.00010	mg/L	18	20
8007424	Total Zirconium (Zr)	2015/08/19					<0.00010	mg/L	NC	20
8007815	Total Mercury (Hg)	2015/08/20	93	80 - 120	90	80 - 120	<0.0000020	mg/L	NC	20
8008842	Total Organic Carbon (C)	2015/08/20	NC	80 - 120	98	80 - 120	<0.50	mg/L	0.52	20
8009106	Acidity (pH 4.5)	2015/08/20					<0.50	mg/L	NC	20
8009106	Acidity (pH 8.3)	2015/08/20			100	80 - 120	0.68, RDL=0.50	mg/L	1.0	20
8009266	Dissolved Mercury (Hg)	2015/08/20	92	80 - 120	95	80 - 120	<0.0000020	mg/L	NC	20

Maxxam Job #: B569978  
Report Date: 2016/01/19

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8013419	Dissolved Lithium (Li)	2015/08/26	NC	80 - 120	102	80 - 120	<0.00050	mg/L		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

(1) Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis.

(2) RDL raised due to sample matrix interference.

Maxxam Job #: B569978  
Report Date: 2016/01/19

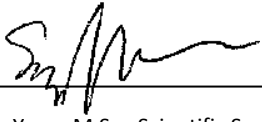
TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



\_\_\_\_\_  
David Huang, BBy Scientific Specialist



\_\_\_\_\_  
Sandy Yuan, M.Sc., Scientific Specialist

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Invoice Information		Report Information (if differs from invoice)				Project Information				Turnaround Time (TAT) Required					
Company Name: #11954 BMC Mineral (NO. 1) LTD.		Company Name: #31161 Tetra Tech EBA				Quotation #: B50743				<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses)					
Contact Name: ACCOUNTS PAYABLE		Contact Name: Kristen Range				P.O. #/ AFE#:				PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS					
Address: 530-1130 West Pender Street, Vancouver BC PC: V6E 4A4		Address: 61 Wasson Place Whitehorse, YT PC: V1A 0H7				Project #: ENVMINO3071-01				Rush TAT (Surcharges will be applied)					
Phone:		Phone: 867-668-6225				Site Location: Kudz Ze Kayah				<input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days					
Email: kdbergh@gmail.com		Email: kristen.range@tetrattech.com				Site #:				<input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days					
Date Required:		Sampled By: Kristen Range													
Regulatory Criteria		Special Instructions		Analysis Requested						Rush Confirmation #:					
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> BC CSR Water <input type="checkbox"/> CCME (Specify) <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC Water Quality		<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify)		ROUTINE (incl. TDS) _____ MAJOR IONS _____ NUTRIENTS (INCLUDING NO3, NO2, TOTAL P) _____ Low Level Dissolved Metals with CV/Hg _____ Low Level Total Metals with CV/Hg _____ Phosphorus (LL Tot, dissolved)-FF/FP _____						LABORATORY USE ONLY CUSTODY SEAL Y (N) _____ COOLER TEMPERATURES _____ Present Intact COOLING MEDIA PRESENT Y/N _____					
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM															
Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	ROUTINE (incl. TDS)	MAJOR IONS	NUTRIENTS (INCLUDING NO3, NO2, TOTAL P)	Low Level Dissolved Metals with CV/Hg	Low Level Total Metals with CV/Hg	Phosphorus (LL Tot, dissolved)-FF/FP			# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	COMMENTS
1	ART-3(1)	MW8217	8/11/2015	water	X	X	X	X	X	X			13		Dissolved metals and phosphorus were field filtered and preserved.
2	ART-3(2)	MW8218	8/11/2015	water	X	X	X	X	X	X			13		Total metals were field preserved.
3	BH95G-146	MW8219	8/11/2015	water	X	X	X	X	X	X			13		Project number on bottles incorrect. Please change to project number above
4															
5															
6															
7															
8															
9															
10															
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)		TIME: (HH:MM)		RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)		TIME: (HH:MM)		MAXXAM JOB #			
						Laurel Bernier		2015/08/14		13:00		B569978			

Your Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Your C.O.C. #: 08412985

**Attention:KRISTEN RANGE**

TETRATECH EBA  
61 WASSON PLACE  
WHITEHORSE, YT  
Canada Y1A 0H7

**Report Date: 2015/08/31**  
Report #: R2032763  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B572767**

**Received: 2015/08/24, 09:50**

Sample Matrix: Water  
# Samples Received: 1

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Analytical Method</b>
Acidity pH 4.5 & pH 8.3 (as CaCO3)	1	N/A	2015/08/24	BBY6SOP-00037	SM 22 2310 B m
Alkalinity - Water	1	2015/08/24	2015/08/24	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry	1	N/A	2015/08/24	BBY6SOP-00011	SM 22 4500-Cl- G m
Conductance - water	1	N/A	2015/08/24	BBY6SOP-00026	SM 22 2510 B m
Fluoride	1	N/A	2015/08/25	BBY6SOP-00048	SM 22 4500-F C m
Hardness Total (calculated as CaCO3)	1	N/A	2015/08/27	BBY7SOP-00002	EPA 6020a R1 m
Hardness (calculated as CaCO3)	1	N/A	2015/08/27	BBY7SOP-00002	EPA 6020a R1 m
Mercury (Dissolved-LowLevel) by CVAf	1	N/A	2015/08/25	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total-LowLevel) by CVAf	1	2015/08/26	2015/08/26	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Ion Balance	1	N/A	2015/08/27	BBY WI-00033	SM 22 1030E
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	1	N/A	2015/08/27	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Low Level (dissolved)	1	N/A	2015/08/27	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Digested LL (total)	1	2015/08/25	2015/08/27	BBY7SOP-00002	EPA 6020A R1 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	1	N/A	2015/08/27	BBY7SOP-00002	EPA 6020A R1 m
Nitrogen (Total)	1	2015/08/25	2015/08/25	BBY6SOP-00016	SM 22 4500-N C m
Ammonia-N (Preserved)	1	N/A	2015/08/26	BBY6SOP-00009	SM 22 4500-NH3- G m
Nitrate+Nitrite (N) (low level)	1	N/A	2015/08/25	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) (low level)	1	N/A	2015/08/25	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N)	1	N/A	2015/08/26	BBY6SOP-00010	SM 22 4500-NO3- I m
Filter and HNO3 Preserve for Metals	1	N/A	2015/08/25	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (2)	1	N/A	2015/08/25	BBY6SOP-00026	SM 22 4500-H+ B m
Orthophosphate by Konelab (low level)	1	N/A	2015/08/25	BBY6SOP-00013	SM 22 4500-P E m
Sulphate by Automated Colourimetry	1	N/A	2015/08/24	BBY6SOP-00017	SM 22 4500-SO42- E m
Total Dissolved Solids - Low Level	1	N/A	2015/08/27	BBY6SOP-00033	SM 22 2540 C m
TKN (Calc. TN, N/N) total	1	N/A	2015/08/26	BBY WI-00033	Calculation
Carbon (Total Organic) (1, 3)	1	N/A	2015/08/27	EENVSOP-00060	MMCW 119 1996 m
Phosphorus-P (LL Tot, dissolved) - FF/FP	1	2015/08/25	2015/08/25	BBY6SOP-00013	SM 22 4500-P E m
Total Phosphorus	1	N/A	2015/08/25	BBY6SOP-00013	SM 22 4500-P E m
Total Suspended Solids-Low Level	1	2015/08/26	2015/08/27	BBY6SOP-00034	SM 22 2540 D
Turbidity	1	N/A	2015/08/24	BBY6SOP-00027	SM 22 2130 B m

Your Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Your C.O.C. #: 08412985

**Attention:KRISTEN RANGE**

TETRATECH EBA  
61 WASSON PLACE  
WHITEHORSE, YT  
Canada Y1A 0H7

**Report Date: 2015/08/31**  
Report #: R2032763  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B572767**

**Received: 2015/08/24, 09:50**

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

- (1) This test was performed by Maxxam Edmonton Environmental
- (2) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.
- (3) TOC present in the sample should be considered as non-purgeable TOC.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.  
Morgan Melnychuk, Burnaby Project Manager  
Email: MMelnychuk@maxxam.ca  
Phone# (604)638-8034 Ext:8034

=====  
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B572767  
Report Date: 2015/08/31

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		MY5547	MY5547		
Sampling Date		2015/08/19	2015/08/19		
COC Number		08412985	08412985		
	UNITS	BH95G-131	BH95G-131 Lab-Dup	RDL	QC Batch
<b>Misc. Inorganics</b>					
Acidity (pH 4.5)	mg/L	<0.50		0.50	8013216
Acidity (pH 8.3)	mg/L	16.7		0.50	8013216
<b>Calculated Parameters</b>					
Filter and HNO3 Preservation	N/A	FIELD		N/A	ONSITE
Ion Balance	N/A	1.0		0.010	8012861
Nitrate (N)	mg/L	0.0028		0.0020	8012662
<b>Misc. Inorganics</b>					
Fluoride (F)	mg/L	0.095		0.010	8014903
Alkalinity (Total as CaCO3)	mg/L	430		0.50	8014940
Total Organic Carbon (C)	mg/L	2.5	1.5	0.50	8017440
Alkalinity (PP as CaCO3)	mg/L	<0.50		0.50	8014940
Bicarbonate (HCO3)	mg/L	524		0.50	8014940
Carbonate (CO3)	mg/L	<0.50		0.50	8014940
Hydroxide (OH)	mg/L	<0.50		0.50	8014940
<b>Anions</b>					
Orthophosphate (P)	mg/L	0.0021 (1)		0.0010	8015233
Dissolved Sulphate (SO4)	mg/L	231		5.0	8015097
Dissolved Chloride (Cl)	mg/L	1.0		0.50	8015095
<b>Nutrients</b>					
Total Ammonia (N)	mg/L	0.032		0.0050	8016819
Dissolved Phosphorus (P)	mg/L	0.0113		0.0020	8015250
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.163		0.020	8012665
Nitrate plus Nitrite (N)	mg/L	0.0028 (1)		0.0020	8015182
Nitrite (N)	mg/L	<0.0020 (1)		0.0020	8015185
Total Nitrogen (N)	mg/L	0.166		0.020	8016717
Total Phosphorus (P)	mg/L	0.162		0.0020	8015246
<b>Physical Properties</b>					
Conductivity	uS/cm	1160		1.0	8014942
pH	pH	7.77		N/A	8014943
<b>Physical Properties</b>					
Total Suspended Solids	mg/L	161 (2)		5.0	8015991
Total Dissolved Solids	mg/L	824	858	1.0	8016734
Turbidity	NTU	135 (1)		0.10	8013442
RDL = Reportable Detection Limit					
Lab-Dup = Laboratory Initiated Duplicate					
(1) Sample arrived to laboratory past recommended hold time.					
(2) RDL raised due to high concentration of solids in the sample.					



Maxxam Job #: B572767  
Report Date: 2015/08/31

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		MY5547	MY5547		
Sampling Date		2015/08/19	2015/08/19		
COC Number		08412985	08412985		
	UNITS	BH95G-131	BH95G-131 Lab-Dup	RDL	QC Batch
<b>Misc. Inorganics</b>					
Dissolved Hardness (CaCO3)	mg/L	683		0.50	8012659
<b>Elements</b>					
Dissolved Mercury (Hg)	mg/L	<0.000020		0.000020	8014676
<b>Dissolved Metals by ICPMS</b>					
Dissolved Aluminum (Al)	mg/L	0.00079	0.00081	0.00050	8016184
Dissolved Antimony (Sb)	mg/L	0.000909	0.000922	0.000020	8016184
Dissolved Arsenic (As)	mg/L	0.00169	0.00172	0.000020	8016184
Dissolved Barium (Ba)	mg/L	0.0199	0.0194	0.000020	8016184
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	0.000010	8016184
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	0.0000050	8016184
Dissolved Boron (B)	mg/L	<0.010	<0.010	0.010	8016184
Dissolved Cadmium (Cd)	mg/L	0.0000070	0.0000080	0.0000050	8016184
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	0.00010	8016184
Dissolved Cobalt (Co)	mg/L	0.0000980	0.0000960	0.0000050	8016184
Dissolved Copper (Cu)	mg/L	0.000061	0.000065	0.000050	8016184
Dissolved Iron (Fe)	mg/L	0.832	0.823	0.0010	8016184
Dissolved Lead (Pb)	mg/L	0.00167	0.00168	0.0000050	8016184
Dissolved Lithium (Li)	mg/L	0.0141	0.0149	0.00050	8016184
Dissolved Manganese (Mn)	mg/L	0.193	0.196	0.000050	8016184
Dissolved Molybdenum (Mo)	mg/L	0.000083	0.000076	0.000050	8016184
Dissolved Nickel (Ni)	mg/L	0.000193	0.000204	0.000020	8016184
Dissolved Phosphorus (P)	mg/L	0.0146	0.0142	0.0020	8016184
Dissolved Selenium (Se)	mg/L	<0.000040	<0.000040	0.000040	8016184
Dissolved Silicon (Si)	mg/L	9.96	10.4	0.050	8016184
Dissolved Silver (Ag)	mg/L	0.0000090	0.0000120	0.0000050	8016184
Dissolved Strontium (Sr)	mg/L	0.767	0.777	0.000050	8016184
Dissolved Thallium (Tl)	mg/L	0.0000060	0.0000050	0.0000020	8016184
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	0.00020	8016184
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	0.00050	8016184
Dissolved Uranium (U)	mg/L	0.0205	0.0202	0.0000020	8016184
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	0.00020	8016184
Dissolved Zinc (Zn)	mg/L	0.00378	0.00380	0.00010	8016184
Dissolved Zirconium (Zr)	mg/L	0.00573	0.00624	0.00010	8016184
Dissolved Calcium (Ca)	mg/L	171		0.050	8012660
RDL = Reportable Detection Limit					
Lab-Dup = Laboratory Initiated Duplicate					

Maxxam Job #: B572767  
Report Date: 2015/08/31

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		MY5547	MY5547		
Sampling Date		2015/08/19	2015/08/19		
COC Number		08412985	08412985		
	UNITS	BH95G-131	BH95G-131 Lab-Dup	RDL	QC Batch
Dissolved Magnesium (Mg)	mg/L	62.3		0.050	8012660
Dissolved Potassium (K)	mg/L	4.18		0.050	8012660
Dissolved Sodium (Na)	mg/L	1.54		0.050	8012660
Dissolved Sulphur (S)	mg/L	89.2		3.0	8012660
RDL = Reportable Detection Limit					
Lab-Dup = Laboratory Initiated Duplicate					

Maxxam Job #: B572767  
Report Date: 2015/08/31

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		MY5547		
Sampling Date		2015/08/19		
COC Number		08412985		
	UNITS	BH95G-131	RDL	QC Batch
<b>Calculated Parameters</b>				
Total Hardness (CaCO3)	mg/L	693	0.50	8012658
<b>Elements</b>				
Total Mercury (Hg)	mg/L	<0.0000020	0.0000020	8016214
<b>Total Metals by ICPMS</b>				
Total Aluminum (Al)	mg/L	0.981	0.0030	8014497
Total Antimony (Sb)	mg/L	0.0529	0.000050	8014497
Total Arsenic (As)	mg/L	0.140	0.000020	8014497
Total Barium (Ba)	mg/L	0.0483	0.00010	8014497
Total Beryllium (Be)	mg/L	0.000114	0.000010	8014497
Total Bismuth (Bi)	mg/L	0.000140	0.000020	8014497
Total Boron (B)	mg/L	<0.050	0.050	8014497
Total Cadmium (Cd)	mg/L	0.000698	0.0000050	8014497
Total Chromium (Cr)	mg/L	0.00187	0.00050	8014497
Total Cobalt (Co)	mg/L	0.000754	0.000010	8014497
Total Copper (Cu)	mg/L	0.00632	0.00020	8014497
Total Iron (Fe)	mg/L	14.6	0.0050	8014497
Total Lead (Pb)	mg/L	0.519	0.000050	8014497
Total Lithium (Li)	mg/L	0.0151	0.00050	8014497
Total Manganese (Mn)	mg/L	0.246	0.00010	8014497
Total Molybdenum (Mo)	mg/L	0.000286	0.000050	8014497
Total Nickel (Ni)	mg/L	0.00175	0.00010	8014497
Total Phosphorus (P)	mg/L	0.115	0.010	8014497
Total Selenium (Se)	mg/L	0.000312	0.000040	8014497
Total Silicon (Si)	mg/L	12.4	0.10	8014497
Total Silver (Ag)	mg/L	0.000557	0.0000050	8014497
Total Strontium (Sr)	mg/L	0.791	0.000050	8014497
Total Thallium (Tl)	mg/L	0.0000720	0.0000020	8014497
Total Tin (Sn)	mg/L	0.00091	0.00020	8014497
Total Titanium (Ti)	mg/L	0.0552	0.0050	8014497
Total Uranium (U)	mg/L	0.0221	0.0000050	8014497
Total Vanadium (V)	mg/L	0.00319	0.00050	8014497
Total Zinc (Zn)	mg/L	0.132	0.0010	8014497
Total Zirconium (Zr)	mg/L	0.123	0.00010	8014497
Total Calcium (Ca)	mg/L	177	0.25	8012661
Total Magnesium (Mg)	mg/L	60.9	0.25	8012661
RDL = Reportable Detection Limit				

Maxxam Job #: B572767  
Report Date: 2015/08/31

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**LL TOTAL METALS (DIGESTED) WITH CV HG**

<b>Maxxam ID</b>		MY5547		
<b>Sampling Date</b>		2015/08/19		
<b>COC Number</b>		08412985		
	<b>UNITS</b>	<b>BH95G-131</b>	<b>RDL</b>	<b>QC Batch</b>
Total Potassium (K)	mg/L	4.67	0.25	8012661
Total Sodium (Na)	mg/L	1.50	0.25	8012661
Total Sulphur (S)	mg/L	90	15	8012661
RDL = Reportable Detection Limit				

Maxxam Job #: B572767  
Report Date: 2015/08/31

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**GENERAL COMMENTS**

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	4.7°C
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**Results relate only to the items tested.**

Maxxam Job #: B572767  
Report Date: 2015/08/31

**QUALITY ASSURANCE REPORT**

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8013216	Acidity (pH 4.5)	2015/08/24					<0.50	mg/L	NC	20
8013216	Acidity (pH 8.3)	2015/08/24			99	80 - 120	<0.50	mg/L	NC	20
8013442	Turbidity	2015/08/24			102	80 - 120	<0.10	NTU	NC	20
8014497	Total Aluminum (Al)	2015/08/27	NC	80 - 120	103	80 - 120	<0.0030	mg/L	6.0	20
8014497	Total Antimony (Sb)	2015/08/27	104	80 - 120	111	80 - 120	<0.000050	mg/L	NC	20
8014497	Total Arsenic (As)	2015/08/27	103	80 - 120	102	80 - 120	<0.000020	mg/L	3.6	20
8014497	Total Barium (Ba)	2015/08/27	NC	80 - 120	111	80 - 120	<0.00010	mg/L	7.7	20
8014497	Total Beryllium (Be)	2015/08/27	90	80 - 120	87	80 - 120	<0.000010	mg/L	NC	20
8014497	Total Bismuth (Bi)	2015/08/27	107	80 - 120	104	80 - 120	<0.000020	mg/L	NC	20
8014497	Total Boron (B)	2015/08/27					<0.050	mg/L	NC	20
8014497	Total Cadmium (Cd)	2015/08/27	102	80 - 120	104	80 - 120	<0.0000050	mg/L	NC	20
8014497	Total Chromium (Cr)	2015/08/27	104	80 - 120	104	80 - 120	<0.00050	mg/L	NC	20
8014497	Total Cobalt (Co)	2015/08/27	103	80 - 120	104	80 - 120	<0.000010	mg/L	0.88	20
8014497	Total Copper (Cu)	2015/08/27	101	80 - 120	107	80 - 120	0.00033, RDL=0.00020	mg/L	2.2	20
8014497	Total Iron (Fe)	2015/08/27	NC	80 - 120	111	80 - 120	<0.0050	mg/L	2.7	20
8014497	Total Lead (Pb)	2015/08/27	108	80 - 120	106	80 - 120	<0.000050	mg/L	NC	20
8014497	Total Lithium (Li)	2015/08/27	108	80 - 120	104	80 - 120	<0.00050	mg/L	NC	20
8014497	Total Manganese (Mn)	2015/08/27	NC	80 - 120	106	80 - 120	<0.00010	mg/L	3.5	20
8014497	Total Molybdenum (Mo)	2015/08/27	NC	80 - 120	102	80 - 120	<0.000050	mg/L	3.0	20
8014497	Total Nickel (Ni)	2015/08/27	100	80 - 120	101	80 - 120	<0.00010	mg/L	1.4	20
8014497	Total Phosphorus (P)	2015/08/27					<0.010	mg/L		
8014497	Total Selenium (Se)	2015/08/27	91	80 - 120	93	80 - 120	<0.000040	mg/L	NC	20
8014497	Total Silicon (Si)	2015/08/27					<0.10	mg/L	3.7	20
8014497	Total Silver (Ag)	2015/08/27	109	80 - 120	101	80 - 120	<0.0000050	mg/L	NC	20
8014497	Total Strontium (Sr)	2015/08/27	NC	80 - 120	109	80 - 120	<0.000050	mg/L	2.0	20
8014497	Total Thallium (Tl)	2015/08/27	107	80 - 120	102	80 - 120	<0.0000020	mg/L	NC	20
8014497	Total Tin (Sn)	2015/08/27	102	80 - 120	103	80 - 120	<0.00020	mg/L	NC	20
8014497	Total Titanium (Ti)	2015/08/27	NC	80 - 120	110	80 - 120	<0.0050	mg/L	3.1	20
8014497	Total Uranium (U)	2015/08/27	107	80 - 120	104	80 - 120	<0.0000050	mg/L	2.1	20
8014497	Total Vanadium (V)	2015/08/27	105	80 - 120	106	80 - 120	<0.00050	mg/L	NC	20

Maxxam Job #: B572767  
Report Date: 2015/08/31

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8014497	Total Zinc (Zn)	2015/08/27	98	80 - 120	102	80 - 120	<0.0010	mg/L	NC	20
8014497	Total Zirconium (Zr)	2015/08/27					<0.00010	mg/L	NC	20
8014676	Dissolved Mercury (Hg)	2015/08/25	92	80 - 120	94	80 - 120	<0.0000020	mg/L	NC	20
8014903	Fluoride (F)	2015/08/25	104	80 - 120	102	80 - 120	<0.010	mg/L	4.1	20
8014940	Alkalinity (PP as CaCO3)	2015/08/24					<0.50	mg/L	NC	20
8014940	Alkalinity (Total as CaCO3)	2015/08/24	NC	80 - 120	93	80 - 120	0.56, RDL=0.50	mg/L	0.44	20
8014940	Bicarbonate (HCO3)	2015/08/24					0.68, RDL=0.50	mg/L	0.44	20
8014940	Carbonate (CO3)	2015/08/24					<0.50	mg/L	NC	20
8014940	Hydroxide (OH)	2015/08/24					<0.50	mg/L	NC	20
8014942	Conductivity	2015/08/24			100	80 - 120	1.2, RDL=1.0	uS/cm	1.3	20
8014943	pH	2015/08/25			102	97 - 103				
8015095	Dissolved Chloride (Cl)	2015/08/24	NC	80 - 120	96	80 - 120	<0.50	mg/L	0.36	20
8015097	Dissolved Sulphate (SO4)	2015/08/24	NC	80 - 120	91	80 - 120	<0.50	mg/L	NC	20
8015182	Nitrate plus Nitrite (N)	2015/08/25	102	80 - 120	106	80 - 120	<0.0020	mg/L	NC	25
8015185	Nitrite (N)	2015/08/25	96	80 - 120	100	80 - 120	<0.0020	mg/L	NC	25
8015233	Orthophosphate (P)	2015/08/25	101	80 - 120	98	80 - 120	<0.0010	mg/L	NC	20
8015246	Total Phosphorus (P)	2015/08/25	93	80 - 120	99	80 - 120	<0.0020	mg/L	NC	20
8015250	Dissolved Phosphorus (P)	2015/08/25	91	80 - 120	101	80 - 120	<0.0020	mg/L	NC	20
8015991	Total Suspended Solids	2015/08/26			100	80 - 120	<1.0	mg/L		
8016184	Dissolved Aluminum (Al)	2015/08/27	97	80 - 120	98	80 - 120	<0.00050	mg/L	NC	20
8016184	Dissolved Antimony (Sb)	2015/08/27	NC	80 - 120	105	80 - 120	<0.000020	mg/L	1.4	20
8016184	Dissolved Arsenic (As)	2015/08/27	103	80 - 120	101	80 - 120	<0.000020	mg/L	1.6	20
8016184	Dissolved Barium (Ba)	2015/08/27	NC	80 - 120	105	80 - 120	<0.000020	mg/L	2.3	20
8016184	Dissolved Beryllium (Be)	2015/08/27	90	80 - 120	91	80 - 120	<0.000010	mg/L	NC	20
8016184	Dissolved Bismuth (Bi)	2015/08/27	91	80 - 120	101	80 - 120	<0.0000050	mg/L	NC	20
8016184	Dissolved Boron (B)	2015/08/27					<0.010	mg/L	NC	20
8016184	Dissolved Cadmium (Cd)	2015/08/27	94	80 - 120	102	80 - 120	<0.0000050	mg/L	NC	20
8016184	Dissolved Chromium (Cr)	2015/08/27	96	80 - 120	102	80 - 120	<0.00010	mg/L	NC	20
8016184	Dissolved Cobalt (Co)	2015/08/27	93	80 - 120	102	80 - 120	<0.0000050	mg/L	2.1	20
8016184	Dissolved Copper (Cu)	2015/08/27	91	80 - 120	104	80 - 120	<0.000050	mg/L	NC	20
8016184	Dissolved Iron (Fe)	2015/08/27	NC	80 - 120	107	80 - 120	<0.0010	mg/L	1.0	20

Maxxam Job #: B572767  
Report Date: 2015/08/31

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8016184	Dissolved Lead (Pb)	2015/08/27	94	80 - 120	102	80 - 120	<0.0000050	mg/L	0.60	20
8016184	Dissolved Lithium (Li)	2015/08/27	NC	80 - 120	103	80 - 120	<0.00050	mg/L	5.1	20
8016184	Dissolved Manganese (Mn)	2015/08/27	NC	80 - 120	100	80 - 120	<0.000050	mg/L	1.4	20
8016184	Dissolved Molybdenum (Mo)	2015/08/27	102	80 - 120	99	80 - 120	<0.000050	mg/L	NC	20
8016184	Dissolved Nickel (Ni)	2015/08/27	91	80 - 120	101	80 - 120	<0.000020	mg/L	5.5	20
8016184	Dissolved Phosphorus (P)	2015/08/27					<0.0020	mg/L	2.7	20
8016184	Dissolved Selenium (Se)	2015/08/27	97	80 - 120	95	80 - 120	<0.000040	mg/L	NC	20
8016184	Dissolved Silicon (Si)	2015/08/27					<0.050	mg/L	3.9	20
8016184	Dissolved Silver (Ag)	2015/08/27	97	80 - 120	97	80 - 120	<0.0000050	mg/L	NC	20
8016184	Dissolved Strontium (Sr)	2015/08/27	NC	80 - 120	102	80 - 120	<0.000050	mg/L	1.3	20
8016184	Dissolved Thallium (Tl)	2015/08/27	94	80 - 120	100	80 - 120	<0.0000020	mg/L	NC	20
8016184	Dissolved Tin (Sn)	2015/08/27	104	80 - 120	98	80 - 120	<0.00020	mg/L	NC	20
8016184	Dissolved Titanium (Ti)	2015/08/27	95	80 - 120	100	80 - 120	<0.00050	mg/L	NC	20
8016184	Dissolved Uranium (U)	2015/08/27	NC	80 - 120	101	80 - 120	<0.0000020	mg/L	1.7	20
8016184	Dissolved Vanadium (V)	2015/08/27	100	80 - 120	101	80 - 120	<0.00020	mg/L	NC	20
8016184	Dissolved Zinc (Zn)	2015/08/27	94	80 - 120	102	80 - 120	<0.00010	mg/L	0.48	20
8016184	Dissolved Zirconium (Zr)	2015/08/27					<0.00010	mg/L	8.6	20
8016214	Total Mercury (Hg)	2015/08/26	109	80 - 120	105	80 - 120	<0.0000020	mg/L	NC	20
8016717	Total Nitrogen (N)	2015/08/25			93	80 - 120	<0.020	mg/L		
8016734	Total Dissolved Solids	2015/08/27	NC	80 - 120	98	80 - 120	<1.0	mg/L	4.0	20
8016819	Total Ammonia (N)	2015/08/26	105	80 - 120	107	80 - 120	0.0076, RDL=0.0050	mg/L	NC	20
8017440	Total Organic Carbon (C)	2015/08/27	97	80 - 120	108	80 - 120	<0.50	mg/L	NC	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).



Maxxam Job #: B572767  
Report Date: 2015/08/31

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



\_\_\_\_\_  
Kelly Gip, B.Sc., Senior Analyst



\_\_\_\_\_  
Rob Reinert, Data Validation Coordinator

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Invoice Information		Report Information (if differs from invoice)				Project Informat.				Turnaround Time (TAT) Required					
Company Name: #11954 BMC Mineral (NO. 1) LTD.		Company Name: #31161 Tetra Tech EBA				Quotation #: B50743				<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses)					
Contact Name: ACCOUNTS PAYABLE		Contact Name: Kristen Range				P.O. #/ AFE#:				PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS					
Address: 530-1130 West Pender Street, Vancouver BC PC: V6E 4A4		Address: 61 Wasson Place Whitehorse, YT PC: V1A 0H7				Project #: ENVMINO3071-01				Rush TAT (Surcharges will be applied)					
Phone:		Phone: 867-668-6225				Site Location: Kudz Ze Kayah				<input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days					
Email: kdbergh@gmail.com		Email: kristen.range@tetrattech.com				Site #:				<input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days					
Date Required:		Sampled By: Kristen Range													
Regulatory Criteria				Special Instructions				Analysis Requested				Rush Confirmation #:			
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> BC CSR Water <input checked="" type="checkbox"/> CCME (Specify) <input type="checkbox"/> Other (Specify) AW <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC Water Quality				<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify)				ROUTINE (incl. TDS) MAJOR IONS NUTRIENTS (INCLUDING NO3, NO2, TOTAL P) Low Level Dissolved Metals with CV Hg Low Level Total Metals with CV Hg Phosphorus (L Tot, dissolved)/PP				LABORATORY USE ONLY CUSTODY SEAL Y (N) COOLER TEMPERATURES Present Intact NA 545 COOLING MEDIA PRESENT Y (N) COMMENTS			
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM															
Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	ROUTINE (incl. TDS)	MAJOR IONS	NUTRIENTS (INCLUDING NO3, NO2, TOTAL P)	Low Level Dissolved Metals with CV Hg	Low Level Total Metals with CV Hg	Phosphorus (L Tot, dissolved)/PP	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	COMMENTS		
1	BH95G-131	MV6547	8/19/2015	water	x	x	x	x	x	x	13		Dissolved metals and phosphorus were field filtered and preserved.		
2													Total metals were field preserved.		
3													Project number on bottles incorrect.		
4													Please change to project number		
5													above		
6															
7															
8															
9															
10															
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #							
E. Thev		2015/08/21	11:30	Laurie A. Thier		2015/08/24	09:50	B572767							

Your Project #: ENVMINO3071-01  
 Site Location: KUDZ ZE KAYAH  
 Your C.O.C. #: 08411518

**Attention:KRISTEN RANGE**

TETRATECH EBA  
 61 WASSON PLACE  
 WHITEHORSE, YT  
 Canada Y1A 0H7

**Report Date: 2015/09/16**  
 Report #: R2042194  
 Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B577451**

**Received: 2015/09/04, 12:50**

Sample Matrix: Water  
 # Samples Received: 3

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Analytical Method</b>
Acidity pH 4.5 & pH 8.3 (as CaCO3)	3	N/A	2015/09/08	BBY6SOP-00037	SM 22 2310 B m
Alkalinity - Water	3	2015/09/08	2015/09/08	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry	3	N/A	2015/09/08	BBY6SOP-00011	SM 22 4500-Cl- G m
Conductance - water	3	N/A	2015/09/08	BBY6SOP-00026	SM 22 2510 B m
Fluoride	3	N/A	2015/09/08	BBY6SOP-00048	SM 22 4500-F C m
Hardness Total (calculated as CaCO3)	1	N/A	2015/09/11	BBY7SOP-00002	EPA 6020a R1 m
Hardness Total (calculated as CaCO3)	2	N/A	2015/09/15	BBY7SOP-00002	EPA 6020a R1 m
Hardness (calculated as CaCO3)	3	N/A	2015/09/11	BBY7SOP-00002	EPA 6020a R1 m
Mercury (Dissolved-LowLevel) by CVAF	3	N/A	2015/09/10	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total-LowLevel) by CVAF	3	2015/09/10	2015/09/11	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Ion Balance	3	N/A	2015/09/11	BBY WI-00033	SM 22 1030E
Sum of cations, anions	3	N/A	2015/09/15	Calc	
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	3	N/A	2015/09/11	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Low Level (dissolved)	3	N/A	2015/09/11	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Digested LL (total)	1	2015/09/09	2015/09/10	BBY7SOP-00002	EPA 6020A R1 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	1	N/A	2015/09/11	BBY7SOP-00002	EPA 6020A R1 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	2	N/A	2015/09/15	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Low Level (total)	2	N/A	2015/09/13	BBY7SOP-00002	EPA 6020A R1 m
Nitrogen (Total)	3	2015/09/14	2015/09/14	BBY6SOP-00016	SM 22 4500-N C m
Ammonia-N (Preserved)	3	N/A	2015/09/09	BBY6SOP-00009	SM 22 4500-NH3- G m
Nitrate+Nitrite (N) (low level)	3	N/A	2015/09/12	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) (low level)	3	N/A	2015/09/12	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N)	3	N/A	2015/09/12	BBY6SOP-00010	SM 22 4500-NO3- I m
Filter and HNO3 Preserve for Metals	2	N/A	2015/09/11	BBY7 WI-00004	BCMOE Reqs 08/14
Filter and HNO3 Preserve for Metals	1	N/A	2015/09/12	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (2)	3	N/A	2015/09/08	BBY6SOP-00026	SM 22 4500-H+ B m
Orthophosphate by Konelab (low level)	3	N/A	2015/09/05	BBY6SOP-00013	SM 22 4500-P E m
Sulphate by Automated Colourimetry	3	N/A	2015/09/08	BBY6SOP-00017	SM 22 4500-SO42- E m
Total Dissolved Solids - Low Level	3	N/A	2015/09/08	BBY6SOP-00033	SM 22 2540 C m
TKN (Calc. TN, N/N) total	3	N/A	2015/09/11	BBY WI-00033	Calculation

Your Project #: ENVMINO3071-01  
 Site Location: KUDZ ZE KAYAH  
 Your C.O.C. #: 08411518

**Attention:KRISTEN RANGE**

TETRATECH EBA  
 61 WASSON PLACE  
 WHITEHORSE, YT  
 Canada Y1A 0H7

**Report Date: 2015/09/16**  
 Report #: R2042194  
 Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B577451**

**Received: 2015/09/04, 12:50**

Sample Matrix: Water  
 # Samples Received: 3

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
Carbon (Total Organic) (1, 3)	3	N/A	2015/09/09	CAL SOP-00077	MMCW 119 1996 m
Phosphorus-P (LL Tot, dissolved) - FF/FP	3	2015/09/08	2015/09/08	BBY6SOP-00013	SM 22 4500-P E m
Total Phosphorus	3	N/A	2015/09/12	BBY6SOP-00013	SM 22 4500-P E m
Total Suspended Solids-Low Level	3	2015/09/05	2015/09/08	BBY6SOP-00034	SM 22 2540 D
Turbidity	3	N/A	2015/09/09	BBY6SOP-00027	SM 22 2130 B m

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Maxxam Calgary Environmental

(2) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

(3) TOC present in the sample should be considered as non-purgeable TOC.

**Encryption Key**

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Morgan Melnychuk, Burnaby Project Manager

Email: MMelnychuk@maxxam.ca

Phone# (604)638-8034 Ext:8034

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B577451  
Report Date: 2015/09/16

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		NB5022		NB5023	NB5023			NB5024		
Sampling Date		2015/09/01 18:15		2015/09/01 15:50	2015/09/01 15:50			2015/09/01 15:50		
COC Number		08411518		08411518	08411518			08411518		
	UNITS	MW15-01	RDL	MW15-02	MW15-02 Lab-Dup	RDL	QC Batch	DUP02	RDL	QC Batch
<b>Misc. Inorganics</b>										
Acidity (pH 4.5)	mg/L	<0.50	0.50	<0.50		0.50	8030958	<0.50	0.50	8030958
Acidity (pH 8.3)	mg/L	<0.50	0.50	<0.50		0.50	8030958	<0.50	0.50	8030958
<b>Calculated Parameters</b>										
Anion Sum	meq/L	4.7	N/A	3.4		N/A	8037624	4.6	N/A	8037624
Cation Sum	meq/L	4.9	N/A	3.7		N/A	8037624	5.0	N/A	8037624
Filter and HNO3 Preservation	N/A	FIELD	N/A	FIELD		N/A	ONSITE	FIELD	N/A	ONSITE
Ion Balance	N/A	1.0	0.010	1.1		0.010	8028793	1.1	0.010	8028793
Nitrate (N)	mg/L	0.189	0.0020	0.399		0.0020	8034352	0.191	0.0020	8034352
<b>Misc. Inorganics</b>										
Fluoride (F)	mg/L	0.094	0.010	0.089		0.010	8030911	0.093	0.010	8030911
Alkalinity (Total as CaCO3)	mg/L	179	0.50	130		0.50	8031291	174	0.50	8031287
Total Organic Carbon (C)	mg/L	0.54	0.50	1.5		0.50	8032141	<0.50	0.50	8032141
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	<0.50		0.50	8031291	<0.50	0.50	8031287
Bicarbonate (HCO3)	mg/L	218	0.50	159		0.50	8031291	213	0.50	8031287
Carbonate (CO3)	mg/L	<0.50	0.50	<0.50		0.50	8031291	<0.50	0.50	8031287
Hydroxide (OH)	mg/L	<0.50	0.50	<0.50		0.50	8031291	<0.50	0.50	8031287
<b>Anions</b>										
Orthophosphate (P)	mg/L	<0.0010 (1)	0.0010	0.0072 (1)		0.0010	8029516	<0.0010 (1)	0.0010	8029516
Dissolved Sulphate (SO4)	mg/L	52.1	0.50	37.4		0.50	8031198	50.6	0.50	8031198
Dissolved Chloride (Cl)	mg/L	0.80	0.50	0.68		0.50	8031192	0.80	0.50	8031192
<b>Nutrients</b>										
Total Ammonia (N)	mg/L	0.0073	0.0050	0.019		0.0050	8032573	<0.0050	0.0050	8032573
Dissolved Phosphorus (P)	mg/L	0.0029	0.0020	0.0048	0.0050	0.0020	8031191	0.0021	0.0020	8031191
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.078	0.020	0.173		0.020	8027896	0.113	0.020	8027896
Nitrate plus Nitrite (N)	mg/L	0.189 (1)	0.0020	0.399 (1)		0.0020	8035960	0.191 (1)	0.0020	8035960
Nitrite (N)	mg/L	<0.0020 (1)	0.0020	<0.0020 (1)		0.0020	8035961	<0.0020 (1)	0.0020	8035961
Total Nitrogen (N)	mg/L	0.268	0.020	0.572		0.020	8037051	0.305	0.020	8037051
Total Phosphorus (P)	mg/L	0.0029	0.0020	0.612		0.020	8037263	0.0032	0.0020	8037263
<b>Physical Properties</b>										
Conductivity	uS/cm	432	1.0	323		1.0	8031293	428	1.0	8031290
pH	pH	8.16	N/A	7.94		N/A	8031292	8.00	N/A	8031289
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable (1) Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis.										

Maxxam Job #: B577451  
Report Date: 2015/09/16

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		NB5022		NB5023	NB5023			NB5024		
<b>Sampling Date</b>		2015/09/01 18:15		2015/09/01 15:50	2015/09/01 15:50			2015/09/01 15:50		
<b>COC Number</b>		08411518		08411518	08411518			08411518		
	<b>UNITS</b>	<b>MW15-01</b>	<b>RDL</b>	<b>MW15-02</b>	<b>MW15-02 Lab-Dup</b>	<b>RDL</b>	<b>QC Batch</b>	<b>DUP02</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Physical Properties</b>										
Total Suspended Solids	mg/L	<1.0	1.0	410 (1)		5.0	8027639	1.0	1.0	8027639
Total Dissolved Solids	mg/L	286	1.0	206		1.0	8028914	274	1.0	8028914
Turbidity	NTU	0.27 (2)	0.10	291 (2)		0.10	8028900	0.24 (2)	0.10	8028900

RDL = Reportable Detection Limit  
 Lab-Dup = Laboratory Initiated Duplicate  
 (1) RDL raised due to high concentration of solids in the sample.  
 (2) Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis.

Maxxam Job #: B577451  
Report Date: 2015/09/16

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		NB5022	NB5022	NB5023	NB5024		
Sampling Date		2015/09/01 18:15	2015/09/01 18:15	2015/09/01 15:50	2015/09/01 15:50		
COC Number		08411518	08411518	08411518	08411518		
	UNITS	MW15-01	MW15-01 Lab-Dup	MW15-02	DUP02	RDL	QC Batch
<b>Misc. Inorganics</b>							
Dissolved Hardness (CaCO3)	mg/L	239		181	243	0.50	8027586
<b>Elements</b>							
Dissolved Mercury (Hg)	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	0.000020	8032268
<b>Dissolved Metals by ICPMS</b>							
Dissolved Aluminum (Al)	mg/L	0.00636		0.00599	0.00308	0.00050	8031063
Dissolved Antimony (Sb)	mg/L	<0.000020		0.000030	0.000032	0.000020	8031063
Dissolved Arsenic (As)	mg/L	0.000880		0.000114	0.000877	0.000020	8031063
Dissolved Barium (Ba)	mg/L	0.0966		0.0159	0.0979	0.000020	8031063
Dissolved Beryllium (Be)	mg/L	<0.000010		<0.000010	<0.000010	0.000010	8031063
Dissolved Bismuth (Bi)	mg/L	<0.0000050		<0.0000050	<0.0000050	0.0000050	8031063
Dissolved Boron (B)	mg/L	<0.010		<0.010	<0.010	0.010	8031063
Dissolved Cadmium (Cd)	mg/L	<0.0000050		0.0000070	<0.0000050	0.0000050	8031063
Dissolved Chromium (Cr)	mg/L	<0.00010		<0.00010	<0.00010	0.00010	8031063
Dissolved Cobalt (Co)	mg/L	0.0000400		0.0000400	0.0000380	0.0000050	8031063
Dissolved Copper (Cu)	mg/L	0.000072		0.000613	0.000062	0.000050	8031063
Dissolved Iron (Fe)	mg/L	0.0122		0.0022	0.0074	0.0010	8031063
Dissolved Lead (Pb)	mg/L	0.0000250		<0.0000050	<0.0000050	0.0000050	8031063
Dissolved Lithium (Li)	mg/L	0.00175		0.00114	0.00175	0.00050	8031063
Dissolved Manganese (Mn)	mg/L	0.00190		0.00285	0.00183	0.000050	8031063
Dissolved Molybdenum (Mo)	mg/L	0.000830		0.000951	0.000888	0.000050	8031063
Dissolved Nickel (Ni)	mg/L	0.000167		0.000346	0.000154	0.000020	8031063
Dissolved Phosphorus (P)	mg/L	0.0046		0.0042	0.0029	0.0020	8031063
Dissolved Selenium (Se)	mg/L	0.00150		0.000371	0.00161	0.000040	8031063
Dissolved Silicon (Si)	mg/L	2.48		1.96	2.53	0.050	8031063
Dissolved Silver (Ag)	mg/L	<0.0000050		<0.0000050	<0.0000050	0.0000050	8031063
Dissolved Strontium (Sr)	mg/L	0.297		0.157	0.297	0.000050	8031063
Dissolved Thallium (Tl)	mg/L	<0.0000020		0.0000020	<0.0000020	0.0000020	8031063
Dissolved Tin (Sn)	mg/L	<0.00020		<0.00020	<0.00020	0.00020	8031063
Dissolved Titanium (Ti)	mg/L	<0.00050		<0.00050	<0.00050	0.00050	8031063
Dissolved Uranium (U)	mg/L	0.00302		0.00176	0.00299	0.0000020	8031063
Dissolved Vanadium (V)	mg/L	<0.00020		<0.00020	<0.00020	0.00020	8031063
Dissolved Zinc (Zn)	mg/L	0.00031		0.00071	0.00025	0.00010	8031063
Dissolved Zirconium (Zr)	mg/L	<0.00010		<0.00010	<0.00010	0.00010	8031063
Dissolved Calcium (Ca)	mg/L	77.5		61.7	79.0	0.050	8028319
RDL = Reportable Detection Limit							
Lab-Dup = Laboratory Initiated Duplicate							

Maxxam Job #: B577451  
Report Date: 2015/09/16

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		NB5022	NB5022	NB5023	NB5024		
Sampling Date		2015/09/01 18:15	2015/09/01 18:15	2015/09/01 15:50	2015/09/01 15:50		
COC Number		08411518	08411518	08411518	08411518		
	UNITS	MW15-01	MW15-01 Lab-Dup	MW15-02	DUP02	RDL	QC Batch
Dissolved Magnesium (Mg)	mg/L	10.9		6.49	11.1	0.050	8028319
Dissolved Potassium (K)	mg/L	2.43		0.519	2.41	0.050	8028319
Dissolved Sodium (Na)	mg/L	0.715		0.843	0.740	0.050	8028319
Dissolved Sulphur (S)	mg/L	18.8		13.8	17.6	3.0	8028319
RDL = Reportable Detection Limit							
Lab-Dup = Laboratory Initiated Duplicate							



Maxxam Job #: B577451  
Report Date: 2015/09/16

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		NB5022	NB5024		
Sampling Date		2015/09/01 18:15	2015/09/01 15:50		
COC Number		08411518	08411518		
	UNITS	MW15-01	DUP02	RDL	QC Batch
<b>Calculated Parameters</b>					
Total Hardness (CaCO3)	mg/L	233	233	0.50	8027461
<b>Elements</b>					
Total Mercury (Hg)	mg/L	<0.000020	<0.000020	0.000020	8033755
<b>Total Metals by ICPMS</b>					
Total Aluminum (Al)	mg/L	0.0153	0.0180	0.00050	8031123
Total Antimony (Sb)	mg/L	0.000023	<0.000020	0.000020	8031123
Total Arsenic (As)	mg/L	0.00105	0.000961	0.000020	8031123
Total Barium (Ba)	mg/L	0.0980	0.0990	0.000020	8031123
Total Beryllium (Be)	mg/L	<0.000010	<0.000010	0.000010	8031123
Total Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	0.0000050	8031123
Total Boron (B)	mg/L	<0.010	<0.010	0.010	8031123
Total Cadmium (Cd)	mg/L	<0.0000050	<0.0000050	0.0000050	8031123
Total Chromium (Cr)	mg/L	<0.00010	<0.00010	0.00010	8031123
Total Cobalt (Co)	mg/L	0.0000540	0.0000710	0.0000050	8031123
Total Copper (Cu)	mg/L	0.000119	0.000152	0.000050	8031123
Total Iron (Fe)	mg/L	0.0381	0.0440	0.0010	8031123
Total Lead (Pb)	mg/L	0.0000120	0.0000160	0.0000050	8031123
Total Lithium (Li)	mg/L	0.00187	0.00186	0.00050	8031123
Total Manganese (Mn)	mg/L	0.00238	0.00246	0.000050	8031123
Total Molybdenum (Mo)	mg/L	0.000860	0.000850	0.000050	8031123
Total Nickel (Ni)	mg/L	0.000208	0.000225	0.000020	8031123
Total Phosphorus (P)	mg/L	0.0043	0.0047	0.0020	8031123
Total Selenium (Se)	mg/L	0.00173	0.00144	0.000040	8031123
Total Silicon (Si)	mg/L	2.12	2.06	0.050	8031123
Total Silver (Ag)	mg/L	<0.0000050	<0.0000050	0.0000050	8031123
Total Strontium (Sr)	mg/L	0.283	0.286	0.000050	8031123
Total Thallium (Tl)	mg/L	<0.0000020	<0.0000020	0.0000020	8031123
Total Tin (Sn)	mg/L	<0.00020	<0.00020	0.00020	8031123
Total Titanium (Ti)	mg/L	<0.00050	<0.00050	0.00050	8031123
Total Uranium (U)	mg/L	0.00303	0.00302	0.0000020	8031123
Total Vanadium (V)	mg/L	<0.00020	<0.00020	0.00020	8031123
Total Zinc (Zn)	mg/L	0.00036	0.00038	0.00010	8031123
Total Zirconium (Zr)	mg/L	0.00010	0.00012	0.00010	8031123
Total Calcium (Ca)	mg/L	74.9	74.6	0.050	8028118
Total Magnesium (Mg)	mg/L	11.2	11.3	0.050	8028118
RDL = Reportable Detection Limit					

Maxxam Job #: B577451  
Report Date: 2015/09/16

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		NB5022	NB5024		
<b>Sampling Date</b>		2015/09/01 18:15	2015/09/01 15:50		
<b>COC Number</b>		08411518	08411518		
	<b>UNITS</b>	<b>MW15-01</b>	<b>DUP02</b>	<b>RDL</b>	<b>QC Batch</b>
Total Potassium (K)	mg/L	2.49	2.56	0.050	8028118
Total Sodium (Na)	mg/L	0.760	0.802	0.050	8028118
Total Sulphur (S)	mg/L	18.4	16.4	3.0	8028118
RDL = Reportable Detection Limit					

Maxxam Job #: B577451  
Report Date: 2015/09/16

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

<b>Maxxam ID</b>		NB5023		
<b>Sampling Date</b>		2015/09/01 15:50		
<b>COC Number</b>		08411518		
	<b>UNITS</b>	<b>MW15-02</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>				
Total Hardness (CaCO3)	mg/L	232	0.50	8027461
<b>Elements</b>				
Total Mercury (Hg)	mg/L	<0.0000020	0.0000020	8033755
<b>Total Metals by ICPMS</b>				
Total Aluminum (Al)	mg/L	6.57	0.0030	8032303
Total Antimony (Sb)	mg/L	0.000276	0.000050	8032303
Total Arsenic (As)	mg/L	0.00371	0.000020	8032303
Total Barium (Ba)	mg/L	0.0991	0.00010	8032303
Total Beryllium (Be)	mg/L	0.000177	0.000010	8032303
Total Bismuth (Bi)	mg/L	0.000071	0.000020	8032303
Total Boron (B)	mg/L	<0.050	0.050	8032303
Total Cadmium (Cd)	mg/L	0.000355	0.0000050	8032303
Total Chromium (Cr)	mg/L	0.0104	0.00050	8032303
Total Cobalt (Co)	mg/L	0.00538	0.000010	8032303
Total Copper (Cu)	mg/L	0.0256	0.00020	8032303
Total Iron (Fe)	mg/L	17.2	0.0050	8032303
Total Lead (Pb)	mg/L	0.00620	0.000050	8032303
Total Lithium (Li)	mg/L	0.00451	0.00050	8032303
Total Manganese (Mn)	mg/L	0.310	0.00010	8032303
Total Molybdenum (Mo)	mg/L	0.00323	0.000050	8032303
Total Nickel (Ni)	mg/L	0.0124	0.00010	8032303
Total Phosphorus (P)	mg/L	0.614	0.010	8032303
Total Selenium (Se)	mg/L	0.00108	0.000040	8032303
Total Silicon (Si)	mg/L	10.8	0.10	8032303
Total Silver (Ag)	mg/L	0.00413	0.0000050	8032303
Total Strontium (Sr)	mg/L	0.215	0.000050	8032303
Total Thallium (Tl)	mg/L	0.0000720	0.0000020	8032303
Total Tin (Sn)	mg/L	0.00075	0.00020	8032303
Total Titanium (Ti)	mg/L	0.386	0.0050	8032303
Total Uranium (U)	mg/L	0.00238	0.0000050	8032303
Total Vanadium (V)	mg/L	0.0276	0.00050	8032303
Total Zinc (Zn)	mg/L	0.0752	0.0010	8032303
Total Zirconium (Zr)	mg/L	0.00328	0.00010	8032303
Total Calcium (Ca)	mg/L	76.5	0.25	8028118
Total Magnesium (Mg)	mg/L	9.88	0.25	8028118
RDL = Reportable Detection Limit				

Maxxam Job #: B577451  
Report Date: 2015/09/16

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH

**LL TOTAL METALS (DIGESTED) WITH CV HG**

<b>Maxxam ID</b>		NB5023		
<b>Sampling Date</b>		2015/09/01 15:50		
<b>COC Number</b>		08411518		
	<b>UNITS</b>	<b>MW15-02</b>	<b>RDL</b>	<b>QC Batch</b>
Total Potassium (K)	mg/L	1.71	0.25	8028118
Total Sodium (Na)	mg/L	1.05	0.25	8028118
Total Sulphur (S)	mg/L	15	15	8028118
RDL = Reportable Detection Limit				

Maxxam Job #: B577451  
Report Date: 2015/09/16

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH

### GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	9.3°C
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Sample NB5023-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

**Results relate only to the items tested.**

Maxxam Job #: B577451  
Report Date: 2015/09/16

**QUALITY ASSURANCE REPORT**

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8027639	Total Suspended Solids	2015/09/08			103	80 - 120	<1.0	mg/L		
8028900	Turbidity	2015/09/09			102	80 - 120	<0.10	NTU	0.84	20
8028914	Total Dissolved Solids	2015/09/08	100	80 - 120	102	80 - 120	<1.0	mg/L	2.6	20
8029516	Orthophosphate (P)	2015/09/05	106	80 - 120	97	80 - 120	<0.0010	mg/L	NC	20
8030911	Fluoride (F)	2015/09/08	110	80 - 120	106	80 - 120	0.013, RDL=0.010	mg/L	NC	20
8030958	Acidity (pH 4.5)	2015/09/08					<0.50	mg/L	1.6	20
8030958	Acidity (pH 8.3)	2015/09/08			99	80 - 120	<0.50	mg/L	2.0	20
8031063	Dissolved Aluminum (Al)	2015/09/11	106	80 - 120	107	80 - 120	<0.00050	mg/L	NC	20
8031063	Dissolved Antimony (Sb)	2015/09/11	105	80 - 120	102	80 - 120	<0.000020	mg/L	NC	20
8031063	Dissolved Arsenic (As)	2015/09/11	102	80 - 120	100	80 - 120	<0.000020	mg/L	NC	20
8031063	Dissolved Barium (Ba)	2015/09/11	101	80 - 120	99	80 - 120	<0.000020	mg/L	3.8	20
8031063	Dissolved Beryllium (Be)	2015/09/11	101	80 - 120	99	80 - 120	<0.000010	mg/L	NC	20
8031063	Dissolved Bismuth (Bi)	2015/09/11	103	80 - 120	100	80 - 120	<0.0000050	mg/L	NC	20
8031063	Dissolved Boron (B)	2015/09/11					<0.010	mg/L	NC	20
8031063	Dissolved Cadmium (Cd)	2015/09/11	101	80 - 120	98	80 - 120	<0.0000050	mg/L	NC	20
8031063	Dissolved Chromium (Cr)	2015/09/11	98	80 - 120	95	80 - 120	<0.00010	mg/L	NC	20
8031063	Dissolved Cobalt (Co)	2015/09/11	97	80 - 120	95	80 - 120	<0.0000050	mg/L	NC	20
8031063	Dissolved Copper (Cu)	2015/09/11	NC	80 - 120	96	80 - 120	<0.000050	mg/L	2.3	20
8031063	Dissolved Iron (Fe)	2015/09/11	107	80 - 120	105	80 - 120	<0.0010	mg/L	NC	20
8031063	Dissolved Lead (Pb)	2015/09/11	102	80 - 120	99	80 - 120	<0.0000050	mg/L	1.1	20
8031063	Dissolved Lithium (Li)	2015/09/11	97	80 - 120	94	80 - 120	<0.00050	mg/L	NC	20
8031063	Dissolved Manganese (Mn)	2015/09/11	101	80 - 120	98	80 - 120	<0.000050	mg/L	0.63	20
8031063	Dissolved Molybdenum (Mo)	2015/09/11	105	80 - 120	101	80 - 120	<0.000050	mg/L	NC	20
8031063	Dissolved Nickel (Ni)	2015/09/11	98	80 - 120	94	80 - 120	<0.000020	mg/L	NC	20
8031063	Dissolved Phosphorus (P)	2015/09/11					<0.0020	mg/L		
8031063	Dissolved Selenium (Se)	2015/09/11	99	80 - 120	92	80 - 120	<0.000040	mg/L	NC	20
8031063	Dissolved Silicon (Si)	2015/09/11					<0.050	mg/L	NC	20
8031063	Dissolved Silver (Ag)	2015/09/11	104	80 - 120	95	80 - 120	0.0000080, RDL=0.0000050	mg/L	NC	20
8031063	Dissolved Strontium (Sr)	2015/09/11	NC	80 - 120	99	80 - 120	<0.000050	mg/L	3.5	20
8031063	Dissolved Thallium (Tl)	2015/09/11	101	80 - 120	99	80 - 120	<0.0000020	mg/L	NC	20

Maxxam Job #: B577451  
Report Date: 2015/09/16

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8031063	Dissolved Tin (Sn)	2015/09/11	101	80 - 120	99	80 - 120	<0.00020	mg/L	NC	20
8031063	Dissolved Titanium (Ti)	2015/09/11	102	80 - 120	96	80 - 120	<0.00050	mg/L	NC	20
8031063	Dissolved Uranium (U)	2015/09/11	98	80 - 120	96	80 - 120	<0.0000020	mg/L	NC	20
8031063	Dissolved Vanadium (V)	2015/09/11	99	80 - 120	94	80 - 120	<0.00020	mg/L	NC	20
8031063	Dissolved Zinc (Zn)	2015/09/11	NC	80 - 120	97	80 - 120	<0.00010	mg/L	1.3	20
8031063	Dissolved Zirconium (Zr)	2015/09/11					<0.00010	mg/L	NC	20
8031123	Total Aluminum (Al)	2015/09/13	106	80 - 120	112	80 - 120	<0.00050	mg/L	NC	20
8031123	Total Antimony (Sb)	2015/09/13	98	80 - 120	104	80 - 120	<0.000020	mg/L	NC	20
8031123	Total Arsenic (As)	2015/09/13	105	80 - 120	108	80 - 120	<0.000020	mg/L	NC	20
8031123	Total Barium (Ba)	2015/09/13	101	80 - 120	106	80 - 120	<0.000020	mg/L	NC	20
8031123	Total Beryllium (Be)	2015/09/13	106	80 - 120	100	80 - 120	<0.000010	mg/L	NC	20
8031123	Total Bismuth (Bi)	2015/09/13	99	80 - 120	106	80 - 120	<0.0000050	mg/L		
8031123	Total Boron (B)	2015/09/13					<0.010	mg/L		
8031123	Total Cadmium (Cd)	2015/09/13	101	80 - 120	105	80 - 120	<0.0000050	mg/L	NC	20
8031123	Total Chromium (Cr)	2015/09/13	103	80 - 120	108	80 - 120	<0.00010	mg/L	NC	20
8031123	Total Cobalt (Co)	2015/09/13	102	80 - 120	106	80 - 120	<0.0000050	mg/L		
8031123	Total Copper (Cu)	2015/09/13	105	80 - 120	97	80 - 120	<0.000050	mg/L	NC	20
8031123	Total Iron (Fe)	2015/09/13	123 (1)	80 - 120	99	80 - 120	<0.0010	mg/L	NC	20
8031123	Total Lead (Pb)	2015/09/13	101	80 - 120	107	80 - 120	<0.0000050	mg/L	NC	20
8031123	Total Lithium (Li)	2015/09/13	103	80 - 120	106	80 - 120	<0.00050	mg/L		
8031123	Total Manganese (Mn)	2015/09/13	102	80 - 120	109	80 - 120	<0.000050	mg/L		
8031123	Total Molybdenum (Mo)	2015/09/13	99	80 - 120	105	80 - 120	<0.000050	mg/L		
8031123	Total Nickel (Ni)	2015/09/13	103	80 - 120	109	80 - 120	<0.000020	mg/L		
8031123	Total Phosphorus (P)	2015/09/13					<0.0020	mg/L		
8031123	Total Selenium (Se)	2015/09/13	104	80 - 120	105	80 - 120	<0.000040	mg/L	NC	20
8031123	Total Silicon (Si)	2015/09/13					<0.050	mg/L		
8031123	Total Silver (Ag)	2015/09/13	99	80 - 120	95	80 - 120	<0.0000050	mg/L	NC	20
8031123	Total Strontium (Sr)	2015/09/13	97	80 - 120	102	80 - 120	<0.000050	mg/L		
8031123	Total Thallium (Tl)	2015/09/13	100	80 - 120	107	80 - 120	<0.0000020	mg/L	NC	20
8031123	Total Tin (Sn)	2015/09/13	98	80 - 120	108	80 - 120	<0.00020	mg/L		
8031123	Total Titanium (Ti)	2015/09/13	96	80 - 120	102	80 - 120	<0.00050	mg/L		

Maxxam Job #: B577451  
Report Date: 2015/09/16

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8031123	Total Uranium (U)	2015/09/13	96	80 - 120	103	80 - 120	<0.0000020	mg/L		
8031123	Total Vanadium (V)	2015/09/13	100	80 - 120	109	80 - 120	<0.00020	mg/L		
8031123	Total Zinc (Zn)	2015/09/13	109	80 - 120	109	80 - 120	<0.00010	mg/L	NC	20
8031123	Total Zirconium (Zr)	2015/09/13					<0.00010	mg/L		
8031191	Dissolved Phosphorus (P)	2015/09/08	90	80 - 120	98	80 - 120	<0.0020	mg/L	NC	20
8031192	Dissolved Chloride (Cl)	2015/09/08	NC	80 - 120	94	80 - 120	<0.50	mg/L	1.5	20
8031198	Dissolved Sulphate (SO4)	2015/09/08	101	80 - 120	91	80 - 120	<0.50	mg/L	NC	20
8031287	Alkalinity (PP as CaCO3)	2015/09/08					<0.50	mg/L	NC	20
8031287	Alkalinity (Total as CaCO3)	2015/09/08	NC	80 - 120	93	80 - 120	<0.50	mg/L	1.5	20
8031287	Bicarbonate (HCO3)	2015/09/08					<0.50	mg/L	1.5	20
8031287	Carbonate (CO3)	2015/09/08					<0.50	mg/L	NC	20
8031287	Hydroxide (OH)	2015/09/08					<0.50	mg/L	NC	20
8031289	pH	2015/09/08			101	97 - 103			1.4	N/A
8031290	Conductivity	2015/09/08			99	80 - 120	1.3, RDL=1.0	uS/cm	7.9	20
8031291	Alkalinity (PP as CaCO3)	2015/09/09					<0.50	mg/L	NC	20
8031291	Alkalinity (Total as CaCO3)	2015/09/09	NC	80 - 120	93	80 - 120	<0.50	mg/L	0.98	20
8031291	Bicarbonate (HCO3)	2015/09/09					<0.50	mg/L	0.98	20
8031291	Carbonate (CO3)	2015/09/09					<0.50	mg/L	NC	20
8031291	Hydroxide (OH)	2015/09/09					<0.50	mg/L	NC	20
8031292	pH	2015/09/09			102	97 - 103			0.75	N/A
8031293	Conductivity	2015/09/09			98	80 - 120	1.7, RDL=1.0	uS/cm	0.15	20
8032141	Total Organic Carbon (C)	2015/09/09	NC	80 - 120	109	80 - 120	<0.50	mg/L	0.92	20
8032268	Dissolved Mercury (Hg)	2015/09/10	96	80 - 120	90	80 - 120	<0.0000020	mg/L	NC	20
8032303	Total Aluminum (Al)	2015/09/10	NC	80 - 120	131 (2)	80 - 120	<0.0030	mg/L	6.2	20
8032303	Total Antimony (Sb)	2015/09/10	104	80 - 120	102	80 - 120	<0.000050	mg/L	NC	20
8032303	Total Arsenic (As)	2015/09/10	102	80 - 120	102	80 - 120	<0.000020	mg/L	2.8	20
8032303	Total Barium (Ba)	2015/09/10	NC	80 - 120	107	80 - 120	<0.00010	mg/L	0.67	20
8032303	Total Beryllium (Be)	2015/09/10	111	80 - 120	107	80 - 120	<0.000010	mg/L	NC	20
8032303	Total Bismuth (Bi)	2015/09/10	102	80 - 120	103	80 - 120	<0.000020	mg/L	NC	20
8032303	Total Boron (B)	2015/09/10					<0.050	mg/L	NC	20
8032303	Total Cadmium (Cd)	2015/09/10	97	80 - 120	96	80 - 120	<0.0000050	mg/L	NC	20



Maxxam Job #: B577451  
Report Date: 2015/09/16

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8032303	Total Chromium (Cr)	2015/09/10	98	80 - 120	96	80 - 120	<0.00050	mg/L	NC	20
8032303	Total Cobalt (Co)	2015/09/10	96	80 - 120	98	80 - 120	<0.000010	mg/L	3.7	20
8032303	Total Copper (Cu)	2015/09/10	91	80 - 120	96	80 - 120	0.00035, RDL=0.00020	mg/L		
8032303	Total Iron (Fe)	2015/09/10	NC	80 - 120	112	80 - 120	<0.0050	mg/L	2.4	20
8032303	Total Lead (Pb)	2015/09/10	98	80 - 120	99	80 - 120	<0.000050	mg/L	NC	20
8032303	Total Lithium (Li)	2015/09/10	NC	80 - 120	113	80 - 120	<0.00050	mg/L	2.4	20
8032303	Total Manganese (Mn)	2015/09/10	NC	80 - 120	100	80 - 120	<0.00010	mg/L	2.6	20
8032303	Total Molybdenum (Mo)	2015/09/10	NC	80 - 120	101	80 - 120	<0.000050	mg/L	0.27	20
8032303	Total Nickel (Ni)	2015/09/10	93	80 - 120	97	80 - 120	<0.00010	mg/L	0.78	20
8032303	Total Phosphorus (P)	2015/09/10					<0.010	mg/L		
8032303	Total Selenium (Se)	2015/09/10	96	80 - 120	92	80 - 120	<0.000040	mg/L	NC	20
8032303	Total Silicon (Si)	2015/09/10					<0.10	mg/L	1.4	20
8032303	Total Silver (Ag)	2015/09/10	98	80 - 120	99	80 - 120	<0.0000050	mg/L	NC	20
8032303	Total Strontium (Sr)	2015/09/10	NC	80 - 120	104	80 - 120	<0.000050	mg/L	0.26	20
8032303	Total Thallium (Tl)	2015/09/10	102	80 - 120	101	80 - 120	<0.0000020	mg/L	NC	20
8032303	Total Tin (Sn)	2015/09/10	102	80 - 120	105	80 - 120	<0.00020	mg/L	NC	20
8032303	Total Titanium (Ti)	2015/09/10	112	80 - 120	90	80 - 120	<0.0050	mg/L	NC	20
8032303	Total Uranium (U)	2015/09/10	101	80 - 120	95	80 - 120	<0.0000050	mg/L	2.6	20
8032303	Total Vanadium (V)	2015/09/10	98	80 - 120	98	80 - 120	<0.00050	mg/L	NC	20
8032303	Total Zinc (Zn)	2015/09/10	NC	80 - 120	96	80 - 120	<0.0010	mg/L	8.5	20
8032303	Total Zirconium (Zr)	2015/09/10					<0.00010	mg/L	1.4	20
8032573	Total Ammonia (N)	2015/09/09	103	80 - 120	90	80 - 120	<0.0050	mg/L	NC	20
8033755	Total Mercury (Hg)	2015/09/11	88	80 - 120	98	80 - 120	<0.0000020	mg/L	NC	20
8035960	Nitrate plus Nitrite (N)	2015/09/12			99	80 - 120	<0.0020	mg/L		
8035961	Nitrite (N)	2015/09/12			94	80 - 120	<0.0020	mg/L		
8037051	Total Nitrogen (N)	2015/09/14			93	80 - 120	<0.020	mg/L		

Maxxam Job #: B577451  
Report Date: 2015/09/16

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8037263	Total Phosphorus (P)	2015/09/12			97	80 - 120	<0.0020	mg/L		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

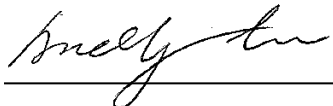
(2) Blank Spike for (Aluminum) outside acceptance criteria (10% of analytes failure allowed).

Maxxam Job #: B577451  
Report Date: 2015/09/16

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH

### VALIDATION SIGNATURE PAGE


The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Andy Lu, Data Validation Coordinator



David Huang, BBY Scientific Specialist



Ghayasuddin Khan, M.Sc., B.Ed., P.Chem, Scientific Specialist

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



**CHAIN OF CUSTODY RECORD**

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5. Toll Free (800) 665-8566

COC #:



08411518

BBY FCD-00077/05

Page 1 of 1

Invoice Information		Report Information (if differs from invoice)		Project Information (where applicable)		Time (TAT) Required														
Company Name: #11954 BMC Mineral (NO. 1) LTD.		Company Name: #31161 Tetra Tech EBA		Quotation #: B50743		<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses)														
Contact Name: ACCOUNTS PAYABLE		Contact Name: Kristen Range		P.O. #/ AFE#:		<b>PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS</b>														
Address: 530-1130 West Pender Street, Vancouver		Address: 61 Wasson Place		Project #: ENVMINO3071-01		Rush TAT (Surcharges will be applied)														
BC PC: V6E 4A4		Whitehorse, YT PC: V1A 0H7		Site Location: Kudz Ze Kayah		<input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days <input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days														
Phone:		Phone: 867-668-6225		Site #:		Date Required:														
Email: kdbergh@gmail.com		Email: kristen.range@tetrattech.com		Sampled By: Kristen Range																
Regulatory Criteria		Special Instructions		Analysis Requested		Rush Confirmation #:														
<input type="checkbox"/> BC Land Soil <input type="checkbox"/> BC CW Water <input checked="" type="checkbox"/> CCME (Specify) <u>AL</u> <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC Water Quality		<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify)		Analysis Requested: (Columns for: Nutrient Analysis, Major Metals, Trace Metals, etc.)		LABORATORY USE ONLY CUSTODY SEAL: Y / N COOLER TEMPERATURES: 9, 10, 9 COOLING MEDIA PRESENT: Y / N														
Sample ID	Location	LAB Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	ANALYSIS REQUESTED										# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	COMMENTS		
1	MW15-01	NB5022	15/09/01	18:15	water	X	X	X	X	X	X								13	Dissolved metals and phosphorus were field filtered and preserved.
2	MW15-02	NB5023	15/09/01	15:50	water	X	X	X	X	X	X								13	Total metals were field preserved.
3	Dup02	NB5024	15/09/01	15:50	water	X	X	X	X	X	X								13	Project number on bottles incorrect.
4																				Please change to project number
5																				above
6																				
7																				
8																				
9																				
10																				
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)		TIME: (HH:MM)		RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)		TIME: (HH:MM)		MAXXAM JOB #								
						J. WAHNS ROY		2015/09/04		12:50		B577451								

Your Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Your C.O.C. #: 08411530

**Attention:KRISTEN RANGE**

TETRATECH EBA  
61 WASSON PLACE  
WHITEHORSE, YT  
Canada Y1A 0H7

**Report Date: 2015/09/14**  
Report #: R2040652  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B577626**

**Received: 2015/09/05, 12:36**

Sample Matrix: Water  
# Samples Received: 2

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Analytical Method</b>
Acidity pH 4.5 & pH 8.3 (as CaCO3)	2	N/A	2015/09/08	BBY6SOP-00037	SM 22 2310 B m
Alkalinity - Water	2	2015/09/08	2015/09/09	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry	2	N/A	2015/09/08	BBY6SOP-00011	SM 22 4500-Cl- G m
Conductance - water	2	N/A	2015/09/09	BBY6SOP-00026	SM 22 2510 B m
Fluoride	2	N/A	2015/09/08	BBY6SOP-00048	SM 22 4500-F C m
Hardness Total (calculated as CaCO3)	2	N/A	2015/09/11	BBY7SOP-00002	EPA 6020a R1 m
Hardness (calculated as CaCO3)	2	N/A	2015/09/11	BBY7SOP-00002	EPA 6020a R1 m
Mercury (Dissolved-LowLevel) by CVAf	2	N/A	2015/09/11	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total-LowLevel) by CVAf	2	2015/09/11	2015/09/11	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Ion Balance	1	N/A	2015/09/11	BBY WI-00033	SM 22 1030E
Ion Balance	1	N/A	2015/09/14	BBY WI-00033	SM 22 1030E
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	2	N/A	2015/09/11	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Low Level (dissolved)	2	N/A	2015/09/11	BBY7SOP-00002	EPA 6020A R1 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	2	N/A	2015/09/11	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Low Level (total)	2	N/A	2015/09/11	BBY7SOP-00002	EPA 6020A R1 m
Nitrogen (Total)	2	2015/09/10	2015/09/10	BBY6SOP-00016	SM 22 4500-N C m
Ammonia-N (Preserved)	2	N/A	2015/09/09	BBY6SOP-00009	SM 22 4500-NH3- G m
Nitrate+Nitrite (N) (low level)	2	N/A	2015/09/05	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) (low level)	2	N/A	2015/09/05	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N)	2	N/A	2015/09/05	BBY6SOP-00010	SM 22 4500-NO3- I m
Filter and HNO3 Preserve for Metals	2	N/A	2015/09/11	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (2)	2	N/A	2015/09/09	BBY6SOP-00026	SM 22 4500-H+ B m
Orthophosphate by Konelab (low level)	1	N/A	2015/09/05	BBY6SOP-00013	SM 22 4500-P E m
Orthophosphate by Konelab (low level)	1	N/A	2015/09/14	BBY6SOP-00013	SM 22 4500-P E m
Sulphate by Automated Colourimetry	2	N/A	2015/09/08	BBY6SOP-00017	SM 22 4500-SO42- E m
Total Dissolved Solids - Low Level	2	N/A	2015/09/10	BBY6SOP-00033	SM 22 2540 C m
TKN (Calc. TN, N/N) total	2	N/A	2015/09/11	BBY WI-00033	Calculation
Carbon (Total Organic) (1, 3)	2	N/A	2015/09/10	CAL SOP-00077	MMCW 119 1996 m
Phosphorus-P (LL Tot, dissolved) - FF/FP	1	2015/09/08	2015/09/08	BBY6SOP-00013	SM 22 4500-P E m
Phosphorus-P (LL Tot, dissolved) - FF/FP	1	2015/09/14	2015/09/14	BBY6SOP-00013	SM 22 4500-P E m

Your Project #: ENVMINO3071-01  
 Site Location: KUDZ ZE KAYAH  
 Your C.O.C. #: 08411530

**Attention:KRISTEN RANGE**

TETRATECH EBA  
 61 WASSON PLACE  
 WHITEHORSE, YT  
 Canada Y1A 0H7

**Report Date: 2015/09/14**  
 Report #: R2040652  
 Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B577626**

**Received: 2015/09/05, 12:36**

Sample Matrix: Water  
 # Samples Received: 2

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
Total Phosphorus	2	N/A	2015/09/08	BBY6SOP-00013	SM 22 4500-P E m
Total Suspended Solids-Low Level	2	2015/09/08	2015/09/09	BBY6SOP-00034	SM 22 2540 D
Turbidity	2	N/A	2015/09/09	BBY6SOP-00027	SM 22 2130 B m

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

- (1) This test was performed by Maxxam Calgary Environmental
- (2) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.
- (3) TOC present in the sample should be considered as non-purgeable TOC.

**Encryption Key**

Please direct all questions regarding this Certificate of Analysis to your Project Manager.  
 Morgan Melnychuk, Burnaby Project Manager  
 Email: MMelnychuk@maxxam.ca  
 Phone# (604)638-8034 Ext:8034

=====  
 Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B577626  
Report Date: 2015/09/14

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		NB6862	NB6862		NB6863		
Sampling Date		2015/09/02 19:00	2015/09/02 19:00		2015/09/03 17:45		
COC Number		08411530	08411530		08411530		
	UNITS	MW15-08S	MW15-08S Lab-Dup	QC Batch	MW15D-08D	RDL	QC Batch
<b>Misc. Inorganics</b>							
Acidity (pH 4.5)	mg/L	<0.50		8030958	<0.50	0.50	8030958
Acidity (pH 8.3)	mg/L	<0.50		8030958	5.63	0.50	8030958
<b>Calculated Parameters</b>							
Filter and HNO3 Preservation	N/A	FIELD		ONSITE	FIELD	N/A	ONSITE
Ion Balance	N/A	1.1		8029265	1.1	0.010	8029265
Nitrate (N)	mg/L	0.215		8028978	<0.0020	0.0020	8028978
<b>Misc. Inorganics</b>							
Fluoride (F)	mg/L	0.093		8030911	0.610	0.010	8030911
Alkalinity (Total as CaCO3)	mg/L	175		8031298	250	0.50	8031298
Total Organic Carbon (C)	mg/L	0.76		8033276	0.53	0.50	8033276
Alkalinity (PP as CaCO3)	mg/L	<0.50		8031298	<0.50	0.50	8031298
Bicarbonate (HCO3)	mg/L	213		8031298	305	0.50	8031298
Carbonate (CO3)	mg/L	<0.50		8031298	<0.50	0.50	8031298
Hydroxide (OH)	mg/L	<0.50		8031298	<0.50	0.50	8031298
<b>Anions</b>							
Orthophosphate (P)	mg/L	<0.0010		8029516	0.0045 (1)	0.0010	8037447
Dissolved Sulphate (SO4)	mg/L	23.9		8031202	43.9	0.50	8031202
Dissolved Chloride (Cl)	mg/L	0.87		8031201	1.3	0.50	8031201
<b>Nutrients</b>							
Total Ammonia (N)	mg/L	0.011		8032575	0.13	0.0050	8032575
Dissolved Phosphorus (P)	mg/L	<0.0020		8031191	0.0796	0.0020	8037451
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.058		8029413	0.161	0.020	8029413
Nitrate plus Nitrite (N)	mg/L	0.215		8029507	<0.0020	0.0020	8029507
Nitrite (N)	mg/L	<0.0020		8029508	<0.0020	0.0020	8029508
Total Nitrogen (N)	mg/L	0.273		8033606	0.161	0.020	8033606
Total Phosphorus (P)	mg/L	0.0026		8031189	0.0795	0.0020	8031189
<b>Physical Properties</b>							
Conductivity	uS/cm	372		8031301	540	1.0	8031301
pH	pH	8.26		8031300	7.96	N/A	8031300
<b>Physical Properties</b>							
Total Suspended Solids	mg/L	<1.0		8030500	43.4	1.0	8030500
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable (1) Sample was originally analysed within hold time. Data quality required investigation. Re-analysis was completed past recommended hold time.							

Maxxam Job #: B577626  
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TETRATECH EBA  
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**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		NB6862	NB6862		NB6863		
<b>Sampling Date</b>		2015/09/02 19:00	2015/09/02 19:00		2015/09/03 17:45		
<b>COC Number</b>		08411530	08411530		08411530		
	<b>UNITS</b>	<b>MW15-08S</b>	<b>MW15-08S Lab-Dup</b>	<b>QC Batch</b>	<b>MW15D-08D</b>	<b>RDL</b>	<b>QC Batch</b>
Total Dissolved Solids	mg/L	228	262	8031669	342	1.0	8031669
Turbidity	NTU	<0.10		8028900	52.6	0.10	8028900
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate							



Maxxam Job #: B577626  
Report Date: 2015/09/14

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		NB6862	NB6862	NB6863		
Sampling Date		2015/09/02 19:00	2015/09/02 19:00	2015/09/03 17:45		
COC Number		08411530	08411530	08411530		
	UNITS	MW15-08S	MW15-08S Lab-Dup	MW15D-08D	RDL	QC Batch
<b>Misc. Inorganics</b>						
Dissolved Hardness (CaCO3)	mg/L	211		310	0.50	8029115
<b>Elements</b>						
Dissolved Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	0.0000020	8033708
<b>Dissolved Metals by ICPMS</b>						
Dissolved Aluminum (Al)	mg/L	0.00201		0.00356	0.00050	8031063
Dissolved Antimony (Sb)	mg/L	<0.000020		0.000073	0.000020	8031063
Dissolved Arsenic (As)	mg/L	0.000357		0.00262	0.000020	8031063
Dissolved Barium (Ba)	mg/L	0.0631		0.0344	0.000020	8031063
Dissolved Beryllium (Be)	mg/L	<0.000010		<0.000010	0.000010	8031063
Dissolved Bismuth (Bi)	mg/L	<0.0000050		<0.0000050	0.0000050	8031063
Dissolved Boron (B)	mg/L	<0.010		<0.010	0.010	8031063
Dissolved Cadmium (Cd)	mg/L	0.0000590		0.0000180	0.0000050	8031063
Dissolved Chromium (Cr)	mg/L	<0.00010		<0.00010	0.00010	8031063
Dissolved Cobalt (Co)	mg/L	0.000649		0.000295	0.0000050	8031063
Dissolved Copper (Cu)	mg/L	0.000706		<0.000050	0.000050	8031063
Dissolved Iron (Fe)	mg/L	0.0043		0.655	0.0010	8031063
Dissolved Lead (Pb)	mg/L	0.0000120		0.0000120	0.0000050	8031063
Dissolved Lithium (Li)	mg/L	0.00206		0.0393	0.00050	8031063
Dissolved Manganese (Mn)	mg/L	0.0180		0.181	0.000050	8031063
Dissolved Molybdenum (Mo)	mg/L	0.00257		0.000433	0.000050	8031063
Dissolved Nickel (Ni)	mg/L	0.00489		0.00128	0.000020	8031063
Dissolved Phosphorus (P)	mg/L	0.0033		0.0050	0.0020	8031063
Dissolved Selenium (Se)	mg/L	0.00148		<0.000040	0.000040	8031063
Dissolved Silicon (Si)	mg/L	3.57		12.2	0.050	8031063
Dissolved Silver (Ag)	mg/L	0.0000120		0.0000060	0.0000050	8031063
Dissolved Strontium (Sr)	mg/L	0.229		0.385	0.000050	8031063
Dissolved Thallium (Tl)	mg/L	0.0000040		0.0000030	0.0000020	8031063
Dissolved Tin (Sn)	mg/L	<0.00020		<0.00020	0.00020	8031063
Dissolved Titanium (Ti)	mg/L	<0.00050		<0.00050	0.00050	8031063
Dissolved Uranium (U)	mg/L	0.00221		0.00103	0.0000020	8031063
Dissolved Vanadium (V)	mg/L	<0.00020		<0.00020	0.00020	8031063
Dissolved Zinc (Zn)	mg/L	0.00412		0.00161	0.00010	8031063
Dissolved Zirconium (Zr)	mg/L	<0.00010		<0.00010	0.00010	8031063
RDL = Reportable Detection Limit						
Lab-Dup = Laboratory Initiated Duplicate						

Maxxam Job #: B577626  
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TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		NB6862	NB6862	NB6863		
Sampling Date		2015/09/02 19:00	2015/09/02 19:00	2015/09/03 17:45		
COC Number		08411530	08411530	08411530		
	UNITS	MW15-08S	MW15-08S Lab-Dup	MW15D-08D	RDL	QC Batch
Dissolved Calcium (Ca)	mg/L	74.5		84.8	0.050	8029410
Dissolved Magnesium (Mg)	mg/L	5.97		23.8	0.050	8029410
Dissolved Potassium (K)	mg/L	1.47		4.54	0.050	8029410
Dissolved Sodium (Na)	mg/L	1.21		5.69	0.050	8029410
Dissolved Sulphur (S)	mg/L	9.0		15.2	3.0	8029410
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate						

Maxxam Job #: B577626  
Report Date: 2015/09/14

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		NB6862	NB6863		
Sampling Date		2015/09/02 19:00	2015/09/03 17:45		
COC Number		08411530	08411530		
	UNITS	MW15-08S	MW15D-08D	RDL	QC Batch
<b>Calculated Parameters</b>					
Total Hardness (CaCO3)	mg/L	200	350	0.50	8029122
<b>Elements</b>					
Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	0.0000020	8034881
<b>Total Metals by ICPMS</b>					
Total Aluminum (Al)	mg/L	0.0250	3.17	0.00050	8032170
Total Antimony (Sb)	mg/L	<0.000020	0.000092	0.000020	8032170
Total Arsenic (As)	mg/L	0.000356	0.00690	0.000020	8032170
Total Barium (Ba)	mg/L	0.0622	0.0441	0.000020	8032170
Total Beryllium (Be)	mg/L	<0.000010	0.000117	0.000010	8032170
Total Bismuth (Bi)	mg/L	<0.0000050	0.0000120	0.0000050	8032170
Total Boron (B)	mg/L	<0.010	<0.010	0.010	8032170
Total Cadmium (Cd)	mg/L	0.0000590	0.0000960	0.0000050	8032170
Total Chromium (Cr)	mg/L	<0.00010	0.0138	0.00010	8032170
Total Cobalt (Co)	mg/L	0.000619	0.00316	0.0000050	8032170
Total Copper (Cu)	mg/L	0.000701	0.00272	0.0000050	8032170
Total Iron (Fe)	mg/L	0.0512	7.05	0.0010	8032170
Total Lead (Pb)	mg/L	0.0000170	0.00124	0.0000050	8032170
Total Lithium (Li)	mg/L	0.00194	0.0410	0.00050	8032170
Total Manganese (Mn)	mg/L	0.0179	0.323	0.0000050	8032170
Total Molybdenum (Mo)	mg/L	0.00260	0.000644	0.0000050	8032170
Total Nickel (Ni)	mg/L	0.00472	0.00762	0.000020	8032170
Total Phosphorus (P)	mg/L	0.0030	0.0880	0.0020	8032170
Total Selenium (Se)	mg/L	0.00156	<0.000040	0.000040	8032170
Total Silicon (Si)	mg/L	3.64	16.9	0.050	8032170
Total Silver (Ag)	mg/L	<0.0000050	0.000625	0.0000050	8032170
Total Strontium (Sr)	mg/L	0.217	0.407	0.0000050	8032170
Total Thallium (Tl)	mg/L	0.0000040	0.0000180	0.0000020	8032170
Total Tin (Sn)	mg/L	<0.00020	0.00033	0.00020	8032170
Total Titanium (Ti)	mg/L	0.00152	0.0903	0.00050	8032170
Total Uranium (U)	mg/L	0.00220	0.00141	0.0000020	8032170
Total Vanadium (V)	mg/L	<0.00020	0.0164	0.00020	8032170
Total Zinc (Zn)	mg/L	0.00406	0.00951	0.00010	8032170
Total Zirconium (Zr)	mg/L	<0.00010	0.00134	0.00010	8032170
Total Calcium (Ca)	mg/L	69.9	96.1	0.050	8029411
RDL = Reportable Detection Limit					

Maxxam Job #: B577626  
Report Date: 2015/09/14

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		NB6862	NB6863		
Sampling Date		2015/09/02 19:00	2015/09/03 17:45		
COC Number		08411530	08411530		
	UNITS	MW15-08S	MW15D-08D	RDL	QC Batch
Total Magnesium (Mg)	mg/L	6.10	26.6	0.050	8029411
Total Potassium (K)	mg/L	1.42	4.91	0.050	8029411
Total Sodium (Na)	mg/L	1.16	5.87	0.050	8029411
Total Sulphur (S)	mg/L	8.6	15.4	3.0	8029411
RDL = Reportable Detection Limit					

Maxxam Job #: B577626  
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TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
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**GENERAL COMMENTS**

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	7.7°C
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**Results relate only to the items tested.**

Maxxam Job #: B577626  
Report Date: 2015/09/14

**QUALITY ASSURANCE REPORT**

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8028900	Turbidity	2015/09/09			102	80 - 120	<0.10	NTU	0.84	20
8029507	Nitrate plus Nitrite (N)	2015/09/05			105	80 - 120	<0.0020	mg/L		
8029508	Nitrite (N)	2015/09/05			102	80 - 120	<0.0020	mg/L		
8029516	Orthophosphate (P)	2015/09/05	106	80 - 120	97	80 - 120	<0.0010	mg/L	NC	20
8030500	Total Suspended Solids	2015/09/09			103	80 - 120	<1.0	mg/L		
8030911	Fluoride (F)	2015/09/08	110	80 - 120	106	80 - 120	0.013, RDL=0.010	mg/L	NC	20
8030958	Acidity (pH 4.5)	2015/09/08					<0.50	mg/L	1.6	20
8030958	Acidity (pH 8.3)	2015/09/08			99	80 - 120	<0.50	mg/L	2.0	20
8031063	Dissolved Aluminum (Al)	2015/09/11	106	80 - 120	107	80 - 120	<0.00050	mg/L	NC	20
8031063	Dissolved Antimony (Sb)	2015/09/11	105	80 - 120	102	80 - 120	<0.000020	mg/L	NC	20
8031063	Dissolved Arsenic (As)	2015/09/11	102	80 - 120	100	80 - 120	<0.000020	mg/L	NC	20
8031063	Dissolved Barium (Ba)	2015/09/11	101	80 - 120	99	80 - 120	<0.000020	mg/L	3.8	20
8031063	Dissolved Beryllium (Be)	2015/09/11	101	80 - 120	99	80 - 120	<0.000010	mg/L	NC	20
8031063	Dissolved Bismuth (Bi)	2015/09/11	103	80 - 120	100	80 - 120	<0.0000050	mg/L	NC	20
8031063	Dissolved Boron (B)	2015/09/11					<0.010	mg/L	NC	20
8031063	Dissolved Cadmium (Cd)	2015/09/11	101	80 - 120	98	80 - 120	<0.0000050	mg/L	NC	20
8031063	Dissolved Chromium (Cr)	2015/09/11	98	80 - 120	95	80 - 120	<0.00010	mg/L	NC	20
8031063	Dissolved Cobalt (Co)	2015/09/11	97	80 - 120	95	80 - 120	<0.0000050	mg/L	NC	20
8031063	Dissolved Copper (Cu)	2015/09/11	NC	80 - 120	96	80 - 120	<0.000050	mg/L	2.3	20
8031063	Dissolved Iron (Fe)	2015/09/11	107	80 - 120	105	80 - 120	<0.0010	mg/L	NC	20
8031063	Dissolved Lead (Pb)	2015/09/11	102	80 - 120	99	80 - 120	<0.0000050	mg/L	1.1	20
8031063	Dissolved Lithium (Li)	2015/09/11	97	80 - 120	94	80 - 120	<0.00050	mg/L	NC	20
8031063	Dissolved Manganese (Mn)	2015/09/11	101	80 - 120	98	80 - 120	<0.000050	mg/L	0.63	20
8031063	Dissolved Molybdenum (Mo)	2015/09/11	105	80 - 120	101	80 - 120	<0.000050	mg/L	NC	20
8031063	Dissolved Nickel (Ni)	2015/09/11	98	80 - 120	94	80 - 120	<0.000020	mg/L	NC	20
8031063	Dissolved Phosphorus (P)	2015/09/11					<0.0020	mg/L		
8031063	Dissolved Selenium (Se)	2015/09/11	99	80 - 120	92	80 - 120	<0.000040	mg/L	NC	20
8031063	Dissolved Silicon (Si)	2015/09/11					<0.050	mg/L	NC	20
8031063	Dissolved Silver (Ag)	2015/09/11	104	80 - 120	95	80 - 120	0.0000080, RDL=0.0000050	mg/L	NC	20

Maxxam Job #: B577626  
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**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8031063	Dissolved Strontium (Sr)	2015/09/11	NC	80 - 120	99	80 - 120	<0.000050	mg/L	3.5	20
8031063	Dissolved Thallium (Tl)	2015/09/11	101	80 - 120	99	80 - 120	<0.000020	mg/L	NC	20
8031063	Dissolved Tin (Sn)	2015/09/11	101	80 - 120	99	80 - 120	<0.00020	mg/L	NC	20
8031063	Dissolved Titanium (Ti)	2015/09/11	102	80 - 120	96	80 - 120	<0.00050	mg/L	NC	20
8031063	Dissolved Uranium (U)	2015/09/11	98	80 - 120	96	80 - 120	<0.0000020	mg/L	NC	20
8031063	Dissolved Vanadium (V)	2015/09/11	99	80 - 120	94	80 - 120	<0.00020	mg/L	NC	20
8031063	Dissolved Zinc (Zn)	2015/09/11	NC	80 - 120	97	80 - 120	<0.00010	mg/L	1.3	20
8031063	Dissolved Zirconium (Zr)	2015/09/11					<0.00010	mg/L	NC	20
8031189	Total Phosphorus (P)	2015/09/08	NC	80 - 120	98	80 - 120	<0.0020	mg/L	1.3	20
8031191	Dissolved Phosphorus (P)	2015/09/08	90	80 - 120	98	80 - 120	<0.0020	mg/L	NC	20
8031201	Dissolved Chloride (Cl)	2015/09/08	NC	80 - 120	96	80 - 120	<0.50	mg/L	4.2	20
8031202	Dissolved Sulphate (SO4)	2015/09/08			90	80 - 120	<0.50	mg/L		
8031298	Alkalinity (PP as CaCO3)	2015/09/09					<0.50	mg/L	NC	20
8031298	Alkalinity (Total as CaCO3)	2015/09/09	NC	80 - 120	93	80 - 120	0.60, RDL=0.50	mg/L	0.64	20
8031298	Bicarbonate (HCO3)	2015/09/09					0.73, RDL=0.50	mg/L	0.64	20
8031298	Carbonate (CO3)	2015/09/09					<0.50	mg/L	NC	20
8031298	Hydroxide (OH)	2015/09/09					<0.50	mg/L	NC	20
8031300	pH	2015/09/09			102	97 - 103			0	N/A
8031301	Conductivity	2015/09/09			99	80 - 120	1.2, RDL=1.0	uS/cm	1.7	20
8031669	Total Dissolved Solids	2015/09/10	101	80 - 120	92	80 - 120	1.2, RDL=1.0	mg/L	14	20
8032170	Total Aluminum (Al)	2015/09/11	NC	80 - 120	104	80 - 120	<0.00050	mg/L		
8032170	Total Antimony (Sb)	2015/09/11	102	80 - 120	102	80 - 120	<0.000020	mg/L		
8032170	Total Arsenic (As)	2015/09/11	103	80 - 120	99	80 - 120	<0.000020	mg/L		
8032170	Total Barium (Ba)	2015/09/11	NC	80 - 120	96	80 - 120	<0.000020	mg/L		
8032170	Total Beryllium (Be)	2015/09/11	102	80 - 120	94	80 - 120	<0.000010	mg/L		
8032170	Total Bismuth (Bi)	2015/09/11	95	80 - 120	101	80 - 120	<0.0000050	mg/L		
8032170	Total Boron (B)	2015/09/11					<0.010	mg/L		
8032170	Total Cadmium (Cd)	2015/09/11	93	80 - 120	97	80 - 120	<0.0000050	mg/L		
8032170	Total Chromium (Cr)	2015/09/11	90	80 - 120	95	80 - 120	<0.00010	mg/L		
8032170	Total Cobalt (Co)	2015/09/11	91	80 - 120	96	80 - 120	<0.0000050	mg/L		
8032170	Total Copper (Cu)	2015/09/11	84	80 - 120	95	80 - 120	<0.000050	mg/L		

Maxxam Job #: B577626  
Report Date: 2015/09/14

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8032170	Total Iron (Fe)	2015/09/11	NC	80 - 120	103	80 - 120	<0.0010	mg/L		
8032170	Total Lead (Pb)	2015/09/11	95	80 - 120	98	80 - 120	<0.0000050	mg/L		
8032170	Total Lithium (Li)	2015/09/11	101	80 - 120	87	80 - 120	<0.00050	mg/L		
8032170	Total Manganese (Mn)	2015/09/11	NC	80 - 120	98	80 - 120	<0.000050	mg/L		
8032170	Total Molybdenum (Mo)	2015/09/11	NC	80 - 120	104	80 - 120	<0.000050	mg/L		
8032170	Total Nickel (Ni)	2015/09/11	87	80 - 120	96	80 - 120	<0.000020	mg/L		
8032170	Total Phosphorus (P)	2015/09/11					<0.0020	mg/L		
8032170	Total Selenium (Se)	2015/09/11	95	80 - 120	97	80 - 120	<0.000040	mg/L		
8032170	Total Silicon (Si)	2015/09/11					<0.050	mg/L		
8032170	Total Silver (Ag)	2015/09/11	93	80 - 120	95	80 - 120	<0.0000050	mg/L		
8032170	Total Strontium (Sr)	2015/09/11	NC	80 - 120	96	80 - 120	<0.000050	mg/L		
8032170	Total Thallium (Tl)	2015/09/11	95	80 - 120	98	80 - 120	<0.0000020	mg/L		
8032170	Total Tin (Sn)	2015/09/11	101	80 - 120	100	80 - 120	<0.00020	mg/L		
8032170	Total Titanium (Ti)	2015/09/11	NC	80 - 120	94	80 - 120	<0.00050	mg/L		
8032170	Total Uranium (U)	2015/09/11	99	80 - 120	95	80 - 120	<0.0000020	mg/L		
8032170	Total Vanadium (V)	2015/09/11	93	80 - 120	96	80 - 120	<0.00020	mg/L		
8032170	Total Zinc (Zn)	2015/09/11	82	80 - 120	99	80 - 120	<0.00010	mg/L		
8032170	Total Zirconium (Zr)	2015/09/11					<0.00010	mg/L		
8032575	Total Ammonia (N)	2015/09/09	121 (1)	80 - 120	97	80 - 120	<0.0050	mg/L	NC	20
8033276	Total Organic Carbon (C)	2015/09/10	105	80 - 120	96	80 - 120	<0.50	mg/L	11	20
8033606	Total Nitrogen (N)	2015/09/10	NC	80 - 120	101	80 - 120	<0.020	mg/L	9.0	20
8033708	Dissolved Mercury (Hg)	2015/09/11	95	80 - 120	96	80 - 120	<0.0000020	mg/L	NC	20
8034881	Total Mercury (Hg)	2015/09/11	85	80 - 120	84	80 - 120	<0.0000020	mg/L	NC	20
8037447	Orthophosphate (P)	2015/09/14	99	80 - 120	92	80 - 120	<0.0010	mg/L	NC	20



Maxxam Job #: B577626  
Report Date: 2015/09/14

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8037451	Dissolved Phosphorus (P)	2015/09/14	93	80 - 120	104	80 - 120	<0.0020	mg/L	NC	20

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

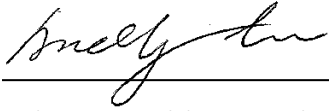
(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Maxxam Job #: B577626  
Report Date: 2015/09/14

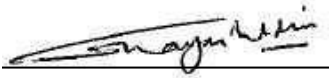
TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Andy Lu, Data Validation Coordinator



Ghayasuddin Khan, M.Sc., B.Ed., P.Chem, Scientific Specialist

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Invoice Information		Report Information (if differs from invoice)				Project Information (where applicable)										(TAT) Required		
Company Name: #11954 BMC Mineral (NO. 1) LTD.		Company Name: #31161 Tetra Tech EBA				Quotation #: 850743										<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses)		
Contact Name: ACCOUNTS PAYABLE		Contact Name: Kristen Range				P.O. #: / AFE#:										PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS		
Address: 530-1130 West Pender Street, Vancouver		Address: 61 Wasson Place				Project #: ENVMINO3071-01										Rush TAT (Surcharges will be applied)		
BC PC: V6E 4A4		Whitehorse, YT PC: VIA 0H7				Site Location: Kudz Ze Kayah										<input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days		
Phone:		Phone: 867-668-6225				Site #:										<input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days		
Email: kdberqh@gmail.com		Email: kristen.range@tetratech.com				Sampled By: Kristen Range										Date Required:		
Regulatory Criteria				Special Instructions		Analysis Requested										Rush Confirmation #:		
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> BC CSR Water <input type="checkbox"/> CCME (Specify) <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC Water Quality				<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify)		MAJOR IONS: _____ NUTRIENTS (INCLUDING NO3, NO2, TOTAL N): _____ Low Level Dissolved Metals with CV Hg _____ Low Level Total Metals with CV Hg _____ Phosphorus (All Tot - dissolved) FF/TP _____										LABORATORY USE ONLY CUSTODY SEAL: Y / N COOLER TEMPERATURES: 7, 8, 8 COOLING MEDIA PRESENT: Y / N		
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM																		
Sample Identification		Lab identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	ROUTINE (incl. TDS)	MAJOR IONS	NUTRIENTS (INCLUDING NO3, NO2, TOTAL N)	Low Level Dissolved Metals with CV Hg	Low Level Total Metals with CV Hg	Phosphorus (All Tot - dissolved) FF/TP					# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	COMMENTS
1	MW15-08S	NB6862	15/09/02	19:00	water	X	X	X	X	X	X					13		Dissolved metals and phosphorus were field filtered and preserved.
2	MW15D-08D	NB6862	15/09/03	17:45	water	X	X	X	X	X	X					13		Total metals were field preserved.
3																		Project number on bottles incorrect.
4																		Please change to project number
5																		above
6																		
7																		
8																		
9																		
10																		
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)		TIME: (HH:MM)		RECEIVED BY: (Signature/Print)				DATE: (YYYY/MM/DD)		TIME: (HH:MM)		MAXXAM JOB #				
						Nahed Ariver				2015/09/05		11:50		B577626				



Your Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Your C.O.C. #: 08411566

**Attention:KRISTEN RANGE**

TETRATECH EBA  
61 WASSON PLACE  
WHITEHORSE, YT  
Canada Y1A 0H7

**Report Date: 2015/12/16**  
Report #: R2097914  
Version: 2 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**MAXXAM JOB #: B577997**

**Received: 2015/09/08, 13:35**

Sample Matrix: Water  
# Samples Received: 11

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
Acidity pH 4.5 & pH 8.3 (as CaCO3)	11	N/A	2015/09/09	BBY6SOP-00037	SM 22 2310 B m
Alkalinity - Water	11	2015/09/09	2015/09/09	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry	11	N/A	2015/09/09	BBY6SOP-00011	SM 22 4500-Cl- G m
Conductance - water	11	N/A	2015/09/09	BBY6SOP-00026	SM 22 2510 B m
Fluoride	11	N/A	2015/09/09	BBY6SOP-00048	SM 22 4500-F C m
Hardness Total (calculated as CaCO3)	11	N/A	2015/09/11	BBY7SOP-00002	EPA 6020a R1 m
Hardness (calculated as CaCO3)	9	N/A	2015/09/14	BBY7SOP-00002	EPA 6020a R1 m
Hardness (calculated as CaCO3)	1	N/A	2015/09/15	BBY7SOP-00002	EPA 6020a R1 m
Hardness (calculated as CaCO3)	1	N/A	2015/09/17	BBY7SOP-00002	EPA 6020a R1 m
Mercury (Dissolved-LowLevel) by CVAf	11	N/A	2015/09/11	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total-LowLevel) by CVAf	5	2015/09/10	2015/09/11	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total-LowLevel) by CVAf	6	2015/09/11	2015/09/11	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Ion Balance	10	N/A	2015/09/14	BBY WI-00033	SM 22 1030E
Ion Balance	1	N/A	2015/09/16	BBY WI-00033	SM 22 1030E
Sum of cations, anions	11	N/A	2015/09/14	Calc	
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	9	N/A	2015/09/14	BBY7SOP-00002	EPA 6020A R1 m
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	1	N/A	2015/09/15	BBY7SOP-00002	EPA 6020A R1 m
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	1	N/A	2015/09/17	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Low Level (dissolved)	10	N/A	2015/09/12	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Low Level (dissolved)	1	N/A	2015/09/15	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Digested LL (total)	6	2015/09/09	2015/09/10	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Digested LL (total)	3	2015/09/09	2015/09/11	BBY7SOP-00002	EPA 6020A R1 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	11	N/A	2015/09/11	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Low Level (total)	2	N/A	2015/09/11	BBY7SOP-00002	EPA 6020A R1 m
Nitrogen (Total)	5	2015/09/10	2015/09/10	BBY6SOP-00016	SM 22 4500-N C m
Nitrogen (Total)	5	2015/09/10	2015/09/11	BBY6SOP-00016	SM 22 4500-N C m
Nitrogen (Total)	1	2015/09/14	2015/09/14	BBY6SOP-00016	SM 22 4500-N C m
Ammonia-N (Preserved)	10	N/A	2015/09/10	BBY6SOP-00009	SM 22 4500-NH3- G m
Ammonia-N (Preserved)	1	N/A	2015/09/15	BBY6SOP-00009	SM 22 4500-NH3- G m
Nitrate+Nitrite (N) (low level)	11	N/A	2015/09/09	BBY6SOP-00010	SM 22 4500-NO3- I m

Your Project #: ENVMIN03071-01  
 Site Location: KUDZ ZE KAYAH  
 Your C.O.C. #: 08411566

**Attention:KRISTEN RANGE**

TETRATECH EBA  
 61 WASSON PLACE  
 WHITEHORSE, YT  
 Canada Y1A 0H7

**Report Date: 2015/12/16**  
 Report #: R2097914  
 Version: 2 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**MAXXAM JOB #: B577997**

**Received: 2015/09/08, 13:35**

Sample Matrix: Water  
 # Samples Received: 11

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
Nitrite (N) (low level)	11	N/A	2015/09/09	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N)	11	N/A	2015/09/10	BBY6SOP-00010	SM 22 4500-NO3- I m
Filter and HNO3 Preserve for Metals	1	N/A	2015/09/11	BBY7 WI-00004	BCMOE Reqs 08/14
Filter and HNO3 Preserve for Metals	9	N/A	2015/09/12	BBY7 WI-00004	BCMOE Reqs 08/14
Filter and HNO3 Preserve for Metals	1	N/A	2015/09/15	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (2)	11	N/A	2015/09/09	BBY6SOP-00026	SM 22 4500-H+ B m
Orthophosphate by Konelab (low level)	9	N/A	2015/09/09	BBY6SOP-00013	SM 22 4500-P E m
Orthophosphate by Konelab (low level)	1	N/A	2015/09/10	BBY6SOP-00013	SM 22 4500-P E m
Orthophosphate by Konelab (low level)	1	N/A	2015/09/14	BBY6SOP-00013	SM 22 4500-P E m
Sulphate by Automated Colourimetry	10	N/A	2015/09/09	BBY6SOP-00017	SM 22 4500-SO42- E m
Sulphate by Automated Colourimetry	1	N/A	2015/09/10	BBY6SOP-00017	SM 22 4500-SO42- E m
Total Dissolved Solids - Low Level	11	N/A	2015/09/10	BBY6SOP-00033	SM 22 2540 C m
TKN (Calc. TN, N/N) total	11	N/A	2015/09/11	BBY WI-00033	Calculation
Carbon (Total Organic) (1, 3)	8	N/A	2015/09/10	CAL SOP-00077	MMCW 119 1996 m
Carbon (Total Organic) (1, 3)	3	N/A	2015/09/11	CAL SOP-00077	MMCW 119 1996 m
Phosphorus-P (LL Tot, dissolved) - FF/FP	10	2015/09/10	2015/09/10	BBY6SOP-00013	SM 22 4500-P E m
Phosphorus-P (LL Tot, dissolved) - FF/FP	1	2015/09/14	2015/09/14	BBY6SOP-00013	SM 22 4500-P E m
Total Phosphorus	11	N/A	2015/09/10	BBY6SOP-00013	SM 22 4500-P E m
Total Suspended Solids-Low Level	8	2015/09/09	2015/09/10	BBY6SOP-00034	SM 22 2540 D
Total Suspended Solids-Low Level	3	2015/09/10	2015/09/11	BBY6SOP-00034	SM 22 2540 D
Turbidity	11	N/A	2015/09/09	BBY6SOP-00027	SM 22 2130 B m

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Maxxam Calgary Environmental

(2) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

(3) TOC present in the sample should be considered as non-purgeable TOC.

Your Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Your C.O.C. #: 08411566

**Attention:KRISTEN RANGE**

TETRATECH EBA  
61 WASSON PLACE  
WHITEHORSE, YT  
Canada Y1A 0H7

**Report Date: 2015/12/16**  
Report #: R2097914  
Version: 2 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**MAXXAM JOB #: B577997**

**Received: 2015/09/08, 13:35**

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.  
Morgan Melnychuk, Burnaby Project Manager  
Email: MMelnychuk@maxxam.ca  
Phone# (604)638-8034 Ext:8034

=====  
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B577997  
Report Date: 2015/12/16

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		NB8922		NB8923	NB8923			NB8924		
Sampling Date		2015/09/04 16:10		2015/09/04 16:35	2015/09/04 16:35			2015/09/04 15:15		
COC Number		08411566		08411566	08411566			08411566		
	UNITS	MW15-03S	QC Batch	MW15-03D	MW15-03D Lab-Dup	RDL	QC Batch	MW15-04S	RDL	QC Batch
<b>Misc. Inorganics</b>										
Acidity (pH 4.5)	mg/L	<0.50	8031892	<0.50		0.50	8031892	<0.50	0.50	8031892
Acidity (pH 8.3)	mg/L	2.24	8031892	7.27		0.50	8031892	0.84	0.50	8031892
<b>Calculated Parameters</b>										
Anion Sum	meq/L	3.0	8037624	4.2		N/A	8037624	2.6	N/A	8037624
Cation Sum	meq/L	3.3	8037624	4.4		N/A	8037624	2.7	N/A	8037624
Filter and HNO3 Preservation	N/A	FIELD	ONSITE	FIELD		N/A	ONSITE	FIELD	N/A	ONSITE
Ion Balance	N/A	1.1	8031065	1.1		0.010	8031065	1.0	0.010	8031065
Nitrate (N)	mg/L	0.0454	8030353	0.0022		0.0020	8030353	0.155	0.0020	8030353
<b>Misc. Inorganics</b>										
Fluoride (F)	mg/L	0.120	8032440	0.170		0.010	8032440	0.100	0.010	8032440
Alkalinity (Total as CaCO3)	mg/L	114	8032015	179		0.50	8032015	117	0.50	8032015
Total Organic Carbon (C)	mg/L	3.4	8033276	2.0		0.50	8033276	0.96	0.50	8033276
Alkalinity (PP as CaCO3)	mg/L	<0.50	8032015	<0.50		0.50	8032015	<0.50	0.50	8032015
Bicarbonate (HCO3)	mg/L	139	8032015	219		0.50	8032015	142	0.50	8032015
Carbonate (CO3)	mg/L	<0.50	8032015	<0.50		0.50	8032015	<0.50	0.50	8032015
Hydroxide (OH)	mg/L	<0.50	8032015	<0.50		0.50	8032015	<0.50	0.50	8032015
<b>Anions</b>										
Orthophosphate (P)	mg/L	0.0020 (1)	8032582	0.0013 (1)		0.0010	8032582	0.0034 (1)	0.0010	8033398
Dissolved Sulphate (SO4)	mg/L	33.3	8032996	25.3		0.50	8032996	10.1	0.50	8032996
Dissolved Chloride (Cl)	mg/L	1.7	8032991	1.7		0.50	8032991	0.96	0.50	8032991
<b>Nutrients</b>										
Total Ammonia (N)	mg/L	0.042	8033679	0.30		0.0050	8033679	0.088	0.0050	8033679
Dissolved Phosphorus (P)	mg/L	0.0027	8033946	0.0036		0.0020	8033946	0.0026	0.0020	8033946
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.111	8031069	0.972		0.020	8031069	0.209	0.020	8031069
Nitrate plus Nitrite (N)	mg/L	0.0521 (1)	8032558	0.0022 (1)		0.0020	8032558	0.155 (1)	0.0020	8032558
Nitrite (N)	mg/L	0.0067 (1)	8032560	<0.0020 (1)		0.0020	8032560	<0.0020 (1)	0.0020	8032560
Total Nitrogen (N)	mg/L	0.163	8033619	0.975	1.03	0.020	8033610	0.364	0.020	8034012
Total Phosphorus (P)	mg/L	0.397	8033944	0.0072		0.0020	8033944	2.31	0.020	8033944
<b>Physical Properties</b>										
Conductivity	uS/cm	300	8032016	388		1.0	8032016	239	1.0	8032016
pH	pH	7.98	8032017	8.04		N/A	8032017	8.12	N/A	8032017
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable (1) Sample arrived to laboratory past recommended hold time.										

Maxxam Job #: B577997  
Report Date: 2015/12/16

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		NB8922		NB8923	NB8923			NB8924		
<b>Sampling Date</b>		2015/09/04 16:10		2015/09/04 16:35	2015/09/04 16:35			2015/09/04 15:15		
<b>COC Number</b>		08411566		08411566	08411566			08411566		
	<b>UNITS</b>	<b>MW15-03S</b>	<b>QC Batch</b>	<b>MW15-03D</b>	<b>MW15-03D Lab-Dup</b>	<b>RDL</b>	<b>QC Batch</b>	<b>MW15-04S</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Physical Properties</b>										
Total Suspended Solids	mg/L	262	8031660	8.3		1.0	8031660	2590 (1)	10	8031660
Total Dissolved Solids	mg/L	210	8031669	226		1.0	8031669	136	1.0	8031669
Turbidity	NTU	172 (2)	8031934	4.69 (2)		0.10	8031934	2070 (2)	0.10	8031934

RDL = Reportable Detection Limit  
Lab-Dup = Laboratory Initiated Duplicate  
(1) RDL raised due to high concentration of solids in the sample.  
(2) Sample arrived to laboratory past recommended hold time.



Maxxam Job #: B577997  
Report Date: 2015/12/16

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		NB8924			NB8925			NB8926		
Sampling Date		2015/09/04 15:15			2015/09/04 13:30			2015/09/05 17:00		
COC Number		08411566			08411566			08411566		
	UNITS	MW15-04S Lab-Dup	RDL	QC Batch	MW15-04D	RDL	QC Batch	MW15-09S	RDL	QC Batch

Misc. Inorganics										
Acidity (pH 4.5)	mg/L	<0.50	0.50	8031892	<0.50	0.50	8031892	<0.50	0.50	8031892
Acidity (pH 8.3)	mg/L	<0.50	0.50	8031892	1.86	0.50	8031892	4.94	0.50	8031892

Calculated Parameters										
Anion Sum	meq/L		N/A	8037624	3.1	N/A	8037624	4.6	N/A	8037624
Cation Sum	meq/L		N/A	8037624	3.2	N/A	8037624	5.0	N/A	8037624
Filter and HNO3 Preservation	N/A		N/A	ONSITE	FIELD	N/A	ONSITE	FIELD	N/A	ONSITE
Ion Balance	N/A		0.010	8031065	1.0	0.010	8031065	0.96	0.010	8031065
Nitrate (N)	mg/L		0.0020	8030353	<0.0020	0.0020	8030353	0.0360	0.0020	8030353

Misc. Inorganics										
Fluoride (F)	mg/L		0.010	8032440	0.230	0.010	8032440	0.250	0.010	8032440
Alkalinity (Total as CaCO3)	mg/L		0.50	8032015	132	0.50	8032015	204	0.50	8032023
Total Organic Carbon (C)	mg/L		0.50	8033276	1.4	0.50	8033276	<0.50	0.50	8033276
Alkalinity (PP as CaCO3)	mg/L		0.50	8032015	<0.50	0.50	8032015	<0.50	0.50	8032023
Bicarbonate (HCO3)	mg/L		0.50	8032015	161	0.50	8032015	249	0.50	8032023
Carbonate (CO3)	mg/L		0.50	8032015	<0.50	0.50	8032015	<0.50	0.50	8032023
Hydroxide (OH)	mg/L		0.50	8032015	<0.50	0.50	8032015	<0.50	0.50	8032023

Anions										
Orthophosphate (P)	mg/L	0.0034	0.0010	8033398	0.0023 (1)	0.0010	8032582	0.0015 (2)	0.0010	8032582
Dissolved Sulphate (SO4)	mg/L		0.50	8032996	19.9	0.50	8032996	20.9	0.50	8032999
Dissolved Chloride (Cl)	mg/L		0.50	8032991	0.97	0.50	8032991	1.1	0.50	8032998

Nutrients										
Total Ammonia (N)	mg/L		0.0050	8033679	0.11	0.0050	8033679	0.094	0.0050	8033679
Dissolved Phosphorus (P)	mg/L	0.0027	0.0020	8033946	0.0026	0.0020	8033946	0.0073	0.0020	8033946
Total Total Kjeldahl Nitrogen (Calc)	mg/L		0.020	8031069	0.180	0.020	8031069	0.110	0.020	8031069
Nitrate plus Nitrite (N)	mg/L	0.156	0.0020	8032558	0.0045 (1)	0.0020	8032558	0.0420 (2)	0.0020	8032558
Nitrite (N)	mg/L	0.0021	0.0020	8032560	0.0027 (1)	0.0020	8032560	0.0060 (2)	0.0020	8032560
Total Nitrogen (N)	mg/L		0.020	8034012	0.184	0.020	8033610	0.152	0.020	8033619
Total Phosphorus (P)	mg/L		0.020	8033944	8.24	0.20	8033944	0.0411	0.0020	8033944

Physical Properties										
Conductivity	uS/cm		1.0	8032016	291	1.0	8032016	413	1.0	8032024

RDL = Reportable Detection Limit  
 Lab-Dup = Laboratory Initiated Duplicate  
 N/A = Not Applicable  
 (1) Sample arrived to laboratory past recommended hold time.  
 (2) Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis.

Maxxam Job #: B577997  
Report Date: 2015/12/16

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		NB8924			NB8925			NB8926		
Sampling Date		2015/09/04 15:15			2015/09/04 13:30			2015/09/05 17:00		
COC Number		08411566			08411566			08411566		
	UNITS	MW15-04S Lab-Dup	RDL	QC Batch	MW15-04D	RDL	QC Batch	MW15-09S	RDL	QC Batch
pH	pH		N/A	8032017	7.96	N/A	8032017	8.12	N/A	8032025
<b>Physical Properties</b>										
Total Suspended Solids	mg/L		10	8031660	5030 (1)	20	8031660	102	1.0	8031660
Total Dissolved Solids	mg/L		1.0	8031669	168	1.0	8031669	238	1.0	8031669
Turbidity	NTU		0.10	8031934	3820 (2)	0.50	8031934	33.9 (3)	0.10	8031934
<p>RDL = Reportable Detection Limit            Lab-Dup = Laboratory Initiated Duplicate            N/A = Not Applicable            (1) RDL raised due to high concentration of solids in the sample.            (2) Sample arrived to laboratory past recommended hold time.            (3) Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis.</p>										

Maxxam Job #: B577997  
Report Date: 2015/12/16

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		NB8926			NB8927	NB8927		NB8928		
Sampling Date		2015/09/05 17:00			2015/09/05 17:55	2015/09/05 17:55		2015/09/04 19:10		
COC Number		08411566			08411566	08411566		08411566		
	UNITS	MW15-09S Lab-Dup	RDL	QC Batch	MW15-09D	MW15-09D Lab-Dup	RDL	MW15-10S	RDL	QC Batch

Misc. Inorganics										
Acidity (pH 4.5)	mg/L		0.50	8031892	<0.50		0.50	<0.50	0.50	8031892
Acidity (pH 8.3)	mg/L		0.50	8031892	299		0.50	125	0.50	8031892

Calculated Parameters										
Anion Sum	meq/L		N/A	8037624	8.8		N/A	9.4	N/A	8037624
Cation Sum	meq/L		N/A	8037624	8.9		N/A	9.0	N/A	8037624
Filter and HNO3 Preservation	N/A		N/A	ONSITE	FIELD		N/A	FIELD	N/A	ONSITE
Ion Balance	N/A		0.010	8031065	1.0		0.010	0.95	0.010	8031065
Nitrate (N)	mg/L		0.0020	8030353	0.0021		0.0020	0.0435	0.0020	8030353

Misc. Inorganics										
Fluoride (F)	mg/L		0.010	8032440	0.730		0.010	0.190	0.010	8032440
Alkalinity (Total as CaCO3)	mg/L		0.50	8032023	421		0.50	418	0.50	8032015
Total Organic Carbon (C)	mg/L		0.50	8033276	<0.50		0.50	3.9	0.50	8033276
Alkalinity (PP as CaCO3)	mg/L		0.50	8032023	<0.50		0.50	<0.50	0.50	8032015
Bicarbonate (HCO3)	mg/L		0.50	8032023	513		0.50	510	0.50	8032015
Carbonate (CO3)	mg/L		0.50	8032023	<0.50		0.50	<0.50	0.50	8032015
Hydroxide (OH)	mg/L		0.50	8032023	<0.50		0.50	<0.50	0.50	8032015

Anions										
Orthophosphate (P)	mg/L		0.0010	8032582	0.0030 (1)		0.0010	0.0021 (2)	0.0010	8032582
Dissolved Sulphate (SO4)	mg/L	20.5	0.50	8032999	15.3		0.50	47.8	0.50	8032996
Dissolved Chloride (Cl)	mg/L	0.96	0.50	8032998	1.1		0.50	2.5	0.50	8032991

Nutrients										
Total Ammonia (N)	mg/L		0.0050	8033679	0.10	0.11	0.0050	0.67	0.0050	8033679
Dissolved Phosphorus (P)	mg/L		0.0020	8033946	0.0054		0.0020	0.0145	0.0020	8033946
Total Total Kjeldahl Nitrogen (Calc)	mg/L		0.020	8031069	0.136		0.020	4.74	0.20	8031069
Nitrate plus Nitrite (N)	mg/L		0.0020	8032558	0.0021 (1)		0.0020	0.0511 (2)	0.0020	8032558
Nitrite (N)	mg/L		0.0020	8032560	<0.0020 (1)		0.0020	0.0076 (2)	0.0020	8032560
Total Nitrogen (N)	mg/L		0.020	8033619	0.138		0.020	4.79	0.20	8034012
Total Phosphorus (P)	mg/L		0.0020	8033944	1.16		0.020	13.4	0.40	8033944

Physical Properties										
Conductivity	uS/cm		1.0	8032024	813		1.0	853	1.0	8032016

RDL = Reportable Detection Limit  
 Lab-Dup = Laboratory Initiated Duplicate  
 N/A = Not Applicable  
 (1) Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis.  
 (2) Sample arrived to laboratory past recommended hold time.

Maxxam Job #: B577997  
Report Date: 2015/12/16

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		NB8926			NB8927	NB8927		NB8928		
Sampling Date		2015/09/05 17:00			2015/09/05 17:55	2015/09/05 17:55		2015/09/04 19:10		
COC Number		08411566			08411566	08411566		08411566		
	UNITS	MW15-09S Lab-Dup	RDL	QC Batch	MW15-09D	MW15-09D Lab-Dup	RDL	MW15-10S	RDL	QC Batch
pH	pH		N/A	8032025	6.30		N/A	6.73	N/A	8032017
<b>Physical Properties</b>										
Total Suspended Solids	mg/L		1.0	8031660	284		1.0	12000 (1)	20	8031660
Total Dissolved Solids	mg/L		1.0	8031669	478		1.0	486	1.0	8031669
Turbidity	NTU		0.10	8031934	135 (2)		0.10	3750 (3)	1.0	8031934
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable (1) RDL raised due to high concentration of solids in the sample. (2) Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis. (3) Sample arrived to laboratory past recommended hold time.										

Maxxam Job #: B577997  
Report Date: 2015/12/16

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		NB8929			NB8930	NB8930		NB8931		
Sampling Date		2015/09/04 18:40			2015/09/04 15:15	2015/09/04 15:15		2015/09/06 17:00		
COC Number		08411566			08411566	08411566		08411566		
	UNITS	MW15-10D	RDL	QC Batch	DUP03	DUP03 Lab-Dup	QC Batch	MW15-07S	RDL	QC Batch
<b>Misc. Inorganics</b>										
Acidity (pH 4.5)	mg/L	<0.50	0.50	8031892	<0.50		8031892	<0.50	0.50	8031892
Acidity (pH 8.3)	mg/L	359	0.50	8031892	2.35		8031892	3.66	0.50	8031892
<b>Calculated Parameters</b>										
Anion Sum	meq/L	37	N/A	8037624	2.5		8037624	4.1	N/A	8037624
Cation Sum	meq/L	47	N/A	8037624	2.5		8037624	4.3	N/A	8037624
Filter and HNO3 Preservation	N/A	FIELD	N/A	ONSITE	FIELD		ONSITE	FIELD	N/A	ONSITE
Ion Balance	N/A	1.3	0.010	8031065	0.99		8031065	1.1	0.010	8031065
Nitrate (N)	mg/L	0.0075	0.0020	8030353	0.158		8030353	<0.0020	0.0020	8030353
<b>Misc. Inorganics</b>										
Fluoride (F)	mg/L	1.30	0.010	8032440	0.100		8032440	0.300	0.010	8032440
Alkalinity (Total as CaCO3)	mg/L	1810	0.50	8032015	114		8032015	168	0.50	8032023
Total Organic Carbon (C)	mg/L	<0.50	0.50	8033276	1.2	1.3	8034550	<0.50	0.50	8034550
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8032015	<0.50		8032015	<0.50	0.50	8032023
Bicarbonate (HCO3)	mg/L	2210	0.50	8032015	139		8032015	205	0.50	8032023
Carbonate (CO3)	mg/L	<0.50	0.50	8032015	<0.50		8032015	<0.50	0.50	8032023
Hydroxide (OH)	mg/L	<0.50	0.50	8032015	<0.50		8032015	<0.50	0.50	8032023
<b>Anions</b>										
Orthophosphate (P)	mg/L	0.0092 (1)	0.0010	8037447	0.0023 (1)		8032582	0.0069	0.0010	8032582
Dissolved Sulphate (SO4)	mg/L	12.0	0.50	8034420	10.7		8032996	32.6	0.50	8032996
Dissolved Chloride (Cl)	mg/L	3.4	0.50	8032991	0.82		8032991	0.84	0.50	8032991
<b>Nutrients</b>										
Total Ammonia (N)	mg/L	0.30	0.0050	8037625	0.037		8033679	0.062	0.0050	8033679
Dissolved Phosphorus (P)	mg/L	0.0058	0.0020	8037451	0.0033		8033946	0.0020	0.0020	8033946
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.348	0.020	8031069	0.183		8031069	0.132	0.020	8031069
Nitrate plus Nitrite (N)	mg/L	0.0075 (1)	0.0020	8032558	0.163 (1)		8032558	<0.0020	0.0020	8032558
Nitrite (N)	mg/L	<0.0020 (1)	0.0020	8032560	0.0054 (1)		8032560	<0.0020	0.0020	8032560
Total Nitrogen (N)	mg/L	0.356	0.020	8037051	0.346		8034012	0.132	0.020	8034012
Total Phosphorus (P)	mg/L	0.483	0.0020	8033944	2.38		8033944	2.50	0.020	8033944
<b>Physical Properties</b>										
Conductivity	uS/cm	3000	1.0	8032016	242		8032016	385	1.0	8032024
pH	pH	6.79	N/A	8032017	7.66		8032017	7.90	N/A	8032025
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable (1) Sample arrived to laboratory past recommended hold time.										

Maxxam Job #: B577997  
Report Date: 2015/12/16

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		NB8929			NB8930	NB8930		NB8931		
<b>Sampling Date</b>		2015/09/04 18:40			2015/09/04 15:15	2015/09/04 15:15		2015/09/06 17:00		
<b>COC Number</b>		08411566			08411566	08411566		08411566		
	<b>UNITS</b>	<b>MW15-10D</b>	<b>RDL</b>	<b>QC Batch</b>	<b>DUP03</b>	<b>DUP03 Lab-Dup</b>	<b>QC Batch</b>	<b>MW15-07S</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Physical Properties</b>										
Total Suspended Solids	mg/L	367 (1)	5.0	8031660	4350 (1)		8032926	3840 (1)	10	8032926
Total Dissolved Solids	mg/L	1950	1.0	8031669	152		8031669	238	1.0	8031669
Turbidity	NTU	186 (2)	0.10	8031934	2220 (2)		8031934	1430	0.10	8031934

RDL = Reportable Detection Limit  
Lab-Dup = Laboratory Initiated Duplicate  
(1) RDL raised due to high concentration of solids in the sample.  
(2) Sample arrived to laboratory past recommended hold time.

Maxxam Job #: B577997  
Report Date: 2015/12/16

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		NB8932		
Sampling Date		2015/09/06 17:30		
COC Number		08411566		
	UNITS	MW15-07D	RDL	QC Batch
<b>Misc. Inorganics</b>				
Acidity (pH 4.5)	mg/L	<0.50	0.50	8031892
Acidity (pH 8.3)	mg/L	4.79	0.50	8031892
<b>Calculated Parameters</b>				
Anion Sum	meq/L	4.4	N/A	8037624
Cation Sum	meq/L	4.6	N/A	8037624
Filter and HNO3 Preservation	N/A	FIELD	N/A	ONSITE
Ion Balance	N/A	1.0	0.010	8031065
Nitrate (N)	mg/L	<0.0020	0.0020	8030353
<b>Misc. Inorganics</b>				
Fluoride (F)	mg/L	0.340	0.010	8032440
Alkalinity (Total as CaCO3)	mg/L	191	0.50	8032015
Total Organic Carbon (C)	mg/L	<0.50	0.50	8034550
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8032015
Bicarbonate (HCO3)	mg/L	233	0.50	8032015
Carbonate (CO3)	mg/L	<0.50	0.50	8032015
Hydroxide (OH)	mg/L	<0.50	0.50	8032015
<b>Anions</b>				
Orthophosphate (P)	mg/L	0.0029	0.0010	8032582
Dissolved Sulphate (SO4)	mg/L	27.3	0.50	8032996
Dissolved Chloride (Cl)	mg/L	<0.50	0.50	8032991
<b>Nutrients</b>				
Total Ammonia (N)	mg/L	0.043	0.0050	8033679
Dissolved Phosphorus (P)	mg/L	0.0028	0.0020	8033946
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.049	0.020	8031069
Nitrate plus Nitrite (N)	mg/L	<0.0020	0.0020	8032558
Nitrite (N)	mg/L	<0.0020	0.0020	8032560
Total Nitrogen (N)	mg/L	0.049	0.020	8033610
Total Phosphorus (P)	mg/L	0.0024	0.0020	8033944
<b>Physical Properties</b>				
Conductivity	uS/cm	415	1.0	8032016
pH	pH	8.03	N/A	8032017
<b>Physical Properties</b>				
Total Suspended Solids	mg/L	1.8	1.0	8032926
RDL = Reportable Detection Limit N/A = Not Applicable				

Maxxam Job #: B577997  
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TETRATECH EBA  
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**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		NB8932		
<b>Sampling Date</b>		2015/09/06 17:30		
<b>COC Number</b>		08411566		
	<b>UNITS</b>	<b>MW15-07D</b>	<b>RDL</b>	<b>QC Batch</b>
Total Dissolved Solids	mg/L	250	1.0	8031669
Turbidity	NTU	5.32	0.10	8031934
RDL = Reportable Detection Limit				



Maxxam Job #: B577997  
Report Date: 2015/12/16

TETRATECH EBA  
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Sampler Initials: KR

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		NB8922	NB8922		NB8923		
Sampling Date		2015/09/04 16:10	2015/09/04 16:10		2015/09/04 16:35		
COC Number		08411566	08411566		08411566		
	UNITS	MW15-03S	MW15-03S Lab-Dup	QC Batch	MW15-03D	RDL	QC Batch
<b>Misc. Inorganics</b>							
Dissolved Hardness (CaCO3)	mg/L	129		8030360	207	0.50	8030360
<b>Elements</b>							
Dissolved Mercury (Hg)	mg/L	<0.0000020	<0.0000020	8033814	<0.0000020	0.0000020	8033814
<b>Dissolved Metals by ICPMS</b>							
Dissolved Aluminum (Al)	mg/L	0.00324		8032618	0.00792	0.00050	8032618
Dissolved Antimony (Sb)	mg/L	0.000046		8032618	0.00346	0.000020	8032618
Dissolved Arsenic (As)	mg/L	0.000158		8032618	0.00208	0.000020	8032618
Dissolved Barium (Ba)	mg/L	0.0462		8032618	0.0491	0.000020	8032618
Dissolved Beryllium (Be)	mg/L	<0.000010		8032618	0.000022	0.000010	8032618
Dissolved Bismuth (Bi)	mg/L	<0.0000050		8032618	<0.0000050	0.0000050	8032618
Dissolved Boron (B)	mg/L	<0.010		8032618	<0.010	0.010	8032618
Dissolved Cadmium (Cd)	mg/L	0.0000220		8032618	0.0000100	0.0000050	8039137
Dissolved Chromium (Cr)	mg/L	<0.00010		8032618	<0.00010	0.00010	8032618
Dissolved Cobalt (Co)	mg/L	0.000536		8032618	0.000308	0.0000050	8032618
Dissolved Copper (Cu)	mg/L	0.000344		8032618	0.000206	0.000050	8032618
Dissolved Iron (Fe)	mg/L	0.0474		8032618	0.355	0.0010	8032618
Dissolved Lead (Pb)	mg/L	0.0000070		8032618	0.0000440	0.0000050	8039137
Dissolved Lithium (Li)	mg/L	0.00193		8032618	0.00675	0.00050	8032618
Dissolved Manganese (Mn)	mg/L	0.161		8032618	0.0717	0.000050	8032618
Dissolved Molybdenum (Mo)	mg/L	0.0104		8032618	0.00470	0.000050	8032618
Dissolved Nickel (Ni)	mg/L	0.00215		8032618	0.00102	0.000020	8032618
Dissolved Phosphorus (P)	mg/L	0.0034		8032618	0.0049	0.0020	8032618
Dissolved Selenium (Se)	mg/L	0.000209		8032618	0.000256	0.000040	8032618
Dissolved Silicon (Si)	mg/L	2.95		8032618	3.92	0.050	8032618
Dissolved Silver (Ag)	mg/L	<0.0000050		8032618	<0.0000050	0.0000050	8032618
Dissolved Strontium (Sr)	mg/L	0.145		8032618	0.252	0.000050	8032618
Dissolved Thallium (Tl)	mg/L	0.0000060		8032618	0.0000070	0.0000020	8032618
Dissolved Tin (Sn)	mg/L	<0.00020		8032618	<0.00020	0.00020	8032618
Dissolved Titanium (Ti)	mg/L	<0.00050		8032618	0.00057	0.00050	8032618
Dissolved Uranium (U)	mg/L	0.000783		8032618	0.00205	0.0000020	8032618
Dissolved Vanadium (V)	mg/L	<0.00020		8032618	<0.00020	0.00020	8032618
Dissolved Zinc (Zn)	mg/L	0.00158		8032618	0.00238	0.00010	8032618
Dissolved Zirconium (Zr)	mg/L	<0.00010		8032618	0.00023	0.00010	8032618
RDL = Reportable Detection Limit							
Lab-Dup = Laboratory Initiated Duplicate							

Maxxam Job #: B577997  
Report Date: 2015/12/16

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		NB8922	NB8922		NB8923		
Sampling Date		2015/09/04 16:10	2015/09/04 16:10		2015/09/04 16:35		
COC Number		08411566	08411566		08411566		
	UNITS	MW15-03S	MW15-03S Lab-Dup	QC Batch	MW15-03D	RDL	QC Batch
Dissolved Calcium (Ca)	mg/L	42.9		8030361	56.4	0.050	8030361
Dissolved Magnesium (Mg)	mg/L	5.24		8030361	16.2	0.050	8030361
Dissolved Potassium (K)	mg/L	1.50		8030361	2.87	0.050	8030361
Dissolved Sodium (Na)	mg/L	16.1		8030361	2.89	0.050	8030361
Dissolved Sulphur (S)	mg/L	12.5		8030361	10.0	3.0	8030361
RDL = Reportable Detection Limit							
Lab-Dup = Laboratory Initiated Duplicate							

Maxxam Job #: B577997  
Report Date: 2015/12/16

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		NB8924	NB8925	NB8926	NB8927		
Sampling Date		2015/09/04 15:15	2015/09/04 13:30	2015/09/05 17:00	2015/09/05 17:55		
COC Number		08411566	08411566	08411566	08411566		
	UNITS	MW15-04S	MW15-04D	MW15-09S	MW15-09D	RDL	QC Batch
<b>Misc. Inorganics</b>							
Dissolved Hardness (CaCO3)	mg/L	127	147	221	402	0.50	8030360
<b>Elements</b>							
Dissolved Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000020	8033814
<b>Dissolved Metals by ICPMS</b>							
Dissolved Aluminum (Al)	mg/L	0.00455	0.00348	0.00180	0.170	0.00050	8032618
Dissolved Antimony (Sb)	mg/L	0.000021	0.000023	0.000207	0.000303	0.000020	8032618
Dissolved Arsenic (As)	mg/L	0.000250	0.00184	0.000537	0.00848	0.000020	8032618
Dissolved Barium (Ba)	mg/L	0.0695	0.0646	0.181	0.0900	0.000020	8032618
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	0.000111	0.000010	8032618
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8032618
Dissolved Boron (B)	mg/L	<0.010	0.023	0.017	<0.010	0.010	8032618
Dissolved Cadmium (Cd)	mg/L	0.0000150	0.0000400	0.0000460	0.0000080	0.0000050	8032618
Dissolved Chromium (Cr)	mg/L	0.00013	<0.00010	<0.00010	0.00304	0.00010	8032618
Dissolved Cobalt (Co)	mg/L	0.000194	0.000699	0.000966	0.000389	0.0000050	8032618
Dissolved Copper (Cu)	mg/L	0.000693	0.000376	0.000106	0.000416	0.000050	8032618
Dissolved Iron (Fe)	mg/L	0.0011	0.0625	1.31	12.3	0.0010	8032618
Dissolved Lead (Pb)	mg/L	<0.0000050	0.0000350	0.0000110	0.000121	0.0000050	8032618
Dissolved Lithium (Li)	mg/L	0.00079	0.00128	0.00381	0.0339	0.00050	8032618
Dissolved Manganese (Mn)	mg/L	0.0383	0.201	0.493	0.805	0.000050	8032618
Dissolved Molybdenum (Mo)	mg/L	0.00329	0.00432	0.00811	0.00925	0.000050	8032618
Dissolved Nickel (Ni)	mg/L	0.00353	0.00204	0.000604	0.000659	0.000020	8032618
Dissolved Phosphorus (P)	mg/L	0.0042	0.0046	0.0087	0.0084	0.0020	8032618
Dissolved Selenium (Se)	mg/L	0.000741	<0.000040	0.000721	0.000062	0.000040	8032618
Dissolved Silicon (Si)	mg/L	3.08	2.73	4.02	10.3	0.050	8032618
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8032618
Dissolved Strontium (Sr)	mg/L	0.173	0.206	0.262	0.488	0.000050	8032618
Dissolved Thallium (Tl)	mg/L	0.0000020	0.0000050	<0.0000020	<0.0000020	0.0000020	8032618
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8032618
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	8032618
Dissolved Uranium (U)	mg/L	0.000739	0.00106	0.00209	0.00365	0.0000020	8032618
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	0.00045	0.00020	8032618
Dissolved Zinc (Zn)	mg/L	0.00147	0.00073	0.00138	0.00568	0.00010	8032618
Dissolved Zirconium (Zr)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	8032618
Dissolved Calcium (Ca)	mg/L	44.6	49.2	69.6	133	0.050	8030361
RDL = Reportable Detection Limit							

Maxxam Job #: B577997  
Report Date: 2015/12/16

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		NB8924	NB8925	NB8926	NB8927		
Sampling Date		2015/09/04 15:15	2015/09/04 13:30	2015/09/05 17:00	2015/09/05 17:55		
COC Number		08411566	08411566	08411566	08411566		
	UNITS	MW15-04S	MW15-04D	MW15-09S	MW15-09D	RDL	QC Batch
Dissolved Magnesium (Mg)	mg/L	3.81	5.77	11.4	17.1	0.050	8030361
Dissolved Potassium (K)	mg/L	1.74	2.72	1.89	4.26	0.050	8030361
Dissolved Sodium (Na)	mg/L	1.83	3.14	6.03 (1)	5.03	0.050	8030361
Dissolved Sulphur (S)	mg/L	3.5	7.4	8.3	7.6	3.0	8030361

RDL = Reportable Detection Limit

(1) Dissolved greater than total. Reanalysis yields similar results.

Maxxam Job #: B577997  
Report Date: 2015/12/16

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		NB8928		NB8929	NB8930	NB8931		
Sampling Date		2015/09/04 19:10		2015/09/04 18:40	2015/09/04 15:15	2015/09/06 17:00		
COC Number		08411566		08411566	08411566	08411566		
	UNITS	MW15-10S	QC Batch	MW15-10D	DUP03	MW15-07S	RDL	QC Batch
<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO3)	mg/L	378	8039313	2180	119	205	0.50	8030360
<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	<0.000020	8033814	<0.000020	<0.000020	<0.000020	0.000020	8033814
<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	0.00818	8032618	0.438	0.00448	0.00302	0.00050	8032618
Dissolved Antimony (Sb)	mg/L	0.000055	8032618	0.000077	<0.000020	<0.000020	0.000020	8032618
Dissolved Arsenic (As)	mg/L	0.0117	8032618	0.00167	0.000252	0.00264	0.000020	8032618
Dissolved Barium (Ba)	mg/L	0.126	8032618	0.442	0.0708	0.0355	0.000020	8032618
Dissolved Beryllium (Be)	mg/L	0.000041	8032618	0.00119	<0.000010	<0.000010	0.000010	8032618
Dissolved Bismuth (Bi)	mg/L	<0.0000050	8032618	<0.0000050	<0.0000050	<0.0000050	0.0000050	8032618
Dissolved Boron (B)	mg/L	0.011	8032618	<0.010	<0.010	<0.010	0.010	8032618
Dissolved Cadmium (Cd)	mg/L	0.000190	8032618	0.000148	0.0000150	<0.0000050	0.0000050	8032618
Dissolved Chromium (Cr)	mg/L	0.00027	8032618	0.00539	0.00014	<0.00010	0.00010	8032618
Dissolved Cobalt (Co)	mg/L	0.00286	8032618	0.00127	0.000203	0.000128	0.0000050	8032618
Dissolved Copper (Cu)	mg/L	0.000182	8032618	0.000262	0.000669	0.000107	0.000050	8032618
Dissolved Iron (Fe)	mg/L	4.25	8032618	36.6	0.0021	0.357	0.0010	8032618
Dissolved Lead (Pb)	mg/L	0.000153	8032618	0.00136	<0.0000050	0.0000160	0.0000050	8032618
Dissolved Lithium (Li)	mg/L	0.00650	8032618	0.249	0.00081	0.00735	0.00050	8032618
Dissolved Manganese (Mn)	mg/L	0.484	8032618	5.41	0.0396	0.172	0.000050	8032618
Dissolved Molybdenum (Mo)	mg/L	0.00158	8032618	0.00132	0.00330	0.000407	0.000050	8032618
Dissolved Nickel (Ni)	mg/L	0.00310	8032618	0.00233	0.00398	0.000290	0.000020	8032618
Dissolved Phosphorus (P)	mg/L	0.0168	8032618	0.0151	0.0041	0.0058	0.0020	8032618
Dissolved Selenium (Se)	mg/L	0.00172	8032618	0.000066	0.000741	<0.000040	0.000040	8032618
Dissolved Silicon (Si)	mg/L	5.31	8032618	39.9	2.95	6.64	0.050	8032618
Dissolved Silver (Ag)	mg/L	<0.0000050	8032618	0.0000080	<0.0000050	<0.0000050	0.0000050	8032618
Dissolved Strontium (Sr)	mg/L	0.668	8032618	2.78	0.171	0.272	0.000050	8032618
Dissolved Thallium (Tl)	mg/L	0.0000020	8032618	0.0000150	0.0000020	<0.0000020	0.0000020	8032618
Dissolved Tin (Sn)	mg/L	<0.00020	8032618	<0.00020	<0.00020	<0.00020	0.00020	8032618
Dissolved Titanium (Ti)	mg/L	0.00057	8032618	0.00209	<0.00050	<0.00050	0.00050	8032618
Dissolved Uranium (U)	mg/L	0.00433	8032618	0.000649	0.000735	0.00168	0.0000020	8032618
Dissolved Vanadium (V)	mg/L	<0.00020	8032618	<0.00020	<0.00020	<0.00020	0.00020	8032618
Dissolved Zinc (Zn)	mg/L	0.00744	8032618	0.0105	0.00144	0.00438	0.00010	8032618
Dissolved Zirconium (Zr)	mg/L	0.00011	8032618	0.00158	<0.00010	<0.00010	0.00010	8032618
Dissolved Calcium (Ca)	mg/L	132	8039696	725	41.3	64.5	0.050	8030361
RDL = Reportable Detection Limit								

Maxxam Job #: B577997  
Report Date: 2015/12/16

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		NB8928		NB8929	NB8930	NB8931		
Sampling Date		2015/09/04 19:10		2015/09/04 18:40	2015/09/04 15:15	2015/09/06 17:00		
COC Number		08411566		08411566	08411566	08411566		
	UNITS	MW15-10S	QC Batch	MW15-10D	DUP03	MW15-07S	RDL	QC Batch
Dissolved Magnesium (Mg)	mg/L	11.6	8039696	90.8	3.86	10.8	0.050	8030361
Dissolved Potassium (K)	mg/L	3.12	8039696	10.2	1.79	1.47	0.050	8030361
Dissolved Sodium (Na)	mg/L	25.9	8039696	25.0	1.90	4.05	0.050	8030361
Dissolved Sulphur (S)	mg/L	16.8 (1)	8039696	3.6	<3.0	13.0	3.0	8030361

RDL = Reportable Detection Limit

(1) Dissolved greater than total. Reanalysis yields similar results.

Maxxam Job #: B577997  
Report Date: 2015/12/16

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		NB8932		
<b>Sampling Date</b>		2015/09/06 17:30		
<b>COC Number</b>		08411566		
	<b>UNITS</b>	<b>MW15-07D</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Misc. Inorganics</b>				
Dissolved Hardness (CaCO3)	mg/L	215	0.50	8030360
<b>Elements</b>				
Dissolved Mercury (Hg)	mg/L	<0.0000020	0.0000020	8033814
<b>Dissolved Metals by ICPMS</b>				
Dissolved Aluminum (Al)	mg/L	0.0124 (1)	0.00050	8032618
Dissolved Antimony (Sb)	mg/L	<0.000020	0.000020	8032618
Dissolved Arsenic (As)	mg/L	0.000245	0.000020	8032618
Dissolved Barium (Ba)	mg/L	0.0402	0.000020	8032618
Dissolved Beryllium (Be)	mg/L	<0.000010	0.000010	8032618
Dissolved Bismuth (Bi)	mg/L	<0.0000050	0.0000050	8032618
Dissolved Boron (B)	mg/L	<0.010	0.010	8032618
Dissolved Cadmium (Cd)	mg/L	<0.0000050	0.0000050	8032618
Dissolved Chromium (Cr)	mg/L	<0.00010	0.00010	8032618
Dissolved Cobalt (Co)	mg/L	0.0000310 (1)	0.0000050	8032618
Dissolved Copper (Cu)	mg/L	0.000089	0.000050	8032618
Dissolved Iron (Fe)	mg/L	0.498	0.0010	8032618
Dissolved Lead (Pb)	mg/L	0.0000810 (1)	0.0000050	8032618
Dissolved Lithium (Li)	mg/L	0.0129	0.00050	8032618
Dissolved Manganese (Mn)	mg/L	0.0614	0.000050	8032618
Dissolved Molybdenum (Mo)	mg/L	0.000058	0.000050	8032618
Dissolved Nickel (Ni)	mg/L	0.000036	0.000020	8032618
Dissolved Phosphorus (P)	mg/L	0.0053	0.0020	8032618
Dissolved Selenium (Se)	mg/L	<0.000040	0.000040	8032618
Dissolved Silicon (Si)	mg/L	7.86	0.050	8032618
Dissolved Silver (Ag)	mg/L	<0.0000050	0.0000050	8032618
Dissolved Strontium (Sr)	mg/L	0.325	0.000050	8032618
Dissolved Thallium (Tl)	mg/L	<0.0000020	0.0000020	8032618
Dissolved Tin (Sn)	mg/L	<0.00020	0.00020	8032618
Dissolved Titanium (Ti)	mg/L	<0.00050	0.00050	8032618
Dissolved Uranium (U)	mg/L	0.00116	0.0000020	8032618
Dissolved Vanadium (V)	mg/L	<0.00020	0.00020	8032618
Dissolved Zinc (Zn)	mg/L	0.00087	0.00010	8032618
Dissolved Zirconium (Zr)	mg/L	<0.00010	0.00010	8032618
RDL = Reportable Detection Limit				
(1) Dissolved greater than total. Reanalysis yields similar results.				

Maxxam Job #: B577997  
Report Date: 2015/12/16

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		NB8932		
<b>Sampling Date</b>		2015/09/06 17:30		
<b>COC Number</b>		08411566		
	<b>UNITS</b>	<b>MW15-07D</b>	<b>RDL</b>	<b>QC Batch</b>
Dissolved Calcium (Ca)	mg/L	62.5	0.050	8030361
Dissolved Magnesium (Mg)	mg/L	14.4	0.050	8030361
Dissolved Potassium (K)	mg/L	1.63	0.050	8030361
Dissolved Sodium (Na)	mg/L	4.41	0.050	8030361
Dissolved Sulphur (S)	mg/L	9.9	3.0	8030361
RDL = Reportable Detection Limit				



Maxxam Job #: B577997  
Report Date: 2015/12/16

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		NB8923		NB8932		
Sampling Date		2015/09/04 16:35		2015/09/06 17:30		
COC Number		08411566		08411566		
	UNITS	MW15-03D	QC Batch	MW15-07D	RDL	QC Batch
<b>Calculated Parameters</b>						
Total Hardness (CaCO3)	mg/L	196	8030982	213	0.50	8030982
<b>Elements</b>						
Total Mercury (Hg)	mg/L	<0.0000020	8034881	<0.0000020	0.0000020	8033755
<b>Total Metals by ICPMS</b>						
Total Aluminum (Al)	mg/L	0.0349	8032170	0.00677	0.00050	8032170
Total Antimony (Sb)	mg/L	0.00325	8032170	<0.000020	0.000020	8032170
Total Arsenic (As)	mg/L	0.00195	8032170	0.000255	0.000020	8032170
Total Barium (Ba)	mg/L	0.0465	8032170	0.0370	0.000020	8032170
Total Beryllium (Be)	mg/L	<0.000010	8032170	<0.000010	0.000010	8032170
Total Bismuth (Bi)	mg/L	<0.0000050	8032170	<0.0000050	0.0000050	8032170
Total Boron (B)	mg/L	<0.010	8032170	<0.010	0.010	8032170
Total Cadmium (Cd)	mg/L	0.0000120	8032170	<0.0000050	0.0000050	8032170
Total Chromium (Cr)	mg/L	0.00015	8032170	<0.00010	0.00010	8032170
Total Cobalt (Co)	mg/L	0.000292	8032170	0.0000230	0.0000050	8032170
Total Copper (Cu)	mg/L	0.000497	8032170	<0.000050	0.000050	8032170
Total Iron (Fe)	mg/L	0.433	8032170	0.461	0.0010	8032170
Total Lead (Pb)	mg/L	0.000121	8032170	0.0000210	0.0000050	8032170
Total Lithium (Li)	mg/L	0.00623	8032170	0.0120	0.00050	8032170
Total Manganese (Mn)	mg/L	0.0697	8032170	0.0580	0.000050	8032170
Total Molybdenum (Mo)	mg/L	0.00439	8032170	0.000081	0.000050	8032170
Total Nickel (Ni)	mg/L	0.000974	8032170	0.000031	0.000020	8032170
Total Phosphorus (P)	mg/L	0.0093	8032170	0.0038	0.0020	8032170
Total Selenium (Se)	mg/L	0.000217	8032170	<0.000040	0.000040	8032170
Total Silicon (Si)	mg/L	4.04	8032170	8.36	0.050	8032170
Total Silver (Ag)	mg/L	0.0000090	8032170	<0.0000050	0.0000050	8032170
Total Strontium (Sr)	mg/L	0.239	8032170	0.321	0.000050	8032170
Total Thallium (Tl)	mg/L	0.0000030	8032170	<0.0000020	0.0000020	8032170
Total Tin (Sn)	mg/L	<0.00020	8032170	<0.00020	0.00020	8032170
Total Titanium (Ti)	mg/L	0.00191	8032170	<0.00050	0.00050	8032170
Total Uranium (U)	mg/L	0.00184	8032170	0.00108	0.0000020	8032170
Total Vanadium (V)	mg/L	<0.00020	8032170	<0.00020	0.00020	8032170
Total Zinc (Zn)	mg/L	0.00221	8032170	0.00098	0.00010	8032170
Total Zirconium (Zr)	mg/L	0.00053	8032170	<0.00010	0.00010	8032170
Total Calcium (Ca)	mg/L	54.2	8030938	62.9	0.050	8030938
RDL = Reportable Detection Limit						

Maxxam Job #: B577997  
Report Date: 2015/12/16

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		NB8923		NB8932		
<b>Sampling Date</b>		2015/09/04 16:35		2015/09/06 17:30		
<b>COC Number</b>		08411566		08411566		
	<b>UNITS</b>	<b>MW15-03D</b>	<b>QC Batch</b>	<b>MW15-07D</b>	<b>RDL</b>	<b>QC Batch</b>
Total Magnesium (Mg)	mg/L	14.6	8030938	13.5	0.050	8030938
Total Potassium (K)	mg/L	2.68	8030938	1.53	0.050	8030938
Total Sodium (Na)	mg/L	2.66	8030938	4.20	0.050	8030938
Total Sulphur (S)	mg/L	10.2	8030938	9.9	3.0	8030938
RDL = Reportable Detection Limit						

Maxxam Job #: B577997  
Report Date: 2015/12/16

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		NB8922		NB8924	NB8925		
Sampling Date		2015/09/04 16:10		2015/09/04 15:15	2015/09/04 13:30		
COC Number		08411566		08411566	08411566		
	UNITS	MW15-03S	RDL	MW15-04S	MW15-04D	RDL	QC Batch
<b>Calculated Parameters</b>							
Total Hardness (CaCO3)	mg/L	152	0.50	313	646	0.50	8030982
<b>Elements</b>							
Total Mercury (Hg)	mg/L	<0.0000020	0.0000020	<0.0000020	<0.0000020	0.0000020	8034881
<b>Total Metals by ICPMS</b>							
Total Aluminum (Al)	mg/L	3.15	0.0030	38.0	54.0	0.015	8032303
Total Antimony (Sb)	mg/L	0.000156	0.000050	0.00026	<0.00025	0.00025	8032303
Total Arsenic (As)	mg/L	0.00425	0.000020	0.0402	0.120	0.00010	8032303
Total Barium (Ba)	mg/L	0.0902	0.00010	0.674	5.28	0.00050	8032303
Total Beryllium (Be)	mg/L	0.000186	0.000010	0.00109	0.00141	0.000050	8032303
Total Bismuth (Bi)	mg/L	0.000074	0.000020	0.00111	0.00079	0.00010	8032303
Total Boron (B)	mg/L	<0.050	0.050	<0.25	<0.25	0.25	8032303
Total Cadmium (Cd)	mg/L	0.000145	0.0000050	0.00162	0.00346	0.000025	8032303
Total Chromium (Cr)	mg/L	0.0143	0.00050	0.105	0.313	0.0025	8032303
Total Cobalt (Co)	mg/L	0.00394	0.000010	0.0547	0.295	0.000050	8032303
Total Copper (Cu)	mg/L	0.0192	0.00020	0.182	0.419	0.0010	8032303
Total Iron (Fe)	mg/L	10.4	0.0050	81.8	190	0.025	8032303
Total Lead (Pb)	mg/L	0.00647	0.000050	0.0867	0.0938	0.00025	8032303
Total Lithium (Li)	mg/L	0.00464	0.00050	0.0259	0.0410	0.0025	8032303
Total Manganese (Mn)	mg/L	0.281	0.00010	2.01	3.73	0.00050	8032303
Total Molybdenum (Mo)	mg/L	0.0115	0.000050	0.00524	0.00591	0.00025	8032303
Total Nickel (Ni)	mg/L	0.0214	0.00010	0.121	0.573	0.00050	8032303
Total Phosphorus (P)	mg/L	0.231	0.010	1.75	3.39	0.050	8032303
Total Selenium (Se)	mg/L	0.000366	0.000040	0.00070	0.00586	0.00020	8032303
Total Silicon (Si)	mg/L	8.82	0.10	42.1	49.2	0.50	8032303
Total Silver (Ag)	mg/L	0.000176	0.0000050	0.00664	0.00680	0.000025	8032303
Total Strontium (Sr)	mg/L	0.144	0.000050	0.354	0.932	0.00025	8032303
Total Thallium (Tl)	mg/L	0.0000710	0.0000020	0.000834	0.000976	0.000010	8032303
Total Tin (Sn)	mg/L	0.00035	0.00020	0.0016	0.0015	0.0010	8032303
Total Titanium (Ti)	mg/L	0.114	0.0050	1.47	0.323	0.025	8032303
Total Uranium (U)	mg/L	0.00107	0.0000050	0.00329	0.00946	0.000025	8032303
Total Vanadium (V)	mg/L	0.00865	0.00050	0.121	0.0780	0.0025	8032303
Total Zinc (Zn)	mg/L	0.0312	0.0010	0.320	0.514	0.0050	8032303
Total Zirconium (Zr)	mg/L	0.00096	0.00010	0.00841	0.0164	0.00050	8032303
Total Calcium (Ca)	mg/L	50.7	0.25	78.3	198	1.3	8030938
RDL = Reportable Detection Limit							

Maxxam Job #: B577997  
Report Date: 2015/12/16

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		NB8922		NB8924	NB8925		
Sampling Date		2015/09/04 16:10		2015/09/04 15:15	2015/09/04 13:30		
COC Number		08411566		08411566	08411566		
	UNITS	MW15-03S	RDL	MW15-04S	MW15-04D	RDL	QC Batch
Total Magnesium (Mg)	mg/L	6.14	0.25	28.6	36.8	1.3	8030938
Total Potassium (K)	mg/L	2.28	0.25	11.6	11.2	1.3	8030938
Total Sodium (Na)	mg/L	14.3	0.25	2.0	2.8	1.3	8030938
Total Sulphur (S)	mg/L	<15	15	<75	<75	75	8030938
RDL = Reportable Detection Limit							

Maxxam Job #: B577997  
Report Date: 2015/12/16

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		NB8926	NB8927			NB8928		
Sampling Date		2015/09/05 17:00	2015/09/05 17:55			2015/09/04 19:10		
COC Number		08411566	08411566			08411566		
	UNITS	MW15-09S	MW15-09D	RDL	QC Batch	MW15-10S	RDL	QC Batch
<b>Calculated Parameters</b>								
Total Hardness (CaCO3)	mg/L	202	396	0.50	8030982	757	0.50	8030982
<b>Elements</b>								
Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	0.0000020	8034881	<0.0000020	0.0000020	8033755
<b>Total Metals by ICPMS</b>								
Total Aluminum (Al)	mg/L	0.862	6.83	0.0030	8032303	80.4	0.015	8032303
Total Antimony (Sb)	mg/L	0.000258	0.000356	0.000050	8032303	0.00038	0.00025	8032303
Total Arsenic (As)	mg/L	0.00173	0.00988	0.000020	8032303	0.0508	0.00010	8032303
Total Barium (Ba)	mg/L	0.186	0.228	0.00010	8032303	1.80	0.00050	8032303
Total Beryllium (Be)	mg/L	0.000064	0.000247	0.000010	8032303	0.00640	0.000050	8032303
Total Bismuth (Bi)	mg/L	0.000027	<0.000020	0.000020	8032303	0.00305	0.00010	8032303
Total Boron (B)	mg/L	<0.050	<0.050	0.050	8032303	<0.25	0.25	8032303
Total Cadmium (Cd)	mg/L	0.000129	0.000357	0.0000050	8032303	0.00615	0.000025	8032303
Total Chromium (Cr)	mg/L	0.00470	0.0316	0.00050	8032303	0.215	0.0025	8032303
Total Cobalt (Co)	mg/L	0.00179	0.00528	0.000010	8032303	0.115	0.000050	8032303
Total Copper (Cu)	mg/L	0.00543	0.0169	0.00020	8032303	0.415	0.0010	8032303
Total Iron (Fe)	mg/L	2.92	27.9	0.0050	8032303	170	0.025	8032303
Total Lead (Pb)	mg/L	0.00260	0.00452	0.000050	8032303	0.270	0.00025	8032303
Total Lithium (Li)	mg/L	0.00431	0.0426	0.00050	8032303	0.0773	0.0025	8032303
Total Manganese (Mn)	mg/L	0.421	0.981	0.00010	8032303	5.04	0.00050	8032303
Total Molybdenum (Mo)	mg/L	0.00718	0.0171	0.000050	8032303	0.00436	0.00025	8032303
Total Nickel (Ni)	mg/L	0.00286	0.00378	0.00010	8032303	0.254	0.00050	8032303
Total Phosphorus (P)	mg/L	0.068	0.719	0.010	8032303	5.91	0.050	8032303
Total Selenium (Se)	mg/L	0.000721	0.000986	0.000040	8032303	0.00297	0.00020	8032303
Total Silicon (Si)	mg/L	5.19	17.9	0.10	8032303	68.9	0.50	8032303
Total Silver (Ag)	mg/L	0.000292	0.00204	0.0000050	8032303	0.00764	0.000025	8032303
Total Strontium (Sr)	mg/L	0.237	0.501	0.000050	8032303	0.960	0.00025	8032303
Total Thallium (Tl)	mg/L	0.0000160	0.0000490	0.0000020	8032303	0.00152	0.000010	8032303
Total Tin (Sn)	mg/L	<0.00020	0.00082	0.00020	8032303	0.0014	0.0010	8032303
Total Titanium (Ti)	mg/L	0.0360	0.309	0.0050	8032303	0.646	0.025	8032303
Total Uranium (U)	mg/L	0.00243	0.00495	0.0000050	8032303	0.0219	0.000025	8032303
Total Vanadium (V)	mg/L	0.00323	0.0281	0.00050	8032303	0.262	0.0025	8032303
Total Zinc (Zn)	mg/L	0.0096	0.0458	0.0010	8032303	0.917	0.0050	8032303
Total Zirconium (Zr)	mg/L	0.00069	0.00146	0.00010	8032303	0.00518	0.00050	8032303
Total Calcium (Ca)	mg/L	63.7	126	0.25	8030938	204	1.3	8030938
RDL = Reportable Detection Limit								

Maxxam Job #: B577997  
Report Date: 2015/12/16

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		NB8926	NB8927			NB8928		
Sampling Date		2015/09/05 17:00	2015/09/05 17:55			2015/09/04 19:10		
COC Number		08411566	08411566			08411566		
	UNITS	MW15-09S	MW15-09D	RDL	QC Batch	MW15-10S	RDL	QC Batch
Total Magnesium (Mg)	mg/L	10.4	19.9	0.25	8030938	60.3	1.3	8030938
Total Potassium (K)	mg/L	1.92	5.51	0.25	8030938	16.0	1.3	8030938
Total Sodium (Na)	mg/L	4.73	4.97	0.25	8030938	22.5	1.3	8030938
Total Sulphur (S)	mg/L	<15	<15	15	8030938	<75	75	8030938
RDL = Reportable Detection Limit								

Maxxam Job #: B577997  
Report Date: 2015/12/16

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		NB8929	NB8930	NB8931		
Sampling Date		2015/09/04 18:40	2015/09/04 15:15	2015/09/06 17:00		
COC Number		08411566	08411566	08411566		
	<b>UNITS</b>	<b>MW15-10D</b>	<b>DUP03</b>	<b>MW15-07S</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>						
Total Hardness (CaCO3)	mg/L	1810	285	480	0.50	8030982
<b>Elements</b>						
Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	0.0000020	8033755
<b>Total Metals by ICPMS</b>						
Total Aluminum (Al)	mg/L	6.97	32.9	26.8	0.0030	8032303
Total Antimony (Sb)	mg/L	0.000163	0.000266	0.000102	0.000050	8032303
Total Arsenic (As)	mg/L	0.00451	0.0394	0.0294	0.000020	8032303
Total Barium (Ba)	mg/L	0.458	0.569	0.416	0.00010	8032303
Total Beryllium (Be)	mg/L	0.00109	0.00101	0.00165	0.000010	8032303
Total Bismuth (Bi)	mg/L	0.00121	0.000944	0.000483	0.000020	8032303
Total Boron (B)	mg/L	<0.050	<0.050	<0.050	0.050	8032303
Total Cadmium (Cd)	mg/L	0.00257	0.00142	0.000624	0.0000050	8032303
Total Chromium (Cr)	mg/L	0.0215	0.0918	0.118	0.00050	8032303
Total Cobalt (Co)	mg/L	0.00745	0.0474	0.0446	0.000010	8032303
Total Copper (Cu)	mg/L	0.0260	0.153	0.239	0.00020	8032303
Total Iron (Fe)	mg/L	38.5	68.7	71.5	0.0050	8032303
Total Lead (Pb)	mg/L	0.0657	0.0797	0.0298	0.000050	8032303
Total Lithium (Li)	mg/L	0.207	0.0250	0.0265	0.00050	8032303
Total Manganese (Mn)	mg/L	4.68	1.75	1.79	0.00010	8032303
Total Molybdenum (Mo)	mg/L	0.00393	0.00575	0.00210	0.000050	8032303
Total Nickel (Ni)	mg/L	0.0120	0.106	0.119	0.00010	8032303
Total Phosphorus (P)	mg/L	0.429	1.58	2.36	0.010	8032303
Total Selenium (Se)	mg/L	0.000970	0.000849	0.00213	0.000040	8032303
Total Silicon (Si)	mg/L	41.8	39.9	37.2	0.10	8032303
Total Silver (Ag)	mg/L	0.00173	0.00476	0.00319	0.0000050	8032303
Total Strontium (Sr)	mg/L	2.36	0.340	0.452	0.000050	8032303
Total Thallium (Tl)	mg/L	0.000107	0.000716	0.000306	0.0000020	8032303
Total Tin (Sn)	mg/L	0.00036	0.00143	0.00086	0.00020	8032303
Total Titanium (Ti)	mg/L	0.277	1.30	0.193	0.0050	8032303
Total Uranium (U)	mg/L	0.000813	0.00302	0.00695	0.0000050	8032303
Total Vanadium (V)	mg/L	0.0207	0.107	0.101	0.00050	8032303
Total Zinc (Zn)	mg/L	0.0426	0.256	0.223	0.0010	8032303
Total Zirconium (Zr)	mg/L	0.00390	0.0104	0.0103	0.00010	8032303
Total Calcium (Ca)	mg/L	599	75.7	144	0.25	8030938
RDL = Reportable Detection Limit						

Maxxam Job #: B577997  
Report Date: 2015/12/16

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		NB8929	NB8930	NB8931		
Sampling Date		2015/09/04 18:40	2015/09/04 15:15	2015/09/06 17:00		
COC Number		08411566	08411566	08411566		
	UNITS	MW15-10D	DUP03	MW15-07S	RDL	QC Batch
Total Magnesium (Mg)	mg/L	75.1	23.3	29.3	0.25	8030938
Total Potassium (K)	mg/L	9.78	10.3	5.08	0.25	8030938
Total Sodium (Na)	mg/L	21.6	1.97	3.86	0.25	8030938
Total Sulphur (S)	mg/L	<15	<15	<15	15	8030938
RDL = Reportable Detection Limit						



Maxxam Job #: B577997  
Report Date: 2015/12/16

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

### GENERAL COMMENTS

Revised report V2: Updated Client sample IDs for NB8923, NB8925 and NB8929 per client request (MM4).

Sample NB8922-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample NB8924-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample NB8925-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample NB8926-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample NB8927-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample NB8928-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample NB8929-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn. Ionic imbalance out of optimal range due to high level of iron which may precipitate out over time and affect the results for alkalinity.

Sample NB8930-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample NB8931-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

#### LL TOTAL METALS (DIGESTED) WITH CV HG Comments

Sample NB8924-06 Elements by ICPMS Digested LL (total): RDL raised due to sample matrix interference.

Sample NB8925-06 Elements by ICPMS Digested LL (total): RDL raised due to sample matrix interference.

Sample NB8928-06 Elements by ICPMS Digested LL (total): RDL raised due to sample matrix interference.

Sample NB8923, Elements by ICPMS Low Level (dissolved): Test repeated.

**Results relate only to the items tested.**

Maxxam Job #: B577997  
Report Date: 2015/12/16

**QUALITY ASSURANCE REPORT**

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8031660	Total Suspended Solids	2015/09/10			100	80 - 120	<1.0	mg/L		
8031669	Total Dissolved Solids	2015/09/10	101	80 - 120	92	80 - 120	1.2, RDL=1.0	mg/L	14	20
8031892	Acidity (pH 4.5)	2015/09/09					<0.50	mg/L	NC	20
8031892	Acidity (pH 8.3)	2015/09/09			99	80 - 120	<0.50	mg/L	NC	20
8031934	Turbidity	2015/09/09			103	80 - 120	<0.10	NTU	5.5	20
8032015	Alkalinity (PP as CaCO3)	2015/09/09					<0.50	mg/L	NC	20
8032015	Alkalinity (Total as CaCO3)	2015/09/09	NC	80 - 120	99	80 - 120	0.64, RDL=0.50	mg/L	0.25	20
8032015	Bicarbonate (HCO3)	2015/09/09					0.78, RDL=0.50	mg/L	0.25	20
8032015	Carbonate (CO3)	2015/09/09					<0.50	mg/L	NC	20
8032015	Hydroxide (OH)	2015/09/09					<0.50	mg/L	NC	20
8032016	Conductivity	2015/09/09			99	80 - 120	<1.0	uS/cm	0.26	20
8032017	pH	2015/09/09			102	97 - 103			0	N/A
8032023	Alkalinity (PP as CaCO3)	2015/09/09					<0.50	mg/L	NC	20
8032023	Alkalinity (Total as CaCO3)	2015/09/09	NC	80 - 120	97	80 - 120	<0.50	mg/L	0.35	20
8032023	Bicarbonate (HCO3)	2015/09/09					<0.50	mg/L	0.35	20
8032023	Carbonate (CO3)	2015/09/09					<0.50	mg/L	NC	20
8032023	Hydroxide (OH)	2015/09/09					<0.50	mg/L	NC	20
8032024	Conductivity	2015/09/09			102	80 - 120	1.2, RDL=1.0	uS/cm	1.9	20
8032025	pH	2015/09/09			102	97 - 103			0.78	N/A
8032170	Total Aluminum (Al)	2015/09/11	NC	80 - 120	104	80 - 120	<0.00050	mg/L		
8032170	Total Antimony (Sb)	2015/09/11	102	80 - 120	102	80 - 120	<0.000020	mg/L		
8032170	Total Arsenic (As)	2015/09/11	103	80 - 120	99	80 - 120	<0.000020	mg/L		
8032170	Total Barium (Ba)	2015/09/11	NC	80 - 120	96	80 - 120	<0.000020	mg/L		
8032170	Total Beryllium (Be)	2015/09/11	102	80 - 120	94	80 - 120	<0.000010	mg/L		
8032170	Total Bismuth (Bi)	2015/09/11	95	80 - 120	101	80 - 120	<0.0000050	mg/L		
8032170	Total Boron (B)	2015/09/11					<0.010	mg/L		
8032170	Total Cadmium (Cd)	2015/09/11	93	80 - 120	97	80 - 120	<0.0000050	mg/L		
8032170	Total Chromium (Cr)	2015/09/11	90	80 - 120	95	80 - 120	<0.00010	mg/L		
8032170	Total Cobalt (Co)	2015/09/11	91	80 - 120	96	80 - 120	<0.0000050	mg/L		
8032170	Total Copper (Cu)	2015/09/11	84	80 - 120	95	80 - 120	<0.000050	mg/L		
8032170	Total Iron (Fe)	2015/09/11	NC	80 - 120	103	80 - 120	<0.0010	mg/L		

Maxxam Job #: B577997  
Report Date: 2015/12/16

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8032170	Total Lead (Pb)	2015/09/11	95	80 - 120	98	80 - 120	<0.0000050	mg/L		
8032170	Total Lithium (Li)	2015/09/11	101	80 - 120	87	80 - 120	<0.00050	mg/L		
8032170	Total Manganese (Mn)	2015/09/11	NC	80 - 120	98	80 - 120	<0.000050	mg/L		
8032170	Total Molybdenum (Mo)	2015/09/11	NC	80 - 120	104	80 - 120	<0.000050	mg/L		
8032170	Total Nickel (Ni)	2015/09/11	87	80 - 120	96	80 - 120	<0.000020	mg/L		
8032170	Total Phosphorus (P)	2015/09/11					<0.0020	mg/L		
8032170	Total Selenium (Se)	2015/09/11	95	80 - 120	97	80 - 120	<0.000040	mg/L		
8032170	Total Silicon (Si)	2015/09/11					<0.050	mg/L		
8032170	Total Silver (Ag)	2015/09/11	93	80 - 120	95	80 - 120	<0.0000050	mg/L		
8032170	Total Strontium (Sr)	2015/09/11	NC	80 - 120	96	80 - 120	<0.000050	mg/L		
8032170	Total Thallium (Tl)	2015/09/11	95	80 - 120	98	80 - 120	<0.0000020	mg/L		
8032170	Total Tin (Sn)	2015/09/11	101	80 - 120	100	80 - 120	<0.00020	mg/L		
8032170	Total Titanium (Ti)	2015/09/11	NC	80 - 120	94	80 - 120	<0.00050	mg/L		
8032170	Total Uranium (U)	2015/09/11	99	80 - 120	95	80 - 120	<0.0000020	mg/L		
8032170	Total Vanadium (V)	2015/09/11	93	80 - 120	96	80 - 120	<0.00020	mg/L		
8032170	Total Zinc (Zn)	2015/09/11	82	80 - 120	99	80 - 120	<0.00010	mg/L		
8032170	Total Zirconium (Zr)	2015/09/11					<0.00010	mg/L		
8032303	Total Aluminum (Al)	2015/09/10	NC	80 - 120	131 (1)	80 - 120	<0.0030	mg/L	6.2	20
8032303	Total Antimony (Sb)	2015/09/10	104	80 - 120	102	80 - 120	<0.000050	mg/L	NC	20
8032303	Total Arsenic (As)	2015/09/10	102	80 - 120	102	80 - 120	<0.000020	mg/L	2.8	20
8032303	Total Barium (Ba)	2015/09/10	NC	80 - 120	107	80 - 120	<0.00010	mg/L	0.67	20
8032303	Total Beryllium (Be)	2015/09/10	111	80 - 120	107	80 - 120	<0.000010	mg/L	NC	20
8032303	Total Bismuth (Bi)	2015/09/10	102	80 - 120	103	80 - 120	<0.000020	mg/L	NC	20
8032303	Total Boron (B)	2015/09/10					<0.050	mg/L	NC	20
8032303	Total Cadmium (Cd)	2015/09/10	97	80 - 120	96	80 - 120	<0.0000050	mg/L	NC	20
8032303	Total Chromium (Cr)	2015/09/10	98	80 - 120	96	80 - 120	<0.00050	mg/L	NC	20
8032303	Total Cobalt (Co)	2015/09/10	96	80 - 120	98	80 - 120	<0.000010	mg/L	3.7	20
8032303	Total Copper (Cu)	2015/09/10	91	80 - 120	96	80 - 120	0.00035, RDL=0.00020	mg/L		
8032303	Total Iron (Fe)	2015/09/10	NC	80 - 120	112	80 - 120	<0.0050	mg/L	2.4	20
8032303	Total Lead (Pb)	2015/09/10	98	80 - 120	99	80 - 120	<0.000050	mg/L	NC	20

Maxxam Job #: B577997  
Report Date: 2015/12/16

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8032303	Total Lithium (Li)	2015/09/10	NC	80 - 120	113	80 - 120	<0.00050	mg/L	2.4	20
8032303	Total Manganese (Mn)	2015/09/10	NC	80 - 120	100	80 - 120	<0.00010	mg/L	2.6	20
8032303	Total Molybdenum (Mo)	2015/09/10	NC	80 - 120	101	80 - 120	<0.000050	mg/L	0.27	20
8032303	Total Nickel (Ni)	2015/09/10	93	80 - 120	97	80 - 120	<0.00010	mg/L	0.78	20
8032303	Total Phosphorus (P)	2015/09/10					<0.010	mg/L		
8032303	Total Selenium (Se)	2015/09/10	96	80 - 120	92	80 - 120	<0.000040	mg/L	NC	20
8032303	Total Silicon (Si)	2015/09/10					<0.10	mg/L	1.4	20
8032303	Total Silver (Ag)	2015/09/10	98	80 - 120	99	80 - 120	<0.0000050	mg/L	NC	20
8032303	Total Strontium (Sr)	2015/09/10	NC	80 - 120	104	80 - 120	<0.000050	mg/L	0.26	20
8032303	Total Thallium (Tl)	2015/09/10	102	80 - 120	101	80 - 120	<0.0000020	mg/L	NC	20
8032303	Total Tin (Sn)	2015/09/10	102	80 - 120	105	80 - 120	<0.00020	mg/L	NC	20
8032303	Total Titanium (Ti)	2015/09/10	112	80 - 120	90	80 - 120	<0.0050	mg/L	NC	20
8032303	Total Uranium (U)	2015/09/10	101	80 - 120	95	80 - 120	<0.0000050	mg/L	2.6	20
8032303	Total Vanadium (V)	2015/09/10	98	80 - 120	98	80 - 120	<0.00050	mg/L	NC	20
8032303	Total Zinc (Zn)	2015/09/10	NC	80 - 120	96	80 - 120	<0.0010	mg/L	8.5	20
8032303	Total Zirconium (Zr)	2015/09/10					<0.00010	mg/L	1.4	20
8032440	Fluoride (F)	2015/09/09	110	80 - 120	102	80 - 120	<0.010	mg/L	0	20
8032558	Nitrate plus Nitrite (N)	2015/09/09	103	80 - 120	101	80 - 120	<0.0020	mg/L	0.45	25
8032560	Nitrite (N)	2015/09/09	100	80 - 120	100	80 - 120	<0.0020	mg/L	NC	25
8032582	Orthophosphate (P)	2015/09/09			88	80 - 120	<0.0010	mg/L		
8032618	Dissolved Aluminum (Al)	2015/09/12	NC	80 - 120	111	80 - 120	<0.00050	mg/L	0.30	20
8032618	Dissolved Antimony (Sb)	2015/09/12	104	80 - 120	107	80 - 120	<0.000020	mg/L	NC	20
8032618	Dissolved Arsenic (As)	2015/09/12	107	80 - 120	109	80 - 120	<0.000020	mg/L	8.1	20
8032618	Dissolved Barium (Ba)	2015/09/12	NC	80 - 120	107	80 - 120	<0.000020	mg/L	0.25	20
8032618	Dissolved Beryllium (Be)	2015/09/12	NC	80 - 120	104	80 - 120	<0.000010	mg/L	4.9	20
8032618	Dissolved Bismuth (Bi)	2015/09/12	101	80 - 120	107	80 - 120	<0.0000050	mg/L	NC	20
8032618	Dissolved Boron (B)	2015/09/12					<0.010	mg/L	NC	20
8032618	Dissolved Cadmium (Cd)	2015/09/12	NC	80 - 120	106	80 - 120	<0.0000050	mg/L	0.99	20
8032618	Dissolved Chromium (Cr)	2015/09/12	104	80 - 120	112	80 - 120	<0.00010	mg/L	NC	20
8032618	Dissolved Cobalt (Co)	2015/09/12	NC	80 - 120	112	80 - 120	<0.0000050	mg/L	2.6	20
8032618	Dissolved Copper (Cu)	2015/09/12	98	80 - 120	112	80 - 120	<0.000050	mg/L	2.6	20

Maxxam Job #: B577997  
Report Date: 2015/12/16

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8032618	Dissolved Iron (Fe)	2015/09/12	NC	80 - 120	117	80 - 120	<0.0010	mg/L	6.3	20
8032618	Dissolved Lead (Pb)	2015/09/12	NC	80 - 120	105	80 - 120	<0.0000050	mg/L	0.63	20
8032618	Dissolved Lithium (Li)	2015/09/12	NC	80 - 120	106	80 - 120	<0.00050	mg/L	7.3	20
8032618	Dissolved Manganese (Mn)	2015/09/12	NC	80 - 120	112	80 - 120	<0.000050	mg/L	3.7	20
8032618	Dissolved Molybdenum (Mo)	2015/09/12	102	80 - 120	103	80 - 120	<0.000050	mg/L	NC	20
8032618	Dissolved Nickel (Ni)	2015/09/12	NC	80 - 120	113	80 - 120	<0.000020	mg/L	0.55	20
8032618	Dissolved Phosphorus (P)	2015/09/12					<0.0020	mg/L	NC	20
8032618	Dissolved Selenium (Se)	2015/09/12	NC	80 - 120	107	80 - 120	<0.000040	mg/L	5.2	20
8032618	Dissolved Silicon (Si)	2015/09/12					<0.050	mg/L	8.6	20
8032618	Dissolved Silver (Ag)	2015/09/12	99	80 - 120	95	80 - 120	<0.0000050	mg/L	NC	20
8032618	Dissolved Strontium (Sr)	2015/09/12	NC	80 - 120	104	80 - 120	<0.000050	mg/L	3.6	20
8032618	Dissolved Thallium (Tl)	2015/09/12	102	80 - 120	105	80 - 120	<0.0000020	mg/L	4.0	20
8032618	Dissolved Tin (Sn)	2015/09/12	93	80 - 120	107	80 - 120	<0.00020	mg/L	NC	20
8032618	Dissolved Titanium (Ti)	2015/09/12	99	80 - 120	102	80 - 120	<0.00050	mg/L	NC	20
8032618	Dissolved Uranium (U)	2015/09/12	104	80 - 120	105	80 - 120	<0.0000020	mg/L	0	20
8032618	Dissolved Vanadium (V)	2015/09/12	105	80 - 120	107	80 - 120	<0.00020	mg/L	NC	20
8032618	Dissolved Zinc (Zn)	2015/09/12	NC	80 - 120	113	80 - 120	<0.00010	mg/L	0.14	20
8032618	Dissolved Zirconium (Zr)	2015/09/12					<0.00010	mg/L	NC	20
8032926	Total Suspended Solids	2015/09/10			105	80 - 120	<1.0	mg/L		
8032991	Dissolved Chloride (Cl)	2015/09/09	NC	80 - 120	95	80 - 120	<0.50	mg/L	0.45	20
8032996	Dissolved Sulphate (SO4)	2015/09/09	NC	80 - 120	92	80 - 120	<0.50	mg/L	1.7	20
8032998	Dissolved Chloride (Cl)	2015/09/09	113	80 - 120	96	80 - 120	<0.50	mg/L	NC	20
8032999	Dissolved Sulphate (SO4)	2015/09/09	NC	80 - 120	92	80 - 120	<0.50	mg/L	1.9	20
8033276	Total Organic Carbon (C)	2015/09/10	105	80 - 120	96	80 - 120	<0.50	mg/L	11	20
8033398	Orthophosphate (P)	2015/09/10	93	80 - 120	104	80 - 120	<0.0010	mg/L	NC	20
8033610	Total Nitrogen (N)	2015/09/10	NC	80 - 120	94	80 - 120	<0.020	mg/L	5.3	20
8033619	Total Nitrogen (N)	2015/09/10	82	80 - 120	93	80 - 120	<0.020	mg/L	NC	20
8033679	Total Ammonia (N)	2015/09/10	NC	80 - 120	97	80 - 120	0.0057, RDL=0.0050	mg/L	5.0	20
8033755	Total Mercury (Hg)	2015/09/11	88	80 - 120	98	80 - 120	<0.0000020	mg/L	NC	20
8033814	Dissolved Mercury (Hg)	2015/09/11	104	80 - 120	104	80 - 120	<0.0000020	mg/L	NC	20

Maxxam Job #: B577997  
Report Date: 2015/12/16

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8033944	Total Phosphorus (P)	2015/09/10	92	80 - 120	106	80 - 120	<0.0020	mg/L	NC	20
8033946	Dissolved Phosphorus (P)	2015/09/10	99	80 - 120	110	80 - 120	<0.0020	mg/L	NC	20
8034012	Total Nitrogen (N)	2015/09/11			90	80 - 120	<0.020	mg/L		
8034420	Dissolved Sulphate (SO4)	2015/09/10	115	80 - 120	95	80 - 120	<0.50	mg/L		
8034550	Total Organic Carbon (C)	2015/09/11	103	80 - 120	106	80 - 120	<0.50	mg/L	NC	20
8034881	Total Mercury (Hg)	2015/09/11	85	80 - 120	84	80 - 120	<0.0000020	mg/L	NC	20
8037051	Total Nitrogen (N)	2015/09/14			93	80 - 120	<0.020	mg/L		
8037447	Orthophosphate (P)	2015/09/14	99	80 - 120	92	80 - 120	<0.0010	mg/L	NC	20
8037451	Dissolved Phosphorus (P)	2015/09/14	93	80 - 120	104	80 - 120	<0.0020	mg/L	NC	20
8037625	Total Ammonia (N)	2015/09/15	NC	80 - 120	96	80 - 120	0.0064, RDL=0.0050	mg/L	6.2	20
8039137	Dissolved Cadmium (Cd)	2015/09/16			97	80 - 120	<0.0000050	mg/L		
8039137	Dissolved Lead (Pb)	2015/09/16			102	80 - 120	<0.0000050	mg/L		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

(1) Blank Spike for (Aluminum) outside acceptance criteria (10% of analytes failure allowed).

Maxxam Job #: B577997  
Report Date: 2015/12/16

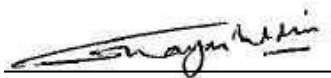
TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Andy Lu, Data Validation Coordinator

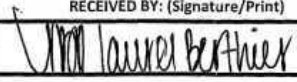


Ghayasuddin Khan, M.Sc., B.Ed., P.Chem, Scientific Specialist

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Invoice Information		Report Information (if differs from invoice)				Project Info		Turnaround Time (TAT) Required					
Company Name: #11954 BMC Mineral (NO. 1) LTD.		Company Name: #31161 Tetra Tech EBA				Quotation #: B50743		<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses)					
Contact Name: ACCOUNTS PAYABLE		Contact Name: Kristen Range				P.O. #/ AFE#:		<b>PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS</b>					
Address: 530-1130 West Pender Street, Vancouver		Address: 61 Wasson Place				Project #: ENVMINO3071-01		Rush TAT (Surcharges will be applied)					
BC PC: V6E 4A4		Whitehorse, YT PC: V1A 0H7				Site Location: Kudz Ze Kayah		<input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days <input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days					
Phone:		Phone: 867-668-6225				Site #:		Date Required:					
Email: kdbergh@gmail.com		Email: kristen.range@tetratech.com				Sampled By: Kristen Range							
Regulatory Criteria		Special Instructions		Analysis Requested						Rush Confirmation #:			
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> BC CSR Water <input type="checkbox"/> CCME (Specify) <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC Water Quality		<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify)		Analysis Requested (Columns for various parameters)						LABORATORY USE ONLY CUSTODY SEAL Y (N) Present Intact COOLER TEMPERATURES NA NA 654 NA NA 645 NA NA 655 COOLING MEDIA PRESENT Y / N			
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM													
Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	ROUTINE (incl. TDS)	MAJOR IONS	NUTRIENTS (INCLUDING NO3, NO2, TOTAL P)	Low Level Dissolved Metals with CV Hg	Low Level Total Metals with CV Hg	Phosphorus (LL Tot, dosshed) -FF/FP	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	COMMENTS
1	MW15-03S	NB8922	15/09/04	16:10	water	x	x	x	x	x	13		Dissolved metals and phosphorus were field filtered and preserved.
2	MW15D-03D	NB8923	15/09/04	16:35	water	x	x	x	x	x	13		Total metals were field preserved.
3	MW15-04S	NB8924	15/09/04	15:15	water	x	x	x	x	x	13		Project number on bottles incorrect.
4	MW15D-04D	NB8925	15/09/04	13:30	water	x	x	x	x	x	13		Please change to project number
5	MW15-09S	NB8926	15/09/05	17:00	water	x	x	x	x	x	13		above
6	MW15D-09D	NB8927	15/09/05	17:55	water	x	x	x	x	x	13		
7	MW15-10S	NB8928	15/09/04	19:10	water	x	x	x	x	x	13		
8	MW15D-10D	NB8929	15/09/04	18:40	water	x	x	x	x	x	13		
9	Dup03	NB8930	15/09/04	15:15	water	x	x	x	x	x	13		
10	MW15-07S	NB8931	15/09/06	17:00	water	x	x	x	x	x	13		
11	MW15-07D	NB8932	15/09/06	17:30	water	x	x	x	x	x	13		
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #					
						2015/09/08	13:35	B577997					



Your Project #: ENVMINO3071-01

Site Location: KUDZ ZE KAYAH

Your C.O.C. #: 08411698

**Attention:KRISTEN RANGE**

TETRATECH EBA  
61 WASSON PLACE  
WHITEHORSE, YT  
Canada Y1A 0H7

**Report Date: 2015/12/16**

Report #: R2097916

Version: 2 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**MAXXAM JOB #: B579341**

**Received: 2015/09/11, 14:05**

Sample Matrix: Water  
# Samples Received: 3

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Analytical Method</b>
Acidity pH 4.5 & pH 8.3 (as CaCO3)	3	N/A	2015/09/14	BBY6SOP-00037	SM 22 2310 B m
Alkalinity - Water	3	2015/09/12	2015/09/13	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry	3	N/A	2015/09/14	BBY6SOP-00011	SM 22 4500-Cl- G m
Conductance - water	3	N/A	2015/09/13	BBY6SOP-00026	SM 22 2510 B m
Fluoride	3	N/A	2015/09/15	BBY6SOP-00048	SM 22 4500-F C m
Hardness Total (calculated as CaCO3)	1	N/A	2015/09/16	BBY7SOP-00002	EPA 6020a R1 m
Hardness Total (calculated as CaCO3)	2	N/A	2015/09/17	BBY7SOP-00002	EPA 6020a R1 m
Hardness (calculated as CaCO3)	3	N/A	2015/09/16	BBY7SOP-00002	EPA 6020a R1 m
Mercury (Dissolved-LowLevel) by CVAf	3	N/A	2015/09/16	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total-LowLevel) by CVAf	3	2015/09/15	2015/09/15	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Ion Balance	3	N/A	2015/09/17	BBY WI-00033	SM 22 1030E
Sum of cations, anions	1	N/A	2015/09/16	Calc	
Sum of cations, anions	2	N/A	2015/09/17	Calc	
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	3	N/A	2015/09/16	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Low Level (dissolved)	3	N/A	2015/09/16	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Digested LL (total)	1	2015/09/14	2015/09/16	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Digested LL (total)	2	2015/09/16	2015/09/16	BBY7SOP-00002	EPA 6020A R1 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	1	N/A	2015/09/16	BBY7SOP-00002	EPA 6020A R1 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	2	N/A	2015/09/17	BBY7SOP-00002	EPA 6020A R1 m
Nitrogen (Total)	3	2015/09/16	2015/09/16	BBY6SOP-00016	SM 22 4500-N C m
Ammonia-N (Preserved)	3	N/A	2015/09/16	BBY6SOP-00009	SM 22 4500-NH3- G m
Nitrate+Nitrite (N) (low level)	3	N/A	2015/09/12	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) (low level)	3	N/A	2015/09/12	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N)	3	N/A	2015/09/15	BBY6SOP-00010	SM 22 4500-NO3- I m
Filter and HNO3 Preserve for Metals	3	N/A	2015/09/14	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (2)	3	N/A	2015/09/13	BBY6SOP-00026	SM 22 4500-H+ B m
Orthophosphate by Konelab (low level)	3	N/A	2015/09/12	BBY6SOP-00013	SM 22 4500-P E m
Sulphate by Automated Colourimetry	3	N/A	2015/09/14	BBY6SOP-00017	SM 22 4500-SO42- E m
Total Dissolved Solids - Low Level	3	N/A	2015/09/15	BBY6SOP-00033	SM 22 2540 C m
TKN (Calc. TN, N/N) total	3	N/A	2015/09/16	BBY WI-00033	Calculation

Your Project #: ENVMINO3071-01  
 Site Location: KUDZ ZE KAYAH  
 Your C.O.C. #: 08411698

**Attention:KRISTEN RANGE**

TETRATECH EBA  
 61 WASSON PLACE  
 WHITEHORSE, YT  
 Canada Y1A 0H7

**Report Date: 2015/12/16**  
 Report #: R2097916  
 Version: 2 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**MAXXAM JOB #: B579341**

**Received: 2015/09/11, 14:05**

Sample Matrix: Water  
 # Samples Received: 3

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
Carbon (Total Organic) (1, 3)	3	N/A	2015/09/17	CAL SOP-00077	MMCW 119 1996 m
Phosphorus-P (LL Tot, dissolved) - FF/FP	3	2015/09/14	2015/09/14	BBY6SOP-00013	SM 22 4500-P E m
Total Phosphorus	3	N/A	2015/09/14	BBY6SOP-00013	SM 22 4500-P E m
Total Suspended Solids-Low Level	3	2015/09/12	2015/09/14	BBY6SOP-00034	SM 22 2540 D
Turbidity	3	N/A	2015/09/12	BBY6SOP-00027	SM 22 2130 B m

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

- (1) This test was performed by Maxxam Calgary Environmental
- (2) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.
- (3) TOC present in the sample should be considered as non-purgeable TOC.

**Encryption Key**

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Morgan Melnychuk, Burnaby Project Manager

Email: MMelnychuk@maxxam.ca

Phone# (604)638-8034 Ext:8034

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B579341  
Report Date: 2015/12/16

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		NC5341	NC5341			NC5342	NC5342	NC5343		
Sampling Date		2015/09/07 06:00	2015/09/07 06:00			2015/09/07 03:30	2015/09/07 03:30	2015/09/07 04:00		
COC Number		08411698	08411698			08411698	08411698	08411698		
	UNITS	MW15-05D	MW15-05D Lab-Dup	RDL	QC Batch	MW15-06	MW15-06 Lab-Dup	BH95G-30	RDL	QC Batch
<b>Misc. Inorganics</b>										
Acidity (pH 4.5)	mg/L	<0.50		0.50	8037113	<0.50		<0.50	0.50	8037116
Acidity (pH 8.3)	mg/L	<0.50		0.50	8037113	<0.50		<0.50	0.50	8037116
<b>Calculated Parameters</b>										
Anion Sum	meq/L	4.6		N/A	8037624	3.9		4.1	N/A	8037624
Cation Sum	meq/L	4.7		N/A	8037624	4.3		4.2	N/A	8037624
Filter and HNO3 Preservation	N/A	FIELD		N/A	ONSITE	FIELD		FIELD	N/A	ONSITE
Ion Balance	N/A	1.0		0.010	8035420	1.1		1.0	0.010	8035420
Nitrate (N)	mg/L	0.122		0.0020	8034352	0.313		0.279	0.0020	8034352
<b>Misc. Inorganics</b>										
Fluoride (F)	mg/L	0.180		0.010	8038564	0.110		0.140	0.010	8038564
Alkalinity (Total as CaCO3)	mg/L	183		0.50	8035826	171		180	0.50	8035826
Total Organic Carbon (C)	mg/L	3.3		0.50	8040514	0.64		0.85	0.50	8040514
Alkalinity (PP as CaCO3)	mg/L	<0.50		0.50	8035826	<0.50		<0.50	0.50	8035826
Bicarbonate (HCO3)	mg/L	223		0.50	8035826	209		220	0.50	8035826
Carbonate (CO3)	mg/L	<0.50		0.50	8035826	<0.50		<0.50	0.50	8035826
Hydroxide (OH)	mg/L	<0.50		0.50	8035826	<0.50		<0.50	0.50	8035826
<b>Anions</b>										
Orthophosphate (P)	mg/L	0.0014 (1)		0.0010	8035937	0.0035 (1)		0.0034 (1)	0.0010	8035937
Dissolved Sulphate (SO4)	mg/L	42.2		0.50	8037542	21.8		22.4	0.50	8037542
Dissolved Chloride (Cl)	mg/L	1.8		0.50	8037541	0.80		0.87	0.50	8037541
<b>Nutrients</b>										
Total Ammonia (N)	mg/L	0.036	0.037	0.0050	8040285	0.031		0.047	0.0050	8040285
Dissolved Phosphorus (P)	mg/L	<0.0020		0.0020	8037451	0.0029	0.0027	0.0048	0.0020	8037451
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.173		0.020	8034862	0.071		0.244	0.020	8034862
Nitrate plus Nitrite (N)	mg/L	0.138 (1)		0.0020	8035977	0.320 (1)		0.292 (1)	0.0020	8035977
Nitrite (N)	mg/L	0.0161 (1)		0.0020	8035978	0.0072 (1)		0.0130 (1)	0.0020	8035978
Total Nitrogen (N)	mg/L	0.311		0.020	8040336	0.391		0.535	0.020	8040336
Total Phosphorus (P)	mg/L	0.274		0.0020	8037452	0.0672		0.228	0.0020	8037452
<b>Physical Properties</b>										
Conductivity	uS/cm	437		1.0	8035827	366		386	1.0	8035827
pH	pH	8.19		N/A	8035828	8.07		8.17	N/A	8035828
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable (1) Sample arrived to laboratory past recommended hold time.										

Maxxam Job #: B579341  
Report Date: 2015/12/16

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		NC5341	NC5341			NC5342	NC5342	NC5343		
<b>Sampling Date</b>		2015/09/07 06:00	2015/09/07 06:00			2015/09/07 03:30	2015/09/07 03:30	2015/09/07 04:00		
<b>COC Number</b>		08411698	08411698			08411698	08411698	08411698		
	<b>UNITS</b>	<b>MW15-05D</b>	<b>MW15-05D Lab-Dup</b>	<b>RDL</b>	<b>QC Batch</b>	<b>MW15-06</b>	<b>MW15-06 Lab-Dup</b>	<b>BH95G-30</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Physical Properties</b>										
Total Suspended Solids	mg/L	1970 (1)		5.0	8035716	134		970	1.0	8035716
Total Dissolved Solids	mg/L	250		1.0	8036700	220		216	1.0	8036700
Turbidity	NTU	904 (2)		1.0	8035717	42.6 (3)		38.4 (3)	0.10	8035717

RDL = Reportable Detection Limit  
 Lab-Dup = Laboratory Initiated Duplicate  
 (1) RDL raised due to high concentration of solids in the sample.  
 (2) Sample arrived to laboratory past recommended hold time.  
 RDL raised due to sample dilution.  
 (3) Sample arrived to laboratory past recommended hold time.

Maxxam Job #: B579341  
Report Date: 2015/12/16

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		NC5341		NC5342	NC5343		
<b>Sampling Date</b>		2015/09/07 06:00		2015/09/07 03:30	2015/09/07 04:00		
<b>COC Number</b>		08411698		08411698	08411698		
	<b>UNITS</b>	<b>MW15-05D</b>	<b>QC Batch</b>	<b>MW15-06</b>	<b>BH95G-30</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Misc. Inorganics</b>							
Dissolved Hardness (CaCO3)	mg/L	154	8034175	212	203	0.50	8034175
<b>Elements</b>							
Dissolved Mercury (Hg)	mg/L	<0.0000020	8039665	<0.0000020	0.0000054	0.0000020	8039665
<b>Dissolved Metals by ICPMS</b>							
Dissolved Aluminum (Al)	mg/L	0.00546	8036907	0.00195	0.0129	0.00050	8036907
Dissolved Antimony (Sb)	mg/L	0.000023	8036907	<0.000020	0.000020	0.000020	8036907
Dissolved Arsenic (As)	mg/L	0.000190	8036907	0.000060	0.000062	0.000020	8036907
Dissolved Barium (Ba)	mg/L	0.0224	8036907	0.0686	0.0745	0.000020	8036907
Dissolved Beryllium (Be)	mg/L	<0.000010	8036907	<0.000010	<0.000010	0.000010	8036907
Dissolved Bismuth (Bi)	mg/L	<0.0000050	8036907	<0.0000050	<0.0000050	0.0000050	8036907
Dissolved Boron (B)	mg/L	<0.010	8036907	<0.010	<0.010	0.010	8036907
Dissolved Cadmium (Cd)	mg/L	0.0000270	8036907	0.000175	0.0000950	0.0000050	8036907
Dissolved Chromium (Cr)	mg/L	<0.00010	8036907	<0.00010	0.00010	0.00010	8036907
Dissolved Cobalt (Co)	mg/L	0.000148	8036907	0.0000340	0.0000560	0.0000050	8036907
Dissolved Copper (Cu)	mg/L	0.000611	8036907	0.000386	0.000623	0.000050	8036907
Dissolved Iron (Fe)	mg/L	0.0054	8036907	0.0023	0.0149	0.0010	8036907
Dissolved Lead (Pb)	mg/L	0.0000840	8036907	0.0000110	0.0000440	0.0000050	8036907
Dissolved Lithium (Li)	mg/L	0.00446	8036907	0.00152	0.00193	0.00050	8036907
Dissolved Manganese (Mn)	mg/L	0.0163	8036907	0.00122	0.00836	0.000050	8036907
Dissolved Molybdenum (Mo)	mg/L	0.00181 (1)	8036907	0.00329	0.00216	0.000050	8036907
Dissolved Nickel (Ni)	mg/L	0.000494	8036907	0.00124	0.000471	0.000020	8036907
Dissolved Phosphorus (P)	mg/L	0.0055	8036907	0.0056	0.0084	0.0020	8036907
Dissolved Selenium (Se)	mg/L	0.00162	8036907	0.00249	0.00211	0.000040	8042609
Dissolved Silicon (Si)	mg/L	2.68	8036907	3.22	3.33	0.050	8036907
Dissolved Silver (Ag)	mg/L	<0.0000050	8036907	<0.0000050	<0.0000050	0.0000050	8036907
Dissolved Strontium (Sr)	mg/L	0.300	8036907	0.216	0.238	0.000050	8036907
Dissolved Thallium (Tl)	mg/L	0.0000030	8036907	0.0000030	<0.0000020	0.0000020	8036907
Dissolved Tin (Sn)	mg/L	<0.00020	8036907	<0.00020	<0.00020	0.00020	8036907
Dissolved Titanium (Ti)	mg/L	0.00068	8036907	<0.00050	0.00054	0.00050	8036907
Dissolved Uranium (U)	mg/L	0.00415	8036907	0.00284	0.00259	0.0000020	8036907
Dissolved Vanadium (V)	mg/L	<0.00020	8036907	<0.00020	<0.00020	0.00020	8036907
Dissolved Zinc (Zn)	mg/L	0.00258	8036907	0.00403	0.00759	0.00010	8036907
Dissolved Zirconium (Zr)	mg/L	<0.00010	8036907	<0.00010	<0.00010	0.00010	8036907

RDL = Reportable Detection Limit  
(1) Dissolved greater than total. Reanalysis yields similar results.

Maxxam Job #: B579341  
Report Date: 2015/12/16

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		NC5341		NC5342	NC5343		
Sampling Date		2015/09/07 06:00		2015/09/07 03:30	2015/09/07 04:00		
COC Number		08411698		08411698	08411698		
	UNITS	MW15-05D	QC Batch	MW15-06	BH95G-30	RDL	QC Batch
Dissolved Calcium (Ca)	mg/L	52.4	8034214	74.6	69.7	0.050	8034214
Dissolved Magnesium (Mg)	mg/L	5.51	8034214	6.23	6.94	0.050	8034214
Dissolved Potassium (K)	mg/L	2.24	8034214	1.87	1.91	0.050	8034214
Dissolved Sodium (Na)	mg/L	36.2	8034214	1.34	1.44	0.050	8034214
Dissolved Sulphur (S)	mg/L	14.8	8034214	7.9	8.1	3.0	8034214
RDL = Reportable Detection Limit							

Maxxam Job #: B579341  
 Report Date: 2015/12/16

TETRATECH EBA  
 Client Project #: ENVMINO3071-01  
 Site Location: KUDZ ZE KAYAH  
 Sampler Initials: KR

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		NC5341		NC5342	NC5343		
Sampling Date		2015/09/07 06:00		2015/09/07 03:30	2015/09/07 04:00		
COC Number		08411698		08411698	08411698		
	UNITS	MW15-05D	QC Batch	MW15-06	BH95G-30	RDL	QC Batch
<b>Calculated Parameters</b>							
Total Hardness (CaCO3)	mg/L	338	8034174	196	196	0.50	8034174
<b>Elements</b>							
Total Mercury (Hg)	mg/L	<0.0000020	8038601	<0.0000020	<0.0000020	0.0000020	8038601
<b>Total Metals by ICPMS</b>							
Total Aluminum (Al)	mg/L	31.3	8037016	0.835	0.984	0.0030	8039686
Total Antimony (Sb)	mg/L	0.000082	8037016	<0.000050	0.000081	0.000050	8039686
Total Arsenic (As)	mg/L	0.00749	8037016	0.000546	0.000647	0.000020	8039686
Total Barium (Ba)	mg/L	0.231	8037016	0.0868	0.0911	0.00010	8039686
Total Beryllium (Be)	mg/L	0.00796	8037016	0.000034	0.000093	0.000010	8039686
Total Bismuth (Bi)	mg/L	0.00192	8037016	0.000021	0.000034	0.000020	8039686
Total Boron (B)	mg/L	<0.050	8037016	<0.050	<0.050	0.050	8039686
Total Cadmium (Cd)	mg/L	0.000532	8037016	0.000292	0.000230	0.000050	8039686
Total Chromium (Cr)	mg/L	0.00976	8037016	0.00229	0.00143	0.00050	8039686
Total Cobalt (Co)	mg/L	0.00876	8037016	0.00102	0.00171	0.000010	8039686
Total Copper (Cu)	mg/L	0.0564	8037016	0.00629	0.00783	0.00020	8039686
Total Iron (Fe)	mg/L	16.5	8037016	1.63	1.32	0.0050	8039686
Total Lead (Pb)	mg/L	0.0986	8037016	0.00222	0.00393	0.000050	8039686
Total Lithium (Li)	mg/L	0.0167	8037016	0.00238	0.00230	0.00050	8039686
Total Manganese (Mn)	mg/L	0.427	8037016	0.0214	0.0564	0.00010	8039686
Total Molybdenum (Mo)	mg/L	0.00146	8037016	0.00314	0.00216	0.000050	8039686
Total Nickel (Ni)	mg/L	0.0134	8037016	0.00430	0.00313	0.00010	8039686
Total Phosphorus (P)	mg/L	0.288	8037016	0.047	0.137	0.010	8039686
Total Selenium (Se)	mg/L	0.00294	8037016	0.00214	0.00180	0.000040	8039686
Total Silicon (Si)	mg/L	69.5	8037016	4.39	5.86	0.10	8039686
Total Silver (Ag)	mg/L	0.000552	8037016	0.0000320	0.000306	0.000050	8039686
Total Strontium (Sr)	mg/L	0.690	8037016	0.217	0.287	0.000050	8039686
Total Thallium (Tl)	mg/L	0.000523	8037016	0.0000200	0.0000110	0.0000020	8039686
Total Tin (Sn)	mg/L	0.00081	8037016	<0.00020	0.00031	0.00020	8039686
Total Titanium (Ti)	mg/L	0.0287	8037016	0.0440	0.0377	0.0050	8039686
Total Uranium (U)	mg/L	0.0165	8037016	0.00284	0.00295	0.0000050	8039686
Total Vanadium (V)	mg/L	0.0180	8037016	0.00341	0.00251	0.00050	8039686
Total Zinc (Zn)	mg/L	0.116	8037016	0.0185	0.0297	0.0010	8039686
Total Zirconium (Zr)	mg/L	0.00029	8037016	0.00015	0.00121	0.00010	8039686
Total Calcium (Ca)	mg/L	109	8034785	68.0	64.3	0.25	8034785
RDL = Reportable Detection Limit							

Maxxam Job #: B579341  
Report Date: 2015/12/16

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		NC5341		NC5342	NC5343		
Sampling Date		2015/09/07 06:00		2015/09/07 03:30	2015/09/07 04:00		
COC Number		08411698		08411698	08411698		
	UNITS	MW15-05D	QC Batch	MW15-06	BH95G-30	RDL	QC Batch
Total Magnesium (Mg)	mg/L	16.2	8034785	6.48	8.66	0.25	8034785
Total Potassium (K)	mg/L	6.83	8034785	2.00	2.49	0.25	8034785
Total Sodium (Na)	mg/L	39.5	8034785	1.26	1.70	0.25	8034785
Total Sulphur (S)	mg/L	<15	8034785	<15	<15	15	8034785
RDL = Reportable Detection Limit							



Maxxam Job #: B579341  
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TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
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### GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	6.3°C
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Revised report V2: Updated Client sample ID for NC5342, per client request (MM4).

Sample NC5341-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample NC5342-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample NC5343-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample NC5342, Elements by ICPMS Low Level (dissolved): Test repeated.

Sample NC5343, Elements by ICPMS Low Level (dissolved): Test repeated.

**Results relate only to the items tested.**

Maxxam Job #: B579341  
Report Date: 2015/12/16

**QUALITY ASSURANCE REPORT**

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8035716	Total Suspended Solids	2015/09/14			101	80 - 120	<1.0	mg/L		
8035717	Turbidity	2015/09/12			101	80 - 120	<0.10	NTU	NC	20
8035826	Alkalinity (PP as CaCO3)	2015/09/13					<0.50	mg/L	NC	20
8035826	Alkalinity (Total as CaCO3)	2015/09/13	NC	80 - 120	97	80 - 120	<0.50	mg/L	0.80	20
8035826	Bicarbonate (HCO3)	2015/09/13					<0.50	mg/L	0.80	20
8035826	Carbonate (CO3)	2015/09/13					<0.50	mg/L	NC	20
8035826	Hydroxide (OH)	2015/09/13					<0.50	mg/L	NC	20
8035827	Conductivity	2015/09/13			100	80 - 120	<1.0	uS/cm	0.41	20
8035828	pH	2015/09/13			102	97 - 103			0	N/A
8035937	Orthophosphate (P)	2015/09/12	107	80 - 120	91	80 - 120	<0.0010	mg/L	NC	20
8035977	Nitrate plus Nitrite (N)	2015/09/12			108	80 - 120	<0.0020	mg/L		
8035978	Nitrite (N)	2015/09/12			104	80 - 120	<0.0020	mg/L		
8036700	Total Dissolved Solids	2015/09/15	102	80 - 120	96	80 - 120	<1.0	mg/L	6.0	20
8036907	Dissolved Aluminum (Al)	2015/09/16	NC	80 - 120	100	80 - 120	<0.00050	mg/L	2.6	20
8036907	Dissolved Antimony (Sb)	2015/09/16	97	80 - 120	102	80 - 120	<0.000020	mg/L	NC	20
8036907	Dissolved Arsenic (As)	2015/09/16	97	80 - 120	99	80 - 120	<0.000020	mg/L	NC	20
8036907	Dissolved Barium (Ba)	2015/09/16	NC	80 - 120	103	80 - 120	<0.000020	mg/L	1.6	20
8036907	Dissolved Beryllium (Be)	2015/09/16	98	80 - 120	100	80 - 120	<0.000010	mg/L	NC	20
8036907	Dissolved Bismuth (Bi)	2015/09/16	97	80 - 120	99	80 - 120	<0.0000050	mg/L	NC	20
8036907	Dissolved Boron (B)	2015/09/16					<0.010	mg/L	NC	20
8036907	Dissolved Cadmium (Cd)	2015/09/16	95	80 - 120	99	80 - 120	<0.0000050	mg/L	NC	20
8036907	Dissolved Chromium (Cr)	2015/09/16	102	80 - 120	102	80 - 120	<0.00010	mg/L	NC	20
8036907	Dissolved Cobalt (Co)	2015/09/16	102	80 - 120	105	80 - 120	<0.0000050	mg/L	NC	20
8036907	Dissolved Copper (Cu)	2015/09/16	98	80 - 120	102	80 - 120	<0.000050	mg/L	0	20
8036907	Dissolved Iron (Fe)	2015/09/16	100	80 - 120	107	80 - 120	<0.0010	mg/L	1.3	20
8036907	Dissolved Lead (Pb)	2015/09/16	99	80 - 120	103	80 - 120	<0.0000050	mg/L	NC	20
8036907	Dissolved Lithium (Li)	2015/09/16	95	80 - 120	103	80 - 120	<0.00050	mg/L	NC	20
8036907	Dissolved Manganese (Mn)	2015/09/16	98	80 - 120	100	80 - 120	<0.000050	mg/L	2.0	20
8036907	Dissolved Molybdenum (Mo)	2015/09/16	NC	80 - 120	98	80 - 120	<0.000050	mg/L	2.6	20
8036907	Dissolved Nickel (Ni)	2015/09/16	98	80 - 120	101	80 - 120	<0.000020	mg/L	NC	20
8036907	Dissolved Phosphorus (P)	2015/09/16					<0.0020	mg/L	NC	20

Maxxam Job #: B579341  
Report Date: 2015/12/16

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8036907	Dissolved Selenium (Se)	2015/09/16	92	80 - 120	96	80 - 120	<0.000040	mg/L	2.7	20
8036907	Dissolved Silicon (Si)	2015/09/16					<0.050	mg/L	3.4	20
8036907	Dissolved Silver (Ag)	2015/09/16	101	80 - 120	95	80 - 120	<0.0000050	mg/L	NC	20
8036907	Dissolved Strontium (Sr)	2015/09/16	NC	80 - 120	100	80 - 120	<0.000050	mg/L	0.35	20
8036907	Dissolved Thallium (Tl)	2015/09/16	99	80 - 120	99	80 - 120	<0.0000020	mg/L	NC	20
8036907	Dissolved Tin (Sn)	2015/09/16	NC	80 - 120	102	80 - 120	<0.00020	mg/L	2.2	20
8036907	Dissolved Titanium (Ti)	2015/09/16	97	80 - 120	96	80 - 120	<0.00050	mg/L	NC	20
8036907	Dissolved Uranium (U)	2015/09/16	101	80 - 120	102	80 - 120	<0.0000020	mg/L	2.9	20
8036907	Dissolved Vanadium (V)	2015/09/16	103	80 - 120	108	80 - 120	<0.00020	mg/L	4.5	20
8036907	Dissolved Zinc (Zn)	2015/09/16	98	80 - 120	101	80 - 120	<0.00010	mg/L	4.1	20
8036907	Dissolved Zirconium (Zr)	2015/09/16					<0.00010	mg/L	NC	20
8037016	Total Aluminum (Al)	2015/09/16	99	80 - 120	108	80 - 120	<0.0030	mg/L	NC	20
8037016	Total Antimony (Sb)	2015/09/16	107	80 - 120	100	80 - 120	<0.000050	mg/L	NC	20
8037016	Total Arsenic (As)	2015/09/16	103	80 - 120	100	80 - 120	<0.000020	mg/L	1.1	20
8037016	Total Barium (Ba)	2015/09/16	NC	80 - 120	103	80 - 120	<0.00010	mg/L	1.8	20
8037016	Total Beryllium (Be)	2015/09/16	100	80 - 120	100	80 - 120	<0.000010	mg/L	NC	20
8037016	Total Bismuth (Bi)	2015/09/16	103	80 - 120	104	80 - 120	<0.000020	mg/L	NC	20
8037016	Total Boron (B)	2015/09/16					<0.050	mg/L	NC	20
8037016	Total Cadmium (Cd)	2015/09/16	102	80 - 120	99	80 - 120	<0.0000050	mg/L	NC	20
8037016	Total Chromium (Cr)	2015/09/16	107	80 - 120	106	80 - 120	<0.00050	mg/L	NC	20
8037016	Total Cobalt (Co)	2015/09/16	106	80 - 120	107	80 - 120	<0.000010	mg/L	0	20
8037016	Total Copper (Cu)	2015/09/16	100	80 - 120	110	80 - 120	0.00025, RDL=0.00020	mg/L	NC	20
8037016	Total Iron (Fe)	2015/09/16	NC	80 - 120	108	80 - 120	<0.0050	mg/L	1.5	20
8037016	Total Lead (Pb)	2015/09/16	107	80 - 120	108	80 - 120	<0.000050	mg/L	NC	20
8037016	Total Lithium (Li)	2015/09/16	98	80 - 120	100	80 - 120	<0.00050	mg/L	5.8	20
8037016	Total Manganese (Mn)	2015/09/16	NC	80 - 120	105	80 - 120	<0.00010	mg/L	0.0055	20
8037016	Total Molybdenum (Mo)	2015/09/16	110	80 - 120	99	80 - 120	<0.000050	mg/L	NC	20
8037016	Total Nickel (Ni)	2015/09/16	102	80 - 120	104	80 - 120	<0.00010	mg/L	NC	20
8037016	Total Phosphorus (P)	2015/09/16					<0.010	mg/L		
8037016	Total Selenium (Se)	2015/09/16	93	80 - 120	91	80 - 120	<0.000040	mg/L	NC	20

Maxxam Job #: B579341  
Report Date: 2015/12/16

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8037016	Total Silicon (Si)	2015/09/16					<0.10	mg/L	0.98	20
8037016	Total Silver (Ag)	2015/09/16	109	80 - 120	102	80 - 120	<0.0000050	mg/L	NC	20
8037016	Total Strontium (Sr)	2015/09/16	NC	80 - 120	104	80 - 120	<0.000050	mg/L	2.2	20
8037016	Total Thallium (Tl)	2015/09/16	105	80 - 120	104	80 - 120	<0.0000020	mg/L	NC	20
8037016	Total Tin (Sn)	2015/09/16	107	80 - 120	101	80 - 120	<0.00020	mg/L	NC	20
8037016	Total Titanium (Ti)	2015/09/16	109	80 - 120	101	80 - 120	<0.0050	mg/L	NC	20
8037016	Total Uranium (U)	2015/09/16	110	80 - 120	108	80 - 120	<0.0000050	mg/L	2.4	20
8037016	Total Vanadium (V)	2015/09/16	114	80 - 120	96	80 - 120	<0.00050	mg/L	NC	20
8037016	Total Zinc (Zn)	2015/09/16	96	80 - 120	107	80 - 120	<0.0010	mg/L	NC	20
8037016	Total Zirconium (Zr)	2015/09/16					<0.00010	mg/L	NC	20
8037113	Acidity (pH 4.5)	2015/09/14					<0.50	mg/L	NC	20
8037113	Acidity (pH 8.3)	2015/09/14			99	80 - 120	<0.50	mg/L	NC	20
8037116	Acidity (pH 4.5)	2015/09/14					<0.50	mg/L	NC	20
8037116	Acidity (pH 8.3)	2015/09/14			98	80 - 120	<0.50	mg/L	NC	20
8037451	Dissolved Phosphorus (P)	2015/09/14	93	80 - 120	104	80 - 120	<0.0020	mg/L	NC	20
8037452	Total Phosphorus (P)	2015/09/14	NC	80 - 120	100	80 - 120	<0.0020	mg/L	NC	20
8037541	Dissolved Chloride (Cl)	2015/09/14	NC	80 - 120	96	80 - 120	<0.50	mg/L	0.86	20
8037542	Dissolved Sulphate (SO4)	2015/09/14	NC	80 - 120	102	80 - 120	<0.50	mg/L	0.0026	20
8038564	Fluoride (F)	2015/09/15	103	80 - 120	98	80 - 120	<0.010	mg/L	NC	20
8038601	Total Mercury (Hg)	2015/09/15	110	80 - 120	108	80 - 120	<0.0000020	mg/L	NC	20
8039665	Dissolved Mercury (Hg)	2015/09/16	83	80 - 120	87	80 - 120	<0.0000020	mg/L	NC	20
8039686	Total Aluminum (Al)	2015/09/16	93	80 - 120	105	80 - 120	<0.0030	mg/L	6.8	20
8039686	Total Antimony (Sb)	2015/09/16	107	80 - 120	98	80 - 120	<0.000050	mg/L	NC	20
8039686	Total Arsenic (As)	2015/09/16	99	80 - 120	108	80 - 120	<0.000020	mg/L	6.7	20
8039686	Total Barium (Ba)	2015/09/16	NC	80 - 120	103	80 - 120	<0.00010	mg/L	0.58	20
8039686	Total Beryllium (Be)	2015/09/16	97	80 - 120	98	80 - 120	<0.000010	mg/L	NC	20
8039686	Total Bismuth (Bi)	2015/09/16	96	80 - 120	100	80 - 120	<0.000020	mg/L	NC	20
8039686	Total Boron (B)	2015/09/16					<0.050	mg/L	NC	20
8039686	Total Cadmium (Cd)	2015/09/16	97	80 - 120	99	80 - 120	<0.0000050	mg/L	NC	20
8039686	Total Chromium (Cr)	2015/09/16	105	80 - 120	117	80 - 120	<0.00050	mg/L	NC	20
8039686	Total Cobalt (Co)	2015/09/16	102	80 - 120	118	80 - 120	<0.000010	mg/L	0	20

Maxxam Job #: B579341  
Report Date: 2015/12/16

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8039686	Total Copper (Cu)	2015/09/16	97	80 - 120	109	80 - 120	<0.00020	mg/L	NC	20
8039686	Total Iron (Fe)	2015/09/16	NC	80 - 120	94	80 - 120	<0.0050	mg/L	0.50	20
8039686	Total Lead (Pb)	2015/09/16	102	80 - 120	104	80 - 120	<0.000050	mg/L	NC	20
8039686	Total Lithium (Li)	2015/09/16	NC	80 - 120	105	80 - 120	<0.00050	mg/L	5.8	20
8039686	Total Manganese (Mn)	2015/09/16	100	80 - 120	115	80 - 120	<0.00010	mg/L	2.9	20
8039686	Total Molybdenum (Mo)	2015/09/16	NC	80 - 120	99	80 - 120	<0.000050	mg/L	7.4	20
8039686	Total Nickel (Ni)	2015/09/16	96	80 - 120	113	80 - 120	<0.00010	mg/L	NC	20
8039686	Total Phosphorus (P)	2015/09/16					<0.010	mg/L		
8039686	Total Selenium (Se)	2015/09/16	91	80 - 120	98	80 - 120	<0.000040	mg/L	NC	20
8039686	Total Silicon (Si)	2015/09/16					<0.10	mg/L	0.48	20
8039686	Total Silver (Ag)	2015/09/16	105	80 - 120	101	80 - 120	<0.0000050	mg/L	NC	20
8039686	Total Strontium (Sr)	2015/09/16	NC	80 - 120	113	80 - 120	<0.000050	mg/L	2.5	20
8039686	Total Thallium (Tl)	2015/09/16	100	80 - 120	100	80 - 120	<0.0000020	mg/L	NC	20
8039686	Total Tin (Sn)	2015/09/16	113	80 - 120	108	80 - 120	<0.00020	mg/L	NC	20
8039686	Total Titanium (Ti)	2015/09/16	130 (1)	80 - 120	108	80 - 120	<0.0050	mg/L	NC	20
8039686	Total Uranium (U)	2015/09/16	105	80 - 120	104	80 - 120	<0.0000050	mg/L	0.87	20
8039686	Total Vanadium (V)	2015/09/16	109	80 - 120	117	80 - 120	<0.00050	mg/L	NC	20
8039686	Total Zinc (Zn)	2015/09/16	NC	80 - 120	110	80 - 120	<0.0010	mg/L	3.2	20
8039686	Total Zirconium (Zr)	2015/09/16					<0.00010	mg/L	NC	20
8040285	Total Ammonia (N)	2015/09/16	98	80 - 120	101	80 - 120	<0.0050	mg/L	4.2	20
8040336	Total Nitrogen (N)	2015/09/16			110	80 - 120	<0.020	mg/L		
8040514	Total Organic Carbon (C)	2015/09/17	NC	80 - 120	99	80 - 120	<0.50	mg/L	0.20	20

Maxxam Job #: B579341  
Report Date: 2015/12/16

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8042609	Dissolved Selenium (Se)	2015/09/18	94	80 - 120	91	80 - 120	<0.000040	mg/L	NC	20

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

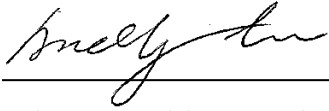
(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Maxxam Job #: B579341  
Report Date: 2015/12/16

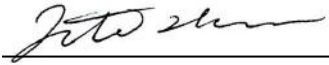
TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: KR

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Andy Lu, Data Validation Coordinator



Lili Zhou, Senior analyst, Inorganic department.

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



08411698

Invoice Information		Report Information (If differs from Invoice)				Project Inform				Turnaround Time (TAT) Required			
Company Name: #11954 BMC Mineral (NO. 1) LTD.		Company Name: #31161 Tetra Tech EBA				Quotation #: B50743				<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses)			
Contact Name: ACCOUNTS PAYABLE		Contact Name: Kristen Range				P.O. #/ AFE#:				PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS			
Address: 530-1130 West Pender Street, Vancouver		Address: 51 Wasson Place				Project #: ENVMINO3071-01				Rush TAT (Surcharges will be applied)			
BC PC: V6E 4A4		Whitewater, YT PC: V1A 0H7				Site Location: Kudz Ze Kayah				<input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days <input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days			
Phone:		Phone: 867-668-6225				Site #:				Date Required:			
Email: kdbergh@gmail.com		Email: kristen.range@tetratech.com				Sampled By: Kristen Range							
Regulatory Criteria		Special Instructions		Analysis Requested				Rush Confirmation #:					
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> BC CSR Water <input type="checkbox"/> CCME (Specify): <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC Water Quality		<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify)		MAJOR IONS NUTRIENTS (INCLUDING NO3, NO2, TOTAL P) Low Level Dissolved Metals with CV Hg Low Level Total Metals with CV Hg Phosphorus (LL Tot, Dissolved) FF/FP				LABORATORY USE ONLY CUSTODY SEAL Y/N <input checked="" type="checkbox"/> N Present Intact NA 6/6/7 COOLING MEDIA PRESENT <input checked="" type="checkbox"/> Y / N COMMENTS					
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM													
Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH-MM)	Matrix	ROUTINE (incl. TD5)	MAJOR IONS	NUTRIENTS (INCLUDING NO3, NO2, TOTAL P)	Low Level Dissolved Metals with CV Hg	Low Level Total Metals with CV Hg	Phosphorus (LL Tot, Dissolved) FF/FP	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	COMMENTS
1	MW15-05D	NC5341	15/09/07	6:00	water	x	x	x	x	x	13		Dissolved metals and phosphorus were field filtered and preserved.
2	MW15D-06	NC5342	15/09/07	3:30	water	x	x	x	x	x	13		Total metals were field preserved.
3	BH95G-30	NC5343	15/09/07	4:00	water	x	x	x	x	x	13		Project number on bottles incorrect.
4													Please change to project number
5													above
6													
7													
8													
9													
10													
11													
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #					
				M. Laurel Beahmer		2015/09/11	14:05	B579341					



Your P.O. #: B50743  
Your Project #: ENVMIN03071-01  
Your C.O.C. #: f92345

**Attention:KRISTEN RANGE**

TETRATECH EBA  
61 WASSON PLACE  
WHITEHORSE, YT  
Canada Y1A 0H7

**Report Date: 2016/01/19**  
Report #: R2119175  
Version: 3 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**MAXXAM JOB #: B584163**

**Received: 2015/09/25, 13:20**

Sample Matrix: Water  
# Samples Received: 9

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
Acidity pH 4.5 & pH 8.3 (as CaCO3)	9	N/A	2015/09/29	BBY6SOP-00037	SM 22 2310 B m
Alkalinity - Water	8	2015/09/29	2015/09/29	BBY6SOP-00026	SM 22 2320 B m
Alkalinity - Water	1	2015/10/02	2015/10/02	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry	9	N/A	2015/09/28	BBY6SOP-00011	SM 22 4500-Cl- G m
Conductance - water	9	N/A	2015/09/29	BBY6SOP-00026	SM 22 2510 B m
Fluoride	9	N/A	2015/09/28	BBY6SOP-00048	SM 22 4500-F C m
Hardness Total (calculated as CaCO3)	9	N/A	2015/09/29	BBY7SOP-00002	EPA 6020a R1 m
Hardness (calculated as CaCO3)	9	N/A	2015/09/28	BBY7SOP-00002	EPA 6020a R1 m
Mercury (Dissolved-LowLevel) by CVAF	9	N/A	2015/09/29	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total-LowLevel) by CVAF	9	2015/09/28	2015/09/29	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Ion Balance	9	N/A	2015/09/30	BBY WI-00033	SM 22 1030E
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	9	N/A	2015/09/28	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Low Level (dissolved)	9	N/A	2015/09/28	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Digested LL (total)	4	2015/09/28	2015/09/29	BBY7SOP-00002	EPA 6020A R1 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	9	N/A	2015/09/29	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Low Level (total)	5	N/A	2015/09/28	BBY7SOP-00002	EPA 6020A R1 m
Nitrogen (Total)	9	2015/09/28	2015/09/28	BBY6SOP-00016	SM 22 4500-N C m
Ammonia-N (Unpreserved)	1	N/A	2015/09/28	BBY6SOP-00009	SM 22 4500-NH3- G m
Ammonia-N (Preserved)	8	N/A	2015/09/29	BBY6SOP-00009	SM 22 4500-NH3- G m
Nitrate+Nitrite (N) (low level)	9	N/A	2015/09/26	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) (low level)	9	N/A	2015/09/26	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N)	9	N/A	2015/09/26	BBY6SOP-00010	SM 22 4500-NO3- I m
Filter and HNO3 Preserve for Metals	8	N/A	2015/09/26	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (2)	9	N/A	2015/09/29	BBY6SOP-00026	SM 22 4500-H+ B m
Orthophosphate by Konelab (low level)	8	N/A	2015/09/26	BBY6SOP-00013	SM 22 4500-P E m
Orthophosphate by Konelab (low level)	1	N/A	2015/09/29	BBY6SOP-00013	SM 22 4500-P E m
Sulphate by Automated Colourimetry	8	N/A	2015/09/28	BBY6SOP-00017	SM 22 4500-SO42- E m
Sulphate by Automated Colourimetry	1	N/A	2015/09/29	BBY6SOP-00017	SM 22 4500-SO42- E m
Total Dissolved Solids - Low Level	9	N/A	2015/09/30	BBY6SOP-00033	SM 22 2540 C m
TKN (Calc. TN, N/N) total	9	N/A	2015/09/29	BBY WI-00033	Calculation

Your P.O. #: B50743  
Your Project #: ENVMIN03071-01  
Your C.O.C. #: f92345

**Attention:KRISTEN RANGE**

TETRATECH EBA  
61 WASSON PLACE  
WHITEHORSE, YT  
Canada Y1A 0H7

**Report Date: 2016/01/19**  
Report #: R2119175  
Version: 3 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**MAXXAM JOB #: B584163**

**Received: 2015/09/25, 13:20**

Sample Matrix: Water  
# Samples Received: 9

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
Carbon (Total Organic) (1, 3)	9	N/A	2015/09/29	CAL SOP-00077	MMCW 119 1996 m
Phosphorus-P (LL Tot, dissolved) - FF/FP	5	2015/09/26	2015/09/26	BBY6SOP-00013	SM 22 4500-P E m
Phosphorus-P (LL Tot, dissolved) - FF/FP	1	2015/09/29	2015/09/29	BBY6SOP-00013	SM 22 4500-P E m
Phosphorus-P (LL Tot, dissolved) - FF/FP	2	2015/10/01	2015/10/01	BBY6SOP-00013	SM 22 4500-P E m
Phosphorus-P (LL Tot, dissolved) - UF/UP	1	2015/09/26	2015/09/26	BBY6SOP-00013	SM 22 4500-P E m
Total Phosphorus	8	N/A	2015/09/26	BBY6SOP-00013	SM 22 4500-P E m
Total Phosphorus - unpreserved	1	N/A	2015/09/26	BBY6SOP-00013	SM 22 4500-P E m
Total Suspended Solids-Low Level	9	2015/09/28	2015/09/29	BBY6SOP-00034	SM 22 2540 D
Turbidity	6	N/A	2015/09/26	BBY6SOP-00027	SM 22 2130 B m
Turbidity	3	N/A	2015/09/29	BBY6SOP-00027	SM 22 2130 B m

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

- (1) This test was performed by Maxxam Calgary Environmental
- (2) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.
- (3) TOC present in the sample should be considered as non-purgeable TOC.

**Encryption Key**

Please direct all questions regarding this Certificate of Analysis to your Project Manager.  
Morgan Melnychuk, Burnaby Project Manager  
Email: MMelnychuk@maxxam.ca  
Phone# (604)638-8034 Ext:8034

=====  
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B584163  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Your P.O. #: B50743  
Sampler Initials: KR

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		NF4894	NF4894		NF4895	NF4895		
Sampling Date		2015/09/21 13:20	2015/09/21 13:20		2015/09/21 10:05	2015/09/21 10:05		
COC Number		f92345	f92345		f92345	f92345		
	UNITS	WW15-02	WW15-02 Lab-Dup	QC Batch	ART - 3 (3)	ART - 3 (3) Lab-Dup	RDL	QC Batch
<b>Calculated Parameters</b>								
Filter and HNO3 Preservation	N/A	FIELD		ONSITE	FIELD		N/A	ONSITE
Ion Balance	N/A	1.0		8050868	1.1		0.010	8050868
Nitrate (N)	mg/L	<0.0020		8050214	0.0052		0.0020	8050214
<b>Misc. Inorganics</b>								
Fluoride (F)	mg/L	0.120		8053830	0.160		0.010	8053830
Acidity (pH 4.5)	mg/L	<0.50		8055436	<0.50		0.50	8055436
Alkalinity (Total as CaCO3)	mg/L	174		8055795	98.4		0.50	8055795
Total Organic Carbon (C)	mg/L	0.81	0.80	8054670	0.61		0.50	8054670
Acidity (pH 8.3)	mg/L	<0.50		8055436	1.95		0.50	8055436
Alkalinity (PP as CaCO3)	mg/L	<0.50		8055795	<0.50		0.50	8055795
Bicarbonate (HCO3)	mg/L	212		8055795	120		0.50	8055795
Carbonate (CO3)	mg/L	<0.50		8055795	<0.50		0.50	8055795
Hydroxide (OH)	mg/L	<0.50		8055795	<0.50		0.50	8055795
<b>Anions</b>								
Orthophosphate (P)	mg/L	0.0021 (1)		8052082	0.0019 (1)		0.0010	8052082
Dissolved Sulphate (SO4)	mg/L	59.4		8053859	88.0		0.50	8053859
Dissolved Chloride (Cl)	mg/L	0.71		8053858	0.72		0.50	8053858
<b>Nutrients</b>								
Total Ammonia (N)	mg/L	0.027		8055210	0.038		0.0050	8055210
Dissolved Phosphorus (P)	mg/L	0.0020		8052111	0.0176	0.0177	0.0020	8058340
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.087		8050875	0.065		0.020	8050875
Nitrate plus Nitrite (N)	mg/L	<0.0020 (1)		8052193	0.0052 (1)		0.0020	8052193
Nitrite (N)	mg/L	<0.0020 (1)		8052194	<0.0020 (1)		0.0020	8052194
Total Nitrogen (N)	mg/L	0.087		8053081	0.070		0.020	8053081
Total Phosphorus (P)	mg/L	0.0457	0.0463	8052108	0.0290		0.0020	8052108
<b>Physical Properties</b>								
Conductivity	uS/cm	442		8055799	378		1.0	8055799
pH	pH	8.22		8055800	7.91		N/A	8055800
<b>Physical Properties</b>								
Total Suspended Solids	mg/L	53.3		8051628	4.6		1.0	8051628
Total Dissolved Solids	mg/L	282		8051653	256		1.0	8051653
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate (1) Sample arrived to laboratory past recommended hold time.								

Maxxam Job #: B584163  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Your P.O. #: B50743  
Sampler Initials: KR

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		NF4894	NF4894		NF4895	NF4895		
<b>Sampling Date</b>		2015/09/21 13:20	2015/09/21 13:20		2015/09/21 10:05	2015/09/21 10:05		
<b>COC Number</b>		f92345	f92345		f92345	f92345		
	<b>UNITS</b>	<b>WW15-02</b>	<b>WW15-02 Lab-Dup</b>	<b>QC Batch</b>	<b>ART - 3 (3)</b>	<b>ART - 3 (3) Lab-Dup</b>	<b>RDL</b>	<b>QC Batch</b>
Turbidity	NTU	26.9 (1)		8054917	17.1 (1)		0.10	8054917

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

(1) Sample arrived to laboratory past recommended hold time.

Maxxam Job #: B584163  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Your P.O. #: B50743  
Sampler Initials: KR

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		NF4896	NF4896			NF4897		
Sampling Date		2015/09/23 17:00	2015/09/23 17:00			2015/09/22 14:30		
COC Number		f92345	f92345			f92345		
	UNITS	ART - 3 (1)	ART - 3 (1) Lab-Dup	RDL	QC Batch	BH95G-31	RDL	QC Batch
<b>Calculated Parameters</b>								
Filter and HNO3 Preservation	N/A	FIELD		N/A	ONSITE	FIELD	N/A	ONSITE
Ion Balance	N/A	1.1		0.010	8050868	1.0	0.010	8050868
Nitrate (N)	mg/L	<0.0020		0.0020	8050214	0.192	0.0020	8050214
<b>Misc. Inorganics</b>								
Fluoride (F)	mg/L	0.170		0.010	8053830	0.100	0.010	8053830
Acidity (pH 4.5)	mg/L	<0.50		0.50	8055436	<0.50	0.50	8055436
Alkalinity (Total as CaCO3)	mg/L	106		0.50	8055795	126	0.50	8055795
Total Organic Carbon (C)	mg/L	2.7		0.50	8054670	2.4	0.50	8054670
Acidity (pH 8.3)	mg/L	2.04		0.50	8055436	<0.50	0.50	8055436
Alkalinity (PP as CaCO3)	mg/L	<0.50		0.50	8055795	<0.50	0.50	8055795
Bicarbonate (HCO3)	mg/L	130		0.50	8055795	154	0.50	8055795
Carbonate (CO3)	mg/L	<0.50		0.50	8055795	<0.50	0.50	8055795
Hydroxide (OH)	mg/L	<0.50		0.50	8055795	<0.50	0.50	8055795
<b>Anions</b>								
Orthophosphate (P)	mg/L	0.0017		0.0010	8052082	0.0045 (1)	0.0010	8055491
Dissolved Sulphate (SO4)	mg/L	87.7		0.50	8053859	20.0	0.50	8055217
Dissolved Chloride (Cl)	mg/L	<0.50		0.50	8053858	0.54	0.50	8053858
<b>Nutrients</b>								
Total Ammonia (N)	mg/L	0.039		0.0050	8055210	0.22	0.0050	8055210
Dissolved Phosphorus (P)	mg/L	0.0177		0.0020	8058340	0.0028	0.0020	8055506
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.096		0.020	8050875	0.431	0.020	8050875
Nitrate plus Nitrite (N)	mg/L	<0.0020		0.0020	8052193	0.199 (1)	0.0020	8052193
Nitrite (N)	mg/L	<0.0020		0.0020	8052194	0.0075 (1)	0.0020	8052194
Total Nitrogen (N)	mg/L	0.096		0.020	8053081	0.630	0.020	8053081
Total Phosphorus (P)	mg/L	0.0235		0.0020	8052108	4.67	0.020	8052108
<b>Physical Properties</b>								
Conductivity	uS/cm	389		1.0	8055799	286	1.0	8055799
pH	pH	7.90		N/A	8055800	8.17	N/A	8055800
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable (1) Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis.								

Maxxam Job #: B584163  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Your P.O. #: B50743  
Sampler Initials: KR

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		NF4896	NF4896			NF4897		
<b>Sampling Date</b>		2015/09/23 17:00	2015/09/23 17:00			2015/09/22 14:30		
<b>COC Number</b>		f92345	f92345			f92345		
	<b>UNITS</b>	<b>ART - 3 (1)</b>	<b>ART - 3 (1) Lab-Dup</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH95G-31</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Physical Properties</b>								
Total Suspended Solids	mg/L	5.7		1.0	8052950	5060	1.0	8052950
Total Dissolved Solids	mg/L	258		1.0	8051653	174	1.0	8051653
Turbidity	NTU	15.0	17.0	0.10	8052129	2450 (1)	0.10	8052129
<p>RDL = Reportable Detection Limit          Lab-Dup = Laboratory Initiated Duplicate          (1) Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis.</p>								

Maxxam Job #: B584163  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Your P.O. #: B50743  
Sampler Initials: KR

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		NF4898		NF4899			NF4900	NF4900		
<b>Sampling Date</b>		2015/09/23 17:00		2015/09/25 13:20			2015/09/22 13:40	2015/09/22 13:40		
<b>COC Number</b>		f92345		f92345			f92345	f92345		
	<b>UNITS</b>	<b>DUP04</b>	<b>QC Batch</b>	<b>TRIP BLANK</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH95G-32</b>	<b>BH95G-32 Lab-Dup</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Calculated Parameters</b>											
Filter and HNO3 Preservation	N/A	FIELD	ONSITE			N/A	ONSITE	FIELD		N/A	ONSITE
Ion Balance	N/A	1.1	8050868	0.086	0.010	8050868	1.1		0.010	8050868	
Nitrate (N)	mg/L	0.0027	8050214	<0.0020	0.0020	8050214	0.0443		0.0020	8050214	

<b>Misc. Inorganics</b>										
Fluoride (F)	mg/L	0.170	8053830	<0.010	0.010	8053837	0.041		0.010	8053830
Acidity (pH 4.5)	mg/L	<0.50	8055436	<0.50	0.50	8055436	<0.50		0.50	8055436
Alkalinity (Total as CaCO3)	mg/L	107	8055795	0.93	0.50	8059876	159		0.50	8055795
Total Organic Carbon (C)	mg/L	0.89	8054670	<0.50	0.50	8054670	0.93		0.50	8054670
Acidity (pH 8.3)	mg/L	2.76	8055436	<0.50	0.50	8055436	<0.50		0.50	8055436
Alkalinity (PP as CaCO3)	mg/L	<0.50	8055795	<0.50	0.50	8059876	<0.50		0.50	8055795
Bicarbonate (HCO3)	mg/L	130	8055795	1.13	0.50	8059876	193		0.50	8055795
Carbonate (CO3)	mg/L	<0.50	8055795	<0.50	0.50	8059876	<0.50		0.50	8055795
Hydroxide (OH)	mg/L	<0.50	8055795	<0.50	0.50	8059876	<0.50		0.50	8055795

<b>Anions</b>										
Orthophosphate (P)	mg/L	0.0050	8052082	0.0010	0.0010	8052082	0.0056 (1)		0.0010	8052082
Dissolved Sulphate (SO4)	mg/L	86.8	8053859	<0.50	0.50	8053868	33.3		0.50	8053859
Dissolved Chloride (Cl)	mg/L	0.65	8053858	<0.50	0.50	8053867	0.55		0.50	8053858

<b>Nutrients</b>										
Total Ammonia (N)	mg/L	0.064	8055210		0.0050		0.14		0.0050	8055210
Dissolved Phosphorus (P)	mg/L	0.0197	8052111	<0.0020	0.0020	8052114	0.0027	0.0026	0.0020	8052111
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.039	8050875	<0.020	0.020	8050875	0.146		0.020	8050875
Total Ammonia (N)	mg/L			0.0106	0.0050	8052206			0.0050	
Nitrate plus Nitrite (N)	mg/L	0.0027	8052193	<0.0020	0.0020	8052193	0.0443 (1)		0.0020	8052193
Nitrite (N)	mg/L	<0.0020	8052194	<0.0020	0.0020	8052194	<0.0020 (1)		0.0020	8052194
Total Nitrogen (N)	mg/L	0.041	8053081	<0.020	0.020	8053081	0.191		0.020	8053081
Total Phosphorus (P)	mg/L	0.0280	8052108	<0.0020	0.0020	8052116	2.13		0.020	8052108

<b>Physical Properties</b>										
Conductivity	uS/cm	389	8055799	1.2	1.0	8055799	375		1.0	8055799
pH	pH	7.96	8055800	6.08	N/A	8055800	8.12		N/A	8055800

RDL = Reportable Detection Limit  
Lab-Dup = Laboratory Initiated Duplicate  
N/A = Not Applicable  
(1) Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis.

Maxxam Job #: B584163  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Your P.O. #: B50743  
Sampler Initials: KR

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		NF4898		NF4899			NF4900	NF4900		
<b>Sampling Date</b>		2015/09/23 17:00		2015/09/25 13:20			2015/09/22 13:40	2015/09/22 13:40		
<b>COC Number</b>		f92345		f92345			f92345	f92345		
	<b>UNITS</b>	<b>DUP04</b>	<b>QC Batch</b>	<b>TRIP BLANK</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH95G-32</b>	<b>BH95G-32 Lab-Dup</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Physical Properties</b>										
Total Suspended Solids	mg/L	5.5	8052950	<1.0	1.0	8052950	3050 (1)		10	8052950
Total Dissolved Solids	mg/L	262	8051653	1.2	1.0	8051653	246		1.0	8051653
Turbidity	NTU	29.6	8052129	<0.10	0.10	8052129	1950 (2)		0.10	8052129

RDL = Reportable Detection Limit  
Lab-Dup = Laboratory Initiated Duplicate  
(1) RDL raised due to high concentration of solids in the sample.  
(2) Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis.



Maxxam Job #: B584163  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Your P.O. #: B50743  
Sampler Initials: KR

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		NF4901			NF4902	NF4902		
Sampling Date		2015/09/22 12:30			2015/09/22 11:15	2015/09/22 11:15		
COC Number		f92345			f92345	f92345		
	UNITS	BH95G-33D	RDL	QC Batch	BH95G-2	BH95G-2 Lab-Dup	RDL	QC Batch
<b>Calculated Parameters</b>								
Filter and HNO3 Preservation	N/A	FIELD	N/A	ONSITE	FIELD		N/A	ONSITE
Ion Balance	N/A	1.1	0.010	8050868	1.0		0.010	8050868
Nitrate (N)	mg/L	0.191	0.0020	8050214	0.387		0.0020	8050214
<b>Misc. Inorganics</b>								
Fluoride (F)	mg/L	0.053	0.010	8053830	0.059		0.010	8053830
Acidity (pH 4.5)	mg/L	<0.50	0.50	8055436	<0.50	<0.50	0.50	8055436
Alkalinity (Total as CaCO3)	mg/L	165	0.50	8055795	247		0.50	8055795
Total Organic Carbon (C)	mg/L	1.4	0.50	8054670	0.60		0.50	8054670
Acidity (pH 8.3)	mg/L	<0.50	0.50	8055436	<0.50	<0.50	0.50	8055436
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8055795	2.54		0.50	8055795
Bicarbonate (HCO3)	mg/L	201	0.50	8055795	295		0.50	8055795
Carbonate (CO3)	mg/L	<0.50	0.50	8055795	3.05		0.50	8055795
Hydroxide (OH)	mg/L	<0.50	0.50	8055795	<0.50		0.50	8055795
<b>Anions</b>								
Orthophosphate (P)	mg/L	0.0038 (1)	0.0010	8052082	0.0073 (1)	0.0066	0.0010	8052089
Dissolved Sulphate (SO4)	mg/L	64.7	0.50	8053859	45.2		0.50	8053859
Dissolved Chloride (Cl)	mg/L	0.83	0.50	8053858	0.96		0.50	8053858
<b>Nutrients</b>								
Total Ammonia (N)	mg/L	0.032	0.0050	8055210	0.0097		0.0050	8055210
Dissolved Phosphorus (P)	mg/L	0.0029	0.0020	8052111	0.0060		0.0020	8052111
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.080	0.020	8050875	<0.020		0.020	8050875
Nitrate plus Nitrite (N)	mg/L	0.191 (1)	0.0020	8052193	0.387 (1)		0.0020	8052193
Nitrite (N)	mg/L	<0.0020 (1)	0.0020	8052194	<0.0020 (1)		0.0020	8052194
Total Nitrogen (N)	mg/L	0.271	0.020	8053081	0.327		0.020	8053081
Total Phosphorus (P)	mg/L	0.832	0.020	8052108	0.0314		0.0020	8052108
<b>Physical Properties</b>								
Conductivity	uS/cm	441	1.0	8055799	518		1.0	8055799
pH	pH	8.16	N/A	8055800	8.32		N/A	8055800
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable (1) Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis.								

Maxxam Job #: B584163  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Your P.O. #: B50743  
Sampler Initials: KR

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		NF4901			NF4902	NF4902		
Sampling Date		2015/09/22 12:30			2015/09/22 11:15	2015/09/22 11:15		
COC Number		f92345			f92345	f92345		
	UNITS	BH95G-33D	RDL	QC Batch	BH95G-2	BH95G-2 Lab-Dup	RDL	QC Batch
<b>Physical Properties</b>								
Total Suspended Solids	mg/L	900 (1)	20	8052950	54.3		1.0	8052950
Total Dissolved Solids	mg/L	286	1.0	8051653	316		1.0	8051653
Turbidity	NTU	561 (2)	0.10	8052129	2.27 (2)		0.10	8054917
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate (1) RDL raised due to high concentration of solids in the sample. (2) Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis.								

Maxxam Job #: B584163  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Your P.O. #: B50743  
Sampler Initials: KR

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		NF4894	NF4895	NF4896	NF4896	NF4897		
Sampling Date		2015/09/21 13:20	2015/09/21 10:05	2015/09/23 17:00	2015/09/23 17:00	2015/09/22 14:30		
COC Number		f92345	f92345	f92345	f92345	f92345		
	UNITS	WW15-02	ART - 3 (3)	ART - 3 (1)	ART - 3 (1) Lab-Dup	BH95G-31	RDL	QC Batch
<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO3)	mg/L	232	184	191		142	0.50	8051282
<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	<0.000020	<0.000020	<0.000020		<0.000020	0.000020	8055002
<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	0.00145	0.00408	0.00741 (1)	0.00733	0.00375	0.00050	8053063
Dissolved Antimony (Sb)	mg/L	0.000348	0.0401	0.0318	0.0311	0.000059	0.000020	8053063
Dissolved Arsenic (As)	mg/L	0.00247	0.153	0.125	0.125	0.000124	0.000020	8053063
Dissolved Barium (Ba)	mg/L	0.0528	0.0173	0.0184	0.0178	0.127	0.000020	8053063
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000010	8053063
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8053063
Dissolved Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	8053063
Dissolved Cadmium (Cd)	mg/L	0.0000050	0.000273	0.000317	0.000321	0.0000200	0.0000050	8053063
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	8053063
Dissolved Cobalt (Co)	mg/L	0.000127	0.00145	0.00155	0.00155	0.0000270	0.0000050	8053063
Dissolved Copper (Cu)	mg/L	<0.000050	<0.000050	0.000539	0.000543	0.000453	0.000050	8053063
Dissolved Iron (Fe)	mg/L	0.159	5.88	5.43	5.21	<0.0010	0.0010	8053063
Dissolved Lead (Pb)	mg/L	0.0000240	0.000463	0.000674	0.000666	0.0000160	0.0000050	8053063
Dissolved Lithium (Li)	mg/L	0.00797	0.00403	0.00438	0.00436	0.00100	0.00050	8053063
Dissolved Manganese (Mn)	mg/L	0.0818	0.441	0.424	0.429	0.000728	0.000050	8053063
Dissolved Molybdenum (Mo)	mg/L	0.000513	0.000744	0.000637	0.000638	0.00178	0.000050	8053063
Dissolved Nickel (Ni)	mg/L	0.000410	0.00208	0.00230	0.00231	0.000403	0.000020	8053063
Dissolved Phosphorus (P)	mg/L	0.0025	0.0031	0.0045	0.0059	0.0028	0.0020	8053063
Dissolved Selenium (Se)	mg/L	<0.000040	<0.000040	<0.000040	<0.000040	0.00136	0.000040	8053063
Dissolved Silicon (Si)	mg/L	4.14	5.43	5.55	5.50	2.79	0.050	8053063
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	0.0000060	<0.0000050	<0.0000050	0.0000050	8053063
Dissolved Strontium (Sr)	mg/L	0.240	0.205	0.211	0.202	0.176	0.000050	8053063
Dissolved Thallium (Tl)	mg/L	0.0000150	0.000303	0.000417	0.000429	0.0000060	0.0000020	8053063
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8053063
Dissolved Titanium (Ti)	mg/L	<0.00050	0.00056	<0.00050	<0.00050	<0.00050	0.00050	8053063
Dissolved Uranium (U)	mg/L	0.00708	0.00441	0.00530	0.00527	0.00105	0.0000020	8053063
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8053063
Dissolved Zinc (Zn)	mg/L	0.00148	1.71	1.58	1.59	0.00085	0.00010	8053063
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate (1) Dissolved greater than total. Reanalysis yields similar results.								

Maxxam Job #: B584163  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Your P.O. #: B50743  
Sampler Initials: KR

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		NF4894	NF4895	NF4896	NF4896	NF4897		
Sampling Date		2015/09/21 13:20	2015/09/21 10:05	2015/09/23 17:00	2015/09/23 17:00	2015/09/22 14:30		
COC Number		f92345	f92345	f92345	f92345	f92345		
	UNITS	WW15-02	ART - 3 (3)	ART - 3 (1)	ART - 3 (1) Lab-Dup	BH95G-31	RDL	QC Batch
Dissolved Zirconium (Zr)	mg/L	0.00024	0.00027	0.00028	0.00027	<0.00010	0.00010	8053063
Dissolved Calcium (Ca)	mg/L	69.1	60.3	62.8		52.2	0.050	8050206
Dissolved Magnesium (Mg)	mg/L	14.4	8.04	8.39		2.92	0.050	8050206
Dissolved Potassium (K)	mg/L	1.98	1.94	1.85		2.88	0.050	8050206
Dissolved Sodium (Na)	mg/L	1.95	1.01	1.72		1.02	0.050	8050206
Dissolved Sulphur (S)	mg/L	20.0	29.4	29.3		6.8	3.0	8050206
RDL = Reportable Detection Limit								
Lab-Dup = Laboratory Initiated Duplicate								

Maxxam Job #: B584163  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Your P.O. #: B50743  
Sampler Initials: KR

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		NF4898	NF4899	NF4899	NF4900	NF4901		
Sampling Date		2015/09/23 17:00	2015/09/25 13:20	2015/09/25 13:20	2015/09/22 13:40	2015/09/22 12:30		
COC Number		f92345	f92345	f92345	f92345	f92345		
	<b>UNITS</b>	<b>DUP04</b>	<b>TRIP BLANK</b>	<b>TRIP BLANK Lab-Dup</b>	<b>BH95G-32</b>	<b>BH95G-33D</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO3)	mg/L	198	<0.50		196	257	0.50	8051282
<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000020	8055002
<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	0.0179 (1)	<0.00050		0.00269	0.00120	0.00050	8053063
Dissolved Antimony (Sb)	mg/L	0.0332	<0.000020		0.000118	0.000035	0.000020	8053063
Dissolved Arsenic (As)	mg/L	0.132	<0.000020		0.000376	0.000213	0.000020	8053063
Dissolved Barium (Ba)	mg/L	0.0196	<0.000020		0.171	0.0864	0.000020	8053063
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010		<0.000010	<0.000010	0.000010	8053063
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050		<0.0000050	<0.0000050	0.0000050	8053063
Dissolved Boron (B)	mg/L	<0.010	<0.010		<0.010	<0.010	0.010	8053063
Dissolved Cadmium (Cd)	mg/L	0.000362	<0.0000050		0.000118	0.0000100	0.0000050	8053063
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010		<0.00010	<0.00010	0.00010	8053063
Dissolved Cobalt (Co)	mg/L	0.00165	<0.0000050		0.000469	0.0000260	0.0000050	8053063
Dissolved Copper (Cu)	mg/L	0.000711	<0.000050		0.000147	0.000200	0.000050	8053063
Dissolved Iron (Fe)	mg/L	5.57	<0.0010		0.0919	<0.0010	0.0010	8053063
Dissolved Lead (Pb)	mg/L	0.000894	<0.0000050		0.000121	<0.0000050	0.0000050	8053063
Dissolved Lithium (Li)	mg/L	0.00454	<0.00050		0.00110	0.00108	0.00050	8053063
Dissolved Manganese (Mn)	mg/L	0.459	<0.000050		0.0712	0.00718	0.000050	8053063
Dissolved Molybdenum (Mo)	mg/L	0.000666	<0.000050		0.000736	0.00118	0.000050	8053063
Dissolved Nickel (Ni)	mg/L	0.00244	<0.000020		0.00168	0.00120	0.000020	8053063
Dissolved Phosphorus (P)	mg/L	0.0084	<0.0020		0.0022	0.0044	0.0020	8053063
Dissolved Selenium (Se)	mg/L	<0.000040	<0.000040		0.000551	0.00627	0.000040	8053063
Dissolved Silicon (Si)	mg/L	5.51	<0.050		2.40	3.53	0.050	8053063
Dissolved Silver (Ag)	mg/L	0.0000060	<0.0000050		<0.0000050	<0.0000050	0.0000050	8053063
Dissolved Strontium (Sr)	mg/L	0.205	<0.000050		0.275	0.238	0.000050	8053063
Dissolved Thallium (Tl)	mg/L	0.000454	<0.0000020		0.0000090	0.0000020	0.0000020	8053063
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020		<0.00020	<0.00020	0.00020	8053063
Dissolved Titanium (Ti)	mg/L	0.00075	<0.00050		<0.00050	<0.00050	0.00050	8053063
Dissolved Uranium (U)	mg/L	0.00573	<0.0000020		0.00117	0.00442	0.0000020	8053063
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020		<0.00020	<0.00020	0.00020	8053063
Dissolved Zinc (Zn)	mg/L	1.68	<0.00010		0.00142	0.00117	0.00010	8053063

RDL = Reportable Detection Limit  
 Lab-Dup = Laboratory Initiated Duplicate  
 (1) Dissolved greater than total. Reanalysis yields similar results.

Maxxam Job #: B584163  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Your P.O. #: B50743  
Sampler Initials: KR

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		NF4898	NF4899	NF4899	NF4900	NF4901		
Sampling Date		2015/09/23 17:00	2015/09/25 13:20	2015/09/25 13:20	2015/09/22 13:40	2015/09/22 12:30		
COC Number		f92345	f92345	f92345	f92345	f92345		
	UNITS	DUP04	TRIP BLANK	TRIP BLANK Lab-Dup	BH95G-32	BH95G-33D	RDL	QC Batch
Dissolved Zirconium (Zr)	mg/L	0.00030	<0.00010		0.00010	<0.00010	0.00010	8053063
Dissolved Calcium (Ca)	mg/L	65.1	<0.050		71.4	87.1	0.050	8050206
Dissolved Magnesium (Mg)	mg/L	8.60	<0.050		4.34	9.49	0.050	8050206
Dissolved Potassium (K)	mg/L	1.94	<0.050		4.56	0.987	0.050	8050206
Dissolved Sodium (Na)	mg/L	1.24	<0.050		0.724	0.802	0.050	8050206
Dissolved Sulphur (S)	mg/L	29.9	<3.0		11.8	21.7	3.0	8050206
RDL = Reportable Detection Limit								
Lab-Dup = Laboratory Initiated Duplicate								

Maxxam Job #: B584163  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Your P.O. #: B50743  
Sampler Initials: KR

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		NF4902		
<b>Sampling Date</b>		2015/09/22 11:15		
<b>COC Number</b>		f92345		
	<b>UNITS</b>	<b>BH95G-2</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Misc. Inorganics</b>				
Dissolved Hardness (CaCO3)	mg/L	305	0.50	8051282
<b>Elements</b>				
Dissolved Mercury (Hg)	mg/L	<0.0000020	0.0000020	8055002
<b>Dissolved Metals by ICPMS</b>				
Dissolved Aluminum (Al)	mg/L	0.00161	0.00050	8053063
Dissolved Antimony (Sb)	mg/L	0.000021	0.000020	8053063
Dissolved Arsenic (As)	mg/L	0.000155	0.000020	8053063
Dissolved Barium (Ba)	mg/L	0.0258	0.000020	8053063
Dissolved Beryllium (Be)	mg/L	<0.000010	0.000010	8053063
Dissolved Bismuth (Bi)	mg/L	<0.0000050	0.0000050	8053063
Dissolved Boron (B)	mg/L	<0.010	0.010	8053063
Dissolved Cadmium (Cd)	mg/L	0.00145	0.0000050	8053063
Dissolved Chromium (Cr)	mg/L	<0.00010	0.00010	8053063
Dissolved Cobalt (Co)	mg/L	0.0000090	0.0000050	8053063
Dissolved Copper (Cu)	mg/L	0.000236	0.000050	8053063
Dissolved Iron (Fe)	mg/L	0.0022	0.0010	8053063
Dissolved Lead (Pb)	mg/L	0.0000180	0.0000050	8053063
Dissolved Lithium (Li)	mg/L	0.00145	0.00050	8053063
Dissolved Manganese (Mn)	mg/L	0.000258	0.000050	8053063
Dissolved Molybdenum (Mo)	mg/L	0.00214	0.000050	8053063
Dissolved Nickel (Ni)	mg/L	0.000409	0.000020	8053063
Dissolved Phosphorus (P)	mg/L	0.0074	0.0020	8053063
Dissolved Selenium (Se)	mg/L	0.00505	0.000040	8053063
Dissolved Silicon (Si)	mg/L	2.23	0.050	8053063
Dissolved Silver (Ag)	mg/L	<0.0000050	0.0000050	8053063
Dissolved Strontium (Sr)	mg/L	0.227	0.000050	8053063
Dissolved Thallium (Tl)	mg/L	0.0000040	0.0000020	8053063
Dissolved Tin (Sn)	mg/L	<0.00020	0.00020	8053063
Dissolved Titanium (Ti)	mg/L	<0.00050	0.00050	8053063
Dissolved Uranium (U)	mg/L	0.00322	0.0000020	8053063
Dissolved Vanadium (V)	mg/L	0.00020	0.00020	8053063
Dissolved Zinc (Zn)	mg/L	0.0229	0.00010	8053063
Dissolved Zirconium (Zr)	mg/L	<0.00010	0.00010	8053063
Dissolved Calcium (Ca)	mg/L	71.4	0.050	8050206
RDL = Reportable Detection Limit				

Maxxam Job #: B584163  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Your P.O. #: B50743  
Sampler Initials: KR

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		NF4902		
<b>Sampling Date</b>		2015/09/22 11:15		
<b>COC Number</b>		f92345		
	<b>UNITS</b>	<b>BH95G-2</b>	<b>RDL</b>	<b>QC Batch</b>
Dissolved Magnesium (Mg)	mg/L	30.7	0.050	8050206
Dissolved Potassium (K)	mg/L	0.428	0.050	8050206
Dissolved Sodium (Na)	mg/L	0.696	0.050	8050206
Dissolved Sulphur (S)	mg/L	15.3	3.0	8050206
RDL = Reportable Detection Limit				



Maxxam Job #: B584163  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Your P.O. #: B50743  
Sampler Initials: KR

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		NF4895	NF4896	NF4898	NF4899	NF4899		
<b>Sampling Date</b>		2015/09/21 10:05	2015/09/23 17:00	2015/09/23 17:00	2015/09/25 13:20	2015/09/25 13:20		
<b>COC Number</b>		f92345	f92345	f92345	f92345	f92345		
	<b>UNITS</b>	<b>ART - 3 (3)</b>	<b>ART - 3 (1)</b>	<b>DUP04</b>	<b>TRIP BLANK</b>	<b>TRIP BLANK Lab-Dup</b>	<b>RDL</b>	<b>QC Batch</b>

**Calculated Parameters**

Total Hardness (CaCO3)	mg/L	188	185	196	<0.50		0.50	8050667
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**Elements**

Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000020	8053797
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**Total Metals by ICPMS**

Total Aluminum (Al)	mg/L	0.00638	0.00599	0.00807	<0.00050		0.00050	8053216
Total Antimony (Sb)	mg/L	0.0403	0.0331	0.0331	<0.000020		0.000020	8053216
Total Arsenic (As)	mg/L	0.163	0.135	0.147	<0.000020		0.000020	8053216
Total Barium (Ba)	mg/L	0.0179	0.0189	0.0183	<0.000020		0.000020	8053216
Total Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	<0.000010		0.000010	8053216
Total Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050		0.0000050	8053216
Total Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010		0.010	8053216
Total Cadmium (Cd)	mg/L	0.000335	0.000335	0.000337	<0.0000050		0.0000050	8053216
Total Chromium (Cr)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010		0.00010	8053216
Total Cobalt (Co)	mg/L	0.00146	0.00151	0.00166	<0.0000050		0.0000050	8053216
Total Copper (Cu)	mg/L	0.000200	0.000538	0.000721	<0.000050		0.000050	8053216
Total Iron (Fe)	mg/L	6.04	5.38	5.75	<0.0010		0.0010	8053216
Total Lead (Pb)	mg/L	0.000861	0.000746	0.000769	<0.0000050		0.0000050	8053216
Total Lithium (Li)	mg/L	0.00444	0.00470	0.00509	0.00057		0.00050	8053216
Total Manganese (Mn)	mg/L	0.463	0.432	0.486	<0.000050		0.000050	8053216
Total Molybdenum (Mo)	mg/L	0.000749	0.000682	0.000676	<0.000050		0.000050	8053216
Total Nickel (Ni)	mg/L	0.00215	0.00225	0.00252	<0.000020		0.000020	8053216
Total Phosphorus (P)	mg/L	0.0041	<0.0020	0.0057	<0.0020		0.0020	8053216
Total Selenium (Se)	mg/L	<0.000040	<0.000040	<0.000040	<0.000040		0.000040	8053216
Total Silicon (Si)	mg/L	5.40	5.47	5.55	<0.050		0.050	8053216
Total Silver (Ag)	mg/L	0.0000070	0.0000050	0.0000050	<0.0000050		0.0000050	8053216
Total Strontium (Sr)	mg/L	0.212	0.214	0.228	<0.000050		0.000050	8053216
Total Thallium (Tl)	mg/L	0.000311	0.000444	0.000447	<0.000020		0.000020	8053216
Total Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020		0.00020	8053216
Total Titanium (Ti)	mg/L	0.00062	<0.00050	<0.00050	<0.00050		0.00050	8053216
Total Uranium (U)	mg/L	0.00450	0.00538	0.00535	<0.0000020		0.0000020	8053216
Total Vanadium (V)	mg/L	0.00031	<0.00020	<0.00020	<0.00020		0.00020	8053216
Total Zinc (Zn)	mg/L	1.81	1.73	1.86	<0.00010		0.00010	8053216
Total Zirconium (Zr)	mg/L	0.00020	0.00025	0.00030	<0.00010		0.00010	8053216

RDL = Reportable Detection Limit  
Lab-Dup = Laboratory Initiated Duplicate

Maxxam Job #: B584163  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Your P.O. #: B50743  
Sampler Initials: KR

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		NF4895	NF4896	NF4898	NF4899	NF4899		
Sampling Date		2015/09/21 10:05	2015/09/23 17:00	2015/09/23 17:00	2015/09/25 13:20	2015/09/25 13:20		
COC Number		f92345	f92345	f92345	f92345	f92345		
	UNITS	ART - 3 (3)	ART - 3 (1)	DUP04	TRIP BLANK	TRIP BLANK Lab-Dup	RDL	QC Batch
Total Calcium (Ca)	mg/L	61.6	60.5	63.1	<0.050		0.050	8050870
Total Magnesium (Mg)	mg/L	8.29	8.29	9.25	<0.050		0.050	8050870
Total Potassium (K)	mg/L	1.95	1.86	2.07	<0.050		0.050	8050870
Total Sodium (Na)	mg/L	0.998	1.75	1.92	<0.050		0.050	8050870
Total Sulphur (S)	mg/L	30.3	30.2	32.6	<3.0		3.0	8050870
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate								

Maxxam Job #: B584163  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Your P.O. #: B50743  
Sampler Initials: KR

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		NF4902		
<b>Sampling Date</b>		2015/09/22 11:15		
<b>COC Number</b>		f92345		
	<b>UNITS</b>	<b>BH95G-2</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>				
Total Hardness (CaCO3)	mg/L	306	0.50	8050667
<b>Elements</b>				
Total Mercury (Hg)	mg/L	<0.0000020	0.0000020	8053797
<b>Total Metals by ICPMS</b>				
Total Aluminum (Al)	mg/L	0.0405	0.00050	8053216
Total Antimony (Sb)	mg/L	0.000205	0.000020	8053216
Total Arsenic (As)	mg/L	0.000274	0.000020	8053216
Total Barium (Ba)	mg/L	0.0270	0.000020	8053216
Total Beryllium (Be)	mg/L	<0.000010	0.000010	8053216
Total Bismuth (Bi)	mg/L	0.0000060	0.0000050	8053216
Total Boron (B)	mg/L	<0.010	0.010	8053216
Total Cadmium (Cd)	mg/L	0.00171	0.0000050	8053216
Total Chromium (Cr)	mg/L	<0.00010	0.00010	8053216
Total Cobalt (Co)	mg/L	0.000170	0.0000050	8053216
Total Copper (Cu)	mg/L	0.00124	0.000050	8053216
Total Iron (Fe)	mg/L	0.0950	0.0010	8053216
Total Lead (Pb)	mg/L	0.000946	0.0000050	8053216
Total Lithium (Li)	mg/L	0.00126	0.00050	8053216
Total Manganese (Mn)	mg/L	0.00308	0.000050	8053216
Total Molybdenum (Mo)	mg/L	0.00225	0.000050	8053216
Total Nickel (Ni)	mg/L	0.000922	0.000020	8053216
Total Phosphorus (P)	mg/L	0.0258	0.0020	8053216
Total Selenium (Se)	mg/L	0.00548	0.000040	8053216
Total Silicon (Si)	mg/L	2.30	0.050	8053216
Total Silver (Ag)	mg/L	0.0000280	0.0000050	8053216
Total Strontium (Sr)	mg/L	0.234	0.000050	8053216
Total Thallium (Tl)	mg/L	0.0000130	0.0000020	8053216
Total Tin (Sn)	mg/L	<0.00020	0.00020	8053216
Total Titanium (Ti)	mg/L	0.00154	0.00050	8053216
Total Uranium (U)	mg/L	0.00320	0.0000020	8053216
Total Vanadium (V)	mg/L	0.00059	0.00020	8053216
Total Zinc (Zn)	mg/L	0.0366	0.00010	8053216
Total Zirconium (Zr)	mg/L	<0.00010	0.00010	8053216
Total Calcium (Ca)	mg/L	71.2	0.050	8050870
RDL = Reportable Detection Limit				

Maxxam Job #: B584163  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Your P.O. #: B50743  
Sampler Initials: KR

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		NF4902		
<b>Sampling Date</b>		2015/09/22 11:15		
<b>COC Number</b>		f92345		
	<b>UNITS</b>	<b>BH95G-2</b>	<b>RDL</b>	<b>QC Batch</b>
Total Magnesium (Mg)	mg/L	31.1	0.050	8050870
Total Potassium (K)	mg/L	0.462	0.050	8050870
Total Sodium (Na)	mg/L	0.719	0.050	8050870
Total Sulphur (S)	mg/L	15.5	3.0	8050870
RDL = Reportable Detection Limit				

Maxxam Job #: B584163  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Your P.O. #: B50743  
Sampler Initials: KR

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		NF4894	NF4897	NF4900	NF4901		
Sampling Date		2015/09/21 13:20	2015/09/22 14:30	2015/09/22 13:40	2015/09/22 12:30		
COC Number		f92345	f92345	f92345	f92345		
	<b>UNITS</b>	<b>WW15-02</b>	<b>BH95G-31</b>	<b>BH95G-32</b>	<b>BH95G-33D</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>							
Total Hardness (CaCO3)	mg/L	255	432	433	308	0.50	8050667
<b>Elements</b>							
Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000020	8053797
<b>Total Metals by ICPMS</b>							
Total Aluminum (Al)	mg/L	1.08	62.0	53.3	13.6	0.0030	8053757
Total Antimony (Sb)	mg/L	0.000346	0.000668	0.00103	0.000289	0.000050	8053757
Total Arsenic (As)	mg/L	0.00415	0.126	0.0301	0.0328	0.000020	8053757
Total Barium (Ba)	mg/L	0.0839	2.25	2.27	0.322	0.00010	8053757
Total Beryllium (Be)	mg/L	0.000042	0.00178	0.00306	0.000887	0.000010	8053757
Total Bismuth (Bi)	mg/L	0.000103	0.00289	0.00170	0.000306	0.000020	8053757
Total Boron (B)	mg/L	<0.050	<0.050	<0.050	<0.050	0.050	8053757
Total Cadmium (Cd)	mg/L	0.000115	0.00644	0.00525	0.000263	0.0000050	8053757
Total Chromium (Cr)	mg/L	0.00237	0.197	0.169	0.0163	0.00050	8053757
Total Cobalt (Co)	mg/L	0.00133	0.244	0.0718	0.0285	0.000010	8053757
Total Copper (Cu)	mg/L	0.00963	1.42	0.194	0.0612	0.00020	8053757
Total Iron (Fe)	mg/L	3.25	228	122	42.6	0.0050	8053757
Total Lead (Pb)	mg/L	0.0143	0.561	0.178	0.0194	0.000050	8053757
Total Lithium (Li)	mg/L	0.0112	0.0453	0.0259	0.00943	0.00050	8053757
Total Manganese (Mn)	mg/L	0.130	3.25	3.60	2.68	0.00010	8053757
Total Molybdenum (Mo)	mg/L	0.000656	0.00569	0.00415	0.00420	0.000050	8053757
Total Nickel (Ni)	mg/L	0.00299	0.469	0.114	0.105	0.00010	8053757
Total Phosphorus (P)	mg/L	0.055	3.88	2.22	0.778	0.010	8053757
Total Selenium (Se)	mg/L	0.000282	0.00434	0.0108	0.00695	0.000040	8053757
Total Silicon (Si)	mg/L	6.26	72.5	67.5	21.7	0.10	8053757
Total Silver (Ag)	mg/L	0.0000660	0.0129	0.000874	0.000677	0.0000050	8053757
Total Strontium (Sr)	mg/L	0.273	0.427	0.511	0.316	0.000050	8053757
Total Thallium (Tl)	mg/L	0.0000200	0.000877	0.000671	0.000134	0.0000020	8053757
Total Tin (Sn)	mg/L	0.00033	0.00471	0.00201	0.00091	0.00020	8053757
Total Titanium (Ti)	mg/L	0.0457	3.04	5.90	0.185	0.0050	8053757
Total Uranium (U)	mg/L	0.00728	0.00602	0.00733	0.00832	0.0000050	8053757
Total Vanadium (V)	mg/L	0.00387	0.382	0.402	0.0458	0.00050	8053757
Total Zinc (Zn)	mg/L	0.0396	0.936	0.530	0.153	0.0010	8053757
Total Zirconium (Zr)	mg/L	0.0124	0.0294	0.00887	0.00567	0.00010	8053757
Total Calcium (Ca)	mg/L	75.8	103	117	96.4	0.25	8050870
Total Magnesium (Mg)	mg/L	15.9	42.6	33.9	16.4	0.25	8050870
RDL = Reportable Detection Limit							

Maxxam Job #: B584163  
Report Date: 2016/01/19

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Your P.O. #: B50743  
Sampler Initials: KR

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		NF4894	NF4897	NF4900	NF4901		
Sampling Date		2015/09/21 13:20	2015/09/22 14:30	2015/09/22 13:40	2015/09/22 12:30		
COC Number		f92345	f92345	f92345	f92345		
	UNITS	WW15-02	BH95G-31	BH95G-32	BH95G-33D	RDL	QC Batch
Total Potassium (K)	mg/L	2.67	17.3	15.7	2.67	0.25	8050870
Total Sodium (Na)	mg/L	2.56	1.56	1.89	1.29	0.25	8050870
Total Sulphur (S)	mg/L	21	<15	<15	22	15	8050870
RDL = Reportable Detection Limit							

Maxxam Job #: B584163  
Report Date: 2016/01/19

TETRATECH EBA  
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### GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	2.7°C
Package 2	3.0°C

Revised report V2: Updated Client sample ID for NF4901, per client request (MM4).

Revised report V3: Updated client ID for samples NF4895 and NF4896 per client request (MM4).

Sample NF4894-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample NF4897-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample NF4900-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample NF4901-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

**Results relate only to the items tested.**

Maxxam Job #: B584163  
Report Date: 2016/01/19

**QUALITY ASSURANCE REPORT**

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Your P.O. #: B50743  
Sampler Initials: KR

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8051628	Total Suspended Solids	2015/09/29			98	80 - 120	<1.0	mg/L		
8051653	Total Dissolved Solids	2015/09/30	103	80 - 120	104	80 - 120	<1.0	mg/L	1.5	20
8052082	Orthophosphate (P)	2015/09/26	117	80 - 120	101	80 - 120	<0.0010	mg/L	NC	20
8052089	Orthophosphate (P)	2015/09/26	101	80 - 120	95	80 - 120	0.0010, RDL=0.0010	mg/L	11	20
8052108	Total Phosphorus (P)	2015/09/26	94	80 - 120	94	80 - 120	<0.0020	mg/L	1.2	20
8052111	Dissolved Phosphorus (P)	2015/09/26	93	80 - 120	104	80 - 120	<0.0020	mg/L	NC	20
8052114	Dissolved Phosphorus (P)	2015/09/26	91	80 - 120	108	80 - 120	<0.0020	mg/L	NC	20
8052116	Total Phosphorus (P)	2015/09/26	90	80 - 120	108	80 - 120	<0.0020	mg/L	NC	20
8052129	Turbidity	2015/09/26			98	80 - 120	<0.10	NTU	13	20
8052193	Nitrate plus Nitrite (N)	2015/09/26	101	80 - 120	104	80 - 120	<0.0020	mg/L	NC	25
8052194	Nitrite (N)	2015/09/26	97	80 - 120	103	80 - 120	<0.0020	mg/L	NC	25
8052206	Total Ammonia (N)	2015/09/28	101	80 - 120	115	80 - 120	<0.0050	mg/L	NC	20
8052950	Total Suspended Solids	2015/09/29			100	80 - 120	<1.0	mg/L		
8053063	Dissolved Aluminum (Al)	2015/09/28	106	80 - 120	104	80 - 120	<0.00050	mg/L	1.1	20
8053063	Dissolved Antimony (Sb)	2015/09/28	NC	80 - 120	105	80 - 120	<0.000020	mg/L	2.1	20
8053063	Dissolved Arsenic (As)	2015/09/28	NC	80 - 120	102	80 - 120	<0.000020	mg/L	0.16	20
8053063	Dissolved Barium (Ba)	2015/09/28	NC	80 - 120	109	80 - 120	<0.000020	mg/L	3.1	20
8053063	Dissolved Beryllium (Be)	2015/09/28	102	80 - 120	99	80 - 120	<0.000010	mg/L	NC	20
8053063	Dissolved Bismuth (Bi)	2015/09/28	101	80 - 120	103	80 - 120	<0.0000050	mg/L	NC	20
8053063	Dissolved Boron (B)	2015/09/28					<0.010	mg/L	NC	20
8053063	Dissolved Cadmium (Cd)	2015/09/28	96	80 - 120	106	80 - 120	<0.0000050	mg/L	1.3	20
8053063	Dissolved Chromium (Cr)	2015/09/28	104	80 - 120	108	80 - 120	<0.00010	mg/L	NC	20
8053063	Dissolved Cobalt (Co)	2015/09/28	103	80 - 120	109	80 - 120	<0.0000050	mg/L	0.064	20
8053063	Dissolved Copper (Cu)	2015/09/28	99	80 - 120	108	80 - 120	<0.000050	mg/L	0.74	20
8053063	Dissolved Iron (Fe)	2015/09/28	NC	80 - 120	108	80 - 120	<0.0010	mg/L	4.2	20
8053063	Dissolved Lead (Pb)	2015/09/28	103	80 - 120	104	80 - 120	<0.0000050	mg/L	1.2	20
8053063	Dissolved Lithium (Li)	2015/09/28	99	80 - 120	91	80 - 120	<0.00050	mg/L	0.46	20
8053063	Dissolved Manganese (Mn)	2015/09/28	NC	80 - 120	104	80 - 120	<0.000050	mg/L	1.1	20
8053063	Dissolved Molybdenum (Mo)	2015/09/28	NC	80 - 120	97	80 - 120	<0.000050	mg/L	0.16	20



Maxxam Job #: B584163  
Report Date: 2016/01/19

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Your P.O. #: B50743  
Sampler Initials: KR

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8053063	Dissolved Nickel (Ni)	2015/09/28	97	80 - 120	105	80 - 120	<0.000020	mg/L	0.35	20
8053063	Dissolved Phosphorus (P)	2015/09/28					<0.0020	mg/L	NC	20
8053063	Dissolved Selenium (Se)	2015/09/28	98	80 - 120	98	80 - 120	<0.000040	mg/L	NC	20
8053063	Dissolved Silicon (Si)	2015/09/28					<0.050	mg/L	1.0	20
8053063	Dissolved Silver (Ag)	2015/09/28	103	80 - 120	96	80 - 120	<0.0000050	mg/L	NC	20
8053063	Dissolved Strontium (Sr)	2015/09/28	NC	80 - 120	104	80 - 120	<0.000050	mg/L	4.6	20
8053063	Dissolved Thallium (Tl)	2015/09/28	102	80 - 120	103	80 - 120	<0.0000020	mg/L	2.8	20
8053063	Dissolved Tin (Sn)	2015/09/28	99	80 - 120	103	80 - 120	<0.00020	mg/L	NC	20
8053063	Dissolved Titanium (Ti)	2015/09/28	101	80 - 120	100	80 - 120	<0.00050	mg/L	NC	20
8053063	Dissolved Uranium (U)	2015/09/28	NC	80 - 120	107	80 - 120	<0.0000020	mg/L	0.55	20
8053063	Dissolved Vanadium (V)	2015/09/28	101	80 - 120	108	80 - 120	<0.00020	mg/L	NC	20
8053063	Dissolved Zinc (Zn)	2015/09/28	NC	80 - 120	104	80 - 120	<0.00010	mg/L	0.64	20
8053063	Dissolved Zirconium (Zr)	2015/09/28					<0.00010	mg/L	NC	20
8053081	Total Nitrogen (N)	2015/09/28	98	80 - 120	93	80 - 120	<0.020	mg/L	NC	20
8053216	Total Aluminum (Al)	2015/09/28	103	80 - 120	109	80 - 120	<0.00050	mg/L	18	20
8053216	Total Antimony (Sb)	2015/09/28	116	80 - 120	105	80 - 120	<0.000020	mg/L	NC	20
8053216	Total Arsenic (As)	2015/09/28	107	80 - 120	101	80 - 120	<0.000020	mg/L	3.0	20
8053216	Total Barium (Ba)	2015/09/28	NC	80 - 120	106	80 - 120	<0.000020	mg/L	2.7	20
8053216	Total Beryllium (Be)	2015/09/28	98	80 - 120	101	80 - 120	<0.000010	mg/L	NC	20
8053216	Total Bismuth (Bi)	2015/09/28	98	80 - 120	104	80 - 120	<0.0000050	mg/L	NC	20
8053216	Total Boron (B)	2015/09/28					<0.010	mg/L	1.4	20
8053216	Total Cadmium (Cd)	2015/09/28	100	80 - 120	103	80 - 120	<0.0000050	mg/L	NC	20
8053216	Total Chromium (Cr)	2015/09/28	103	80 - 120	102	80 - 120	<0.00010	mg/L	NC	20
8053216	Total Cobalt (Co)	2015/09/28	101	80 - 120	103	80 - 120	<0.0000050	mg/L	1.6	20
8053216	Total Copper (Cu)	2015/09/28	99	80 - 120	106	80 - 120	<0.000050	mg/L	0.82	20
8053216	Total Iron (Fe)	2015/09/28	NC	80 - 120	105	80 - 120	<0.0010	mg/L	0.99	20
8053216	Total Lead (Pb)	2015/09/28	104	80 - 120	107	80 - 120	<0.0000050	mg/L	NC	20
8053216	Total Lithium (Li)	2015/09/28	NC	80 - 120	105	80 - 120	<0.00050	mg/L	1.4	20
8053216	Total Manganese (Mn)	2015/09/28	NC	80 - 120	101	80 - 120	<0.000050	mg/L	0.64	20
8053216	Total Molybdenum (Mo)	2015/09/28	NC	80 - 120	99	80 - 120	<0.000050	mg/L	1.8	20

Maxxam Job #: B584163  
 Report Date: 2016/01/19

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
 Client Project #: ENVMIN03071-01  
 Your P.O. #: B50743  
 Sampler Initials: KR

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8053216	Total Nickel (Ni)	2015/09/28	98	80 - 120	103	80 - 120	<0.000020	mg/L	3.3	20
8053216	Total Phosphorus (P)	2015/09/28					<0.0020	mg/L		
8053216	Total Selenium (Se)	2015/09/28	99	80 - 120	99	80 - 120	<0.000040	mg/L	NC	20
8053216	Total Silicon (Si)	2015/09/28					<0.050	mg/L	0.67	20
8053216	Total Silver (Ag)	2015/09/28	96	80 - 120	97	80 - 120	<0.0000050	mg/L	NC	20
8053216	Total Strontium (Sr)	2015/09/28	NC	80 - 120	99	80 - 120	<0.000050	mg/L	0.96	20
8053216	Total Thallium (Tl)	2015/09/28	99	80 - 120	104	80 - 120	<0.0000020	mg/L	NC	20
8053216	Total Tin (Sn)	2015/09/28	102	80 - 120	103	80 - 120	<0.00020	mg/L	NC	20
8053216	Total Titanium (Ti)	2015/09/28	108	80 - 120	98	80 - 120	<0.00050	mg/L	NC	20
8053216	Total Uranium (U)	2015/09/28	103	80 - 120	103	80 - 120	<0.0000020	mg/L	0.77	20
8053216	Total Vanadium (V)	2015/09/28	107	80 - 120	114	80 - 120	<0.00020	mg/L	NC	20
8053216	Total Zinc (Zn)	2015/09/28	119	80 - 120	102	80 - 120	<0.00010	mg/L	5.7	20
8053216	Total Zirconium (Zr)	2015/09/28					<0.00010	mg/L	NC	20
8053757	Total Aluminum (Al)	2015/09/29	NC	80 - 120	102	80 - 120	<0.0030	mg/L	4.9	20
8053757	Total Antimony (Sb)	2015/09/29	94	80 - 120	95	80 - 120	<0.000050	mg/L	18	20
8053757	Total Arsenic (As)	2015/09/29	109	80 - 120	93	80 - 120	<0.000020	mg/L	0.67	20
8053757	Total Barium (Ba)	2015/09/29	NC	80 - 120	99	80 - 120	<0.00010	mg/L	9.8	20
8053757	Total Beryllium (Be)	2015/09/29	106	80 - 120	93	80 - 120	<0.000010	mg/L	11	20
8053757	Total Bismuth (Bi)	2015/09/29	102	80 - 120	97	80 - 120	<0.000020	mg/L	NC	20
8053757	Total Boron (B)	2015/09/29					<0.050	mg/L	1.1	20
8053757	Total Cadmium (Cd)	2015/09/29	102	80 - 120	94	80 - 120	<0.0000050	mg/L	NC	20
8053757	Total Chromium (Cr)	2015/09/29	106	80 - 120	100	80 - 120	<0.00050	mg/L	0.56	20
8053757	Total Cobalt (Co)	2015/09/29	107	80 - 120	104	80 - 120	<0.000010	mg/L	0.49	20
8053757	Total Copper (Cu)	2015/09/29	96	80 - 120	107	80 - 120	<0.00020	mg/L	0.13	20
8053757	Total Iron (Fe)	2015/09/29	NC	80 - 120	100	80 - 120	<0.0050	mg/L	1.3	20
8053757	Total Lead (Pb)	2015/09/29	103	80 - 120	98	80 - 120	<0.000050	mg/L	8.1	20
8053757	Total Lithium (Li)	2015/09/29	NC	80 - 120	94	80 - 120	<0.00050	mg/L	5.9	20
8053757	Total Manganese (Mn)	2015/09/29	NC	80 - 120	98	80 - 120	<0.00010	mg/L	0.058	20
8053757	Total Molybdenum (Mo)	2015/09/29	NC	80 - 120	95	80 - 120	<0.000050	mg/L	9.1	20
8053757	Total Nickel (Ni)	2015/09/29	NC	80 - 120	96	80 - 120	<0.00010	mg/L	0.36	20

Maxxam Job #: B584163  
Report Date: 2016/01/19

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Your P.O. #: B50743  
Sampler Initials: KR

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8053757	Total Phosphorus (P)	2015/09/29					<0.010	mg/L		
8053757	Total Selenium (Se)	2015/09/29	99	80 - 120	89	80 - 120	<0.000040	mg/L	0.22	20
8053757	Total Silicon (Si)	2015/09/29					<0.10	mg/L	11	20
8053757	Total Silver (Ag)	2015/09/29	108	80 - 120	97	80 - 120	<0.0000050	mg/L	NC	20
8053757	Total Strontium (Sr)	2015/09/29	NC	80 - 120	96	80 - 120	<0.000050	mg/L	2.8	20
8053757	Total Thallium (Tl)	2015/09/29	98	80 - 120	94	80 - 120	<0.0000020	mg/L	0	20
8053757	Total Tin (Sn)	2015/09/29	91	80 - 120	93	80 - 120	<0.00020	mg/L	NC	20
8053757	Total Titanium (Ti)	2015/09/29	NC	80 - 120	96	80 - 120	<0.0050	mg/L	NC	20
8053757	Total Uranium (U)	2015/09/29	104	80 - 120	96	80 - 120	<0.0000050	mg/L	8.0	20
8053757	Total Vanadium (V)	2015/09/29	NC	80 - 120	107	80 - 120	<0.00050	mg/L	5.5	20
8053757	Total Zinc (Zn)	2015/09/29	111	80 - 120	96	80 - 120	<0.0010	mg/L	NC	20
8053757	Total Zirconium (Zr)	2015/09/29					<0.00010	mg/L	1.3	20
8053797	Total Mercury (Hg)	2015/09/29	87	80 - 120	89	80 - 120	<0.0000020	mg/L	NC	20
8053830	Fluoride (F)	2015/09/28	NC	80 - 120	98	80 - 120	0.010, RDL=0.010	mg/L	1.8	20
8053837	Fluoride (F)	2015/09/28	105	80 - 120	100	80 - 120	<0.010	mg/L	0	20
8053858	Dissolved Chloride (Cl)	2015/09/28	109	80 - 120	104	80 - 120	<0.50	mg/L	1.9	20
8053859	Dissolved Sulphate (SO4)	2015/09/28			99	80 - 120	0.84, RDL=0.50	mg/L		
8053867	Dissolved Chloride (Cl)	2015/09/28	117	80 - 120	102	80 - 120	<0.50	mg/L	NC	20
8053868	Dissolved Sulphate (SO4)	2015/09/28	112	80 - 120	96	80 - 120	<0.50	mg/L	0.84	20
8054670	Total Organic Carbon (C)	2015/09/29	107	80 - 120	99	80 - 120	<0.50	mg/L	NC	20
8054917	Turbidity	2015/09/29			97	80 - 120	<0.10	NTU	NC	20
8055002	Dissolved Mercury (Hg)	2015/09/29	103	80 - 120	100	80 - 120	<0.0000020	mg/L	NC	20
8055210	Total Ammonia (N)	2015/09/29	102	80 - 120	110	80 - 120	0.0092, RDL=0.0050	mg/L	NC	20
8055217	Dissolved Sulphate (SO4)	2015/09/29			99	80 - 120	<0.50	mg/L		
8055436	Acidity (pH 4.5)	2015/09/29					<0.50	mg/L	NC	20
8055436	Acidity (pH 8.3)	2015/09/29			97	80 - 120	<0.50	mg/L	NC	20
8055491	Orthophosphate (P)	2015/09/29	104	80 - 120	101	80 - 120	<0.0010	mg/L	NC	20
8055506	Dissolved Phosphorus (P)	2015/09/29	86	80 - 120	96	80 - 120	<0.0020	mg/L	NC	20

Maxxam Job #: B584163  
Report Date: 2016/01/19

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Your P.O. #: B50743  
Sampler Initials: KR

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8055795	Alkalinity (PP as CaCO3)	2015/09/29					<0.50	mg/L	NC	20
8055795	Alkalinity (Total as CaCO3)	2015/09/29	102	80 - 120	95	80 - 120	0.60, RDL=0.50	mg/L	0.89	20
8055795	Bicarbonate (HCO3)	2015/09/29					0.73, RDL=0.50	mg/L	0.89	20
8055795	Carbonate (CO3)	2015/09/29					<0.50	mg/L	NC	20
8055795	Hydroxide (OH)	2015/09/29					<0.50	mg/L	NC	20
8055799	Conductivity	2015/09/29			98	80 - 120	1.2, RDL=1.0	uS/cm	0.26	20
8055800	pH	2015/09/29			101	97 - 103			0.48	N/A
8058340	Dissolved Phosphorus (P)	2015/10/01	150 (1)	80 - 120	99	80 - 120	<0.0020	mg/L	0.82	20
8059876	Alkalinity (PP as CaCO3)	2015/10/02					<0.50	mg/L		
8059876	Alkalinity (Total as CaCO3)	2015/10/02					0.90, RDL=0.50	mg/L		
8059876	Bicarbonate (HCO3)	2015/10/02					1.10, RDL=0.50	mg/L		
8059876	Carbonate (CO3)	2015/10/02					<0.50	mg/L		
8059876	Hydroxide (OH)	2015/10/02					<0.50	mg/L		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Maxxam Job #: B584163  
Report Date: 2016/01/19

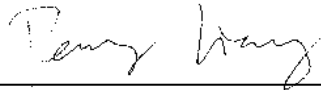
TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Your P.O. #: B50743  
Sampler Initials: KR

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Andy Lu, Data Validation Coordinator



Harry (Peng) Liang, Senior Analyst

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

ANALYSIS REQUEST F 92345

COMPANY NAME: BMC Minerals (No.1) Ltd.  
~~Tetra Tech EBA #11954.~~

PH. #:   
E-mail: kclbergh@gmail.com  
FAX #:

COMPANY ADDRESS:  
530-1130 W. Pandey St.  
Vancouver, BC  
V6E 4A4

CLIENT PROJECT ID: (#)  
Bottles labelled ENVMINO307-01  
but should be ENVMINO3071-01.

SAMPLER NAME (PRINT): Kristen Range  
Kristen Range - ~~Tetra Tech~~

PROJECT MANAGER:

FIELD SAMPLE ID	MAXXAM LAB # (Lab Use Only)	MATRIX					# CONTAINERS	SAMPLING			LAB USE ONLY																								
		GROUND WATER	SURFACE WATER	SOIL	OTHER			DATE DD/MM/YY	TIME	HEADSPACE VAPOUR	Routine (incl. TDS) Major ions Nutrients LLDIS: Metals in CU NG LL Tot. Metals in CU NG Phosphorus (LL Tot. pos)											# of Bottles													
1 WW15-02	NF4894	X					13	21/09/15	13:20		X	X	X	X	X	X																			13
2 ART-3(L)	NF4895	X					13	21/09/15	10:05		X	X	X	X	X	X																			13
3 ART-3(S)	NF4896	X					13	23/09/15	17:00		X	X	X	X	X	X																			13
4 BH95G-31	NF4897	X					13	22/09/15	14:30		X	X	X	X	X	X																			13
5 Dup04	NF4898	X					13	23/09/15	17:00		X	X	X	X	X	X																			13
6 Trip Blank	NF4899	X					13	11/07/15	-		X	X	X	X	X	X																			13
7 BH95G-32	NF4900	X					13	22/09/15	18:40		X	X	X	X	X	X																			13
8 BH95G-33(L)	NF4901	X					13	22/09/15	12:30		X	X	X	X	X	X																			13
9 BH95G-2	NF4902	X					13	22/09/15	11:15		X	X	X	X	X	X																			13
10																																			
11																																			
12																																			



TAT (Turnaround Time) <5 DAY TAT MUST HAVE PRIOR APPROVAL  
\*some exceptions apply please contact lab

P.O. NUMBER / QUOTE NUMBER: B50743

SPECIAL DETECTION LIMITS / CONTAMINANT TYPE:

ACCOUNTING CONTACT:

SPECIAL REPORTING OR BILLING INSTRUCTIONS:  
ART-3(S) labelled 21/09/15 but sampled on 23/09/15

ARRIVAL TEMPERATURE °C: 233  
DUE DATE:  
LOG IN CHECK:

RECEIVED BY: CS:MA

RECEIVED BY: 2015/09/25 13:20

**CUSTODY RECORD**

Your Project #: ENVMIN03071-01  
Site Location: KUTZ ZE KAYAH  
Your C.O.C. #: 08412539

**Attention:KRISTEN RANGE**

TETRATECH EBA  
61 WASSON PLACE  
WHITEHORSE, YT  
Canada Y1A 0H7

**Report Date: 2015/10/16**  
Report #: R2059640  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B588975**

**Received: 2015/10/08, 13:30**

Sample Matrix: Water  
# Samples Received: 1

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Analytical Method</b>
Alkalinity - Water	1	2015/10/10	2015/10/11	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry	1	N/A	2015/10/09	BBY6SOP-00011	SM 22 4500-Cl- G m
Conductance - water	1	N/A	2015/10/11	BBY6SOP-00026	SM 22 2510 B m
Fluoride	1	N/A	2015/10/09	BBY6SOP-00048	SM 22 4500-F C m
Hardness Total (calculated as CaCO3)	1	N/A	2015/10/14	BBY7SOP-00002	EPA 6020a R1 m
Hardness (calculated as CaCO3)	1	N/A	2015/10/13	BBY7SOP-00002	EPA 6020a R1 m
Mercury (Dissolved-LowLevel) by CVAf	1	N/A	2015/10/15	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total-LowLevel) by CVAf	1	2015/10/14	2015/10/14	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Ion Balance	1	N/A	2015/10/15	BBY WI-00033	SM 22 1030E
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	1	N/A	2015/10/13	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Low Level (dissolved)	1	N/A	2015/10/09	BBY7SOP-00002	EPA 6020A R1 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	1	N/A	2015/10/14	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Low Level (total)	1	N/A	2015/10/13	BBY7SOP-00002	EPA 6020A R1 m
Nitrogen (Total)	1	2015/10/09	2015/10/13	BBY6SOP-00016	SM 22 4500-N C m
Ammonia-N (Preserved)	1	N/A	2015/10/14	BBY6SOP-00009	SM 22 4500-NH3- G m
Nitrate+Nitrite (N) (low level)	1	N/A	2015/10/09	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) (low level)	1	N/A	2015/10/09	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N)	1	N/A	2015/10/10	BBY6SOP-00010	SM 22 4500-NO3- I m
Filter and HNO3 Preserve for Metals	1	N/A	2015/10/09	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (2)	1	N/A	2015/10/11	BBY6SOP-00026	SM 22 4500-H+ B m
Orthophosphate by Konelab (low level)	1	N/A	2015/10/10	BBY6SOP-00013	SM 22 4500-P E m
Sulphate by Automated Colourimetry	1	N/A	2015/10/09	BBY6SOP-00017	SM 22 4500-SO42- E m
Total Dissolved Solids - Low Level	1	N/A	2015/10/13	BBY6SOP-00033	SM 22 2540 C m
TKN (Calc. TN, N/N) total	1	N/A	2015/10/13	BBY WI-00033	Calculation
Carbon (Total Organic) (1, 3)	1	N/A	2015/10/14	EENVSOP-00060	MMCW 119 1996 m
Phosphorus-P (LL Tot, dissolved) - FF/FP	1	2015/10/09	2015/10/09	BBY6SOP-00013	SM 22 4500-P E m
Total Phosphorus	1	N/A	2015/10/09	BBY6SOP-00013	SM 22 4500-P E m
Total Suspended Solids-Low Level	1	2015/10/09	2015/10/10	BBY6SOP-00034	SM 22 2540 D
Turbidity	1	N/A	2015/10/08	BBY6SOP-00027	SM 22 2130 B m

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

Your Project #: ENVMIN03071-01  
Site Location: KUTZ ZE KAYAH  
Your C.O.C. #: 08412539

**Attention:KRISTEN RANGE**

TETRATECH EBA  
61 WASSON PLACE  
WHITEHORSE, YT  
Canada Y1A 0H7

**Report Date: 2015/10/16**  
Report #: R2059640  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B588975**

**Received: 2015/10/08, 13:30**

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

- (1) This test was performed by Maxxam Edmonton Environmental
- (2) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.
- (3) TOC present in the sample should be considered as non-purgeable TOC.

**Encryption Key**

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Morgan Melnychuk, Burnaby Project Manager

Email: MMelnychuk@maxxam.ca

Phone# (604)638-8034 Ext:8034

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Maxxam Job #: B588975  
Report Date: 2015/10/16

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUTZ ZE KAYAH  
Sampler Initials: AJS

### RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		NI4774	NI4774		
Sampling Date		2015/10/05	2015/10/05		
COC Number		08412539	08412539		
	UNITS	WW15-01	WW15-01 Lab-Dup	RDL	QC Batch
<b>Calculated Parameters</b>					
Filter and HNO3 Preservation	N/A	FIELD		N/A	ONSITE
Ion Balance	N/A	1.0		0.010	8066661
Nitrate (N)	mg/L	<0.0020		0.0020	8067176
<b>Misc. Inorganics</b>					
Fluoride (F)	mg/L	0.066		0.010	8069963
Alkalinity (Total as CaCO3)	mg/L	44.7		0.50	8075120
Total Organic Carbon (C)	mg/L	1.7		0.50	8073018
Alkalinity (PP as CaCO3)	mg/L	<0.50		0.50	8075120
Bicarbonate (HCO3)	mg/L	54.5		0.50	8075120
Carbonate (CO3)	mg/L	<0.50		0.50	8075120
Hydroxide (OH)	mg/L	<0.50		0.50	8075120
<b>Anions</b>					
Orthophosphate (P)	mg/L	0.0016 (1)		0.0010	8070645
Dissolved Sulphate (SO4)	mg/L	102		0.50	8069981
Dissolved Chloride (Cl)	mg/L	1.4		0.50	8069980
<b>Nutrients</b>					
Total Ammonia (N)	mg/L	0.039		0.0050	8073885
Dissolved Phosphorus (P)	mg/L	0.0097	0.0100	0.0020	8069818
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.074		0.020	8067348
Nitrate plus Nitrite (N)	mg/L	<0.0020 (2)		0.0020	8069939
Nitrite (N)	mg/L	<0.0020 (2)		0.0020	8069941
Total Nitrogen (N)	mg/L	0.074		0.020	8069745
Total Phosphorus (P)	mg/L	0.0098	0.0093	0.0020	8069820
<b>Physical Properties</b>					
Conductivity	uS/cm	317		1.0	8075132
pH	pH	7.11		N/A	8075131
<b>Physical Properties</b>					
Total Suspended Solids	mg/L	2.7		1.0	8068843
Total Dissolved Solids	mg/L	232	230	1.0	8070336
Turbidity	NTU	4.00		0.10	8067999
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate (1) Sample arrived to laboratory past recommended hold time. (2) Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis.					

Maxxam Job #: B588975  
Report Date: 2015/10/16

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUTZ ZE KAYAH  
Sampler Initials: AJS

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		NI4774	NI4774		
Sampling Date		2015/10/05	2015/10/05		
COC Number		08412539	08412539		
	UNITS	WW15-01	WW15-01 Lab-Dup	RDL	QC Batch
<b>Misc. Inorganics</b>					
Dissolved Hardness (CaCO3)	mg/L	132		0.50	8067792
<b>Elements</b>					
Dissolved Mercury (Hg)	mg/L	<0.0000020	<0.0000020	0.0000020	8075483
<b>Dissolved Metals by ICPMS</b>					
Dissolved Aluminum (Al)	mg/L	0.00144		0.00050	8068470
Dissolved Antimony (Sb)	mg/L	0.000818		0.000020	8068470
Dissolved Arsenic (As)	mg/L	0.0530		0.000020	8068470
Dissolved Barium (Ba)	mg/L	0.0400		0.000020	8068470
Dissolved Beryllium (Be)	mg/L	<0.000010		0.000010	8068470
Dissolved Bismuth (Bi)	mg/L	<0.0000050		0.0000050	8068470
Dissolved Boron (B)	mg/L	<0.010		0.010	8068470
Dissolved Cadmium (Cd)	mg/L	0.0261		0.0000050	8068470
Dissolved Chromium (Cr)	mg/L	<0.00010		0.00010	8068470
Dissolved Cobalt (Co)	mg/L	0.00440		0.0000050	8068470
Dissolved Copper (Cu)	mg/L	0.000268		0.000050	8068470
Dissolved Iron (Fe)	mg/L	8.18		0.0010	8068470
Dissolved Lead (Pb)	mg/L	0.122		0.0000050	8068470
Dissolved Lithium (Li)	mg/L	0.00359		0.00050	8068470
Dissolved Manganese (Mn)	mg/L	0.619		0.000050	8068470
Dissolved Molybdenum (Mo)	mg/L	0.000085		0.000050	8068470
Dissolved Nickel (Ni)	mg/L	0.0126		0.000020	8068470
Dissolved Phosphorus (P)	mg/L	0.0040		0.0020	8068470
Dissolved Selenium (Se)	mg/L	0.000284		0.000040	8068470
Dissolved Silicon (Si)	mg/L	7.82		0.050	8068470
Dissolved Silver (Ag)	mg/L	0.0000140		0.0000050	8068470
Dissolved Strontium (Sr)	mg/L	0.142		0.000050	8068470
Dissolved Thallium (Tl)	mg/L	0.000355		0.0000020	8068470
Dissolved Tin (Sn)	mg/L	<0.00020		0.00020	8068470
Dissolved Titanium (Ti)	mg/L	<0.00050		0.00050	8068470
Dissolved Uranium (U)	mg/L	0.000611		0.0000020	8068470
Dissolved Vanadium (V)	mg/L	<0.00020		0.00020	8068470
Dissolved Zinc (Zn)	mg/L	5.08		0.00010	8068470
Dissolved Zirconium (Zr)	mg/L	<0.00010		0.00010	8068470
Dissolved Calcium (Ca)	mg/L	42.4		0.050	8067175
RDL = Reportable Detection Limit					
Lab-Dup = Laboratory Initiated Duplicate					

Maxxam Job #: B588975  
Report Date: 2015/10/16

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUTZ ZE KAYAH  
Sampler Initials: AJS

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		NI4774	NI4774		
Sampling Date		2015/10/05	2015/10/05		
COC Number		08412539	08412539		
	UNITS	WW15-01	WW15-01 Lab-Dup	RDL	QC Batch
Dissolved Magnesium (Mg)	mg/L	6.40		0.050	8067175
Dissolved Potassium (K)	mg/L	1.95		0.050	8067175
Dissolved Sodium (Na)	mg/L	0.935		0.050	8067175
Dissolved Sulphur (S)	mg/L	35.4		3.0	8067175
RDL = Reportable Detection Limit					
Lab-Dup = Laboratory Initiated Duplicate					

Maxxam Job #: B588975  
Report Date: 2015/10/16

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUTZ ZE KAYAH  
Sampler Initials: AJS

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		NI4774	NI4774		
Sampling Date		2015/10/05	2015/10/05		
COC Number		08412539	08412539		
	UNITS	WW15-01	WW15-01 Lab-Dup	RDL	QC Batch
<b>Calculated Parameters</b>					
Total Hardness (CaCO3)	mg/L	130		0.50	8066659
<b>Elements</b>					
Total Mercury (Hg)	mg/L	0.0000025	<0.0000020	0.0000020	8073790
<b>Total Metals by ICPMS</b>					
Total Aluminum (Al)	mg/L	0.0112		0.00050	8072172
Total Antimony (Sb)	mg/L	0.000931		0.000020	8072172
Total Arsenic (As)	mg/L	0.0516		0.000020	8072172
Total Barium (Ba)	mg/L	0.0384		0.000020	8072172
Total Beryllium (Be)	mg/L	<0.000010		0.000010	8072172
Total Bismuth (Bi)	mg/L	<0.0000050		0.0000050	8072172
Total Boron (B)	mg/L	<0.010		0.010	8072172
Total Cadmium (Cd)	mg/L	0.0244		0.0000050	8072172
Total Chromium (Cr)	mg/L	0.00011		0.00010	8072172
Total Cobalt (Co)	mg/L	0.00423		0.0000050	8072172
Total Copper (Cu)	mg/L	0.000705		0.000050	8072172
Total Iron (Fe)	mg/L	7.95		0.0010	8072172
Total Lead (Pb)	mg/L	0.120		0.0000050	8072172
Total Lithium (Li)	mg/L	0.00332		0.00050	8072172
Total Manganese (Mn)	mg/L	0.582		0.000050	8072172
Total Molybdenum (Mo)	mg/L	0.000095		0.000050	8072172
Total Nickel (Ni)	mg/L	0.0123		0.000020	8072172
Total Phosphorus (P)	mg/L	0.0049		0.0020	8072172
Total Selenium (Se)	mg/L	0.000322		0.000040	8072172
Total Silicon (Si)	mg/L	7.24		0.050	8072172
Total Silver (Ag)	mg/L	0.0000120		0.0000050	8072172
Total Strontium (Sr)	mg/L	0.135		0.000050	8072172
Total Thallium (Tl)	mg/L	0.000386		0.0000020	8072172
Total Tin (Sn)	mg/L	<0.00020		0.00020	8072172
Total Titanium (Ti)	mg/L	<0.00050		0.00050	8072172
Total Uranium (U)	mg/L	0.000572		0.0000020	8072172
Total Vanadium (V)	mg/L	<0.00020		0.00020	8072172
Total Zinc (Zn)	mg/L	4.97		0.00010	8072172
Total Zirconium (Zr)	mg/L	<0.00010		0.00010	8072172
Total Calcium (Ca)	mg/L	41.7		0.050	8066664
RDL = Reportable Detection Limit					
Lab-Dup = Laboratory Initiated Duplicate					

Maxxam Job #: B588975  
Report Date: 2015/10/16

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUTZ ZE KAYAH  
Sampler Initials: AJS

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		NI4774	NI4774		
Sampling Date		2015/10/05	2015/10/05		
COC Number		08412539	08412539		
	UNITS	WW15-01	WW15-01 Lab-Dup	RDL	QC Batch
Total Magnesium (Mg)	mg/L	6.35		0.050	8066664
Total Potassium (K)	mg/L	1.96		0.050	8066664
Total Sodium (Na)	mg/L	0.971		0.050	8066664
Total Sulphur (S)	mg/L	32.1		3.0	8066664
RDL = Reportable Detection Limit					
Lab-Dup = Laboratory Initiated Duplicate					

Maxxam Job #: B588975  
Report Date: 2015/10/16

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUTZ ZE KAYAH  
Sampler Initials: AJS

**GENERAL COMMENTS**

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	5.3°C
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**Results relate only to the items tested.**

Maxxam Job #: B588975  
Report Date: 2015/10/16

**QUALITY ASSURANCE REPORT**

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUTZ ZE KAYAH  
Sampler Initials: AJS

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8067999	Turbidity	2015/10/08			103	80 - 120	<0.10	NTU	NC	20
8068470	Dissolved Aluminum (Al)	2015/10/09	103	80 - 120	101	80 - 120	<0.00050	mg/L	8.6	20
8068470	Dissolved Antimony (Sb)	2015/10/09	106	80 - 120	101	80 - 120	<0.000020	mg/L	NC	20
8068470	Dissolved Arsenic (As)	2015/10/09	106	80 - 120	99	80 - 120	<0.000020	mg/L	1.1	20
8068470	Dissolved Barium (Ba)	2015/10/09	NC	80 - 120	105	80 - 120	<0.000020	mg/L	1.1	20
8068470	Dissolved Beryllium (Be)	2015/10/09	105	80 - 120	97	80 - 120	<0.000010	mg/L	NC	20
8068470	Dissolved Bismuth (Bi)	2015/10/09	106	80 - 120	97	80 - 120	<0.0000050	mg/L	NC	20
8068470	Dissolved Boron (B)	2015/10/09					<0.010	mg/L	NC	20
8068470	Dissolved Cadmium (Cd)	2015/10/09	110	80 - 120	100	80 - 120	<0.0000050	mg/L	NC	20
8068470	Dissolved Chromium (Cr)	2015/10/09	105	80 - 120	100	80 - 120	<0.00010	mg/L	NC	20
8068470	Dissolved Cobalt (Co)	2015/10/09	109	80 - 120	104	80 - 120	<0.0000050	mg/L	8.6	20
8068470	Dissolved Copper (Cu)	2015/10/09	110	80 - 120	103	80 - 120	<0.000050	mg/L	NC	20
8068470	Dissolved Iron (Fe)	2015/10/09	NC	80 - 120	104	80 - 120	<0.0010	mg/L	1.3	20
8068470	Dissolved Lead (Pb)	2015/10/09	109	80 - 120	102	80 - 120	<0.0000050	mg/L	NC	20
8068470	Dissolved Lithium (Li)	2015/10/09	NC	80 - 120	98	80 - 120	<0.00050	mg/L	3.8	20
8068470	Dissolved Manganese (Mn)	2015/10/09	NC	80 - 120	100	80 - 120	<0.000050	mg/L	5.8	20
8068470	Dissolved Molybdenum (Mo)	2015/10/09	101	80 - 120	95	80 - 120	<0.000050	mg/L	NC	20
8068470	Dissolved Nickel (Ni)	2015/10/09	104	80 - 120	100	80 - 120	<0.000020	mg/L	4.6	20
8068470	Dissolved Phosphorus (P)	2015/10/09					<0.0020	mg/L		
8068470	Dissolved Selenium (Se)	2015/10/09	112	80 - 120	96	80 - 120	<0.000040	mg/L	NC	20
8068470	Dissolved Silicon (Si)	2015/10/09					<0.050	mg/L	7.4	20
8068470	Dissolved Silver (Ag)	2015/10/09	112	80 - 120	97	80 - 120	<0.0000050	mg/L	NC	20
8068470	Dissolved Strontium (Sr)	2015/10/09	NC	80 - 120	98	80 - 120	<0.000050	mg/L	1.4	20
8068470	Dissolved Thallium (Tl)	2015/10/09	100	80 - 120	99	80 - 120	<0.0000020	mg/L	NC	20
8068470	Dissolved Tin (Sn)	2015/10/09	94	80 - 120	97	80 - 120	<0.00020	mg/L	NC	20
8068470	Dissolved Titanium (Ti)	2015/10/09	100	80 - 120	97	80 - 120	<0.00050	mg/L	NC	20
8068470	Dissolved Uranium (U)	2015/10/09	109	80 - 120	102	80 - 120	<0.0000020	mg/L	3.9	20
8068470	Dissolved Vanadium (V)	2015/10/09	107	80 - 120	108	80 - 120	<0.00020	mg/L	NC	20
8068470	Dissolved Zinc (Zn)	2015/10/09	107	80 - 120	100	80 - 120	<0.00010	mg/L	0.35	20
8068470	Dissolved Zirconium (Zr)	2015/10/09					<0.00010	mg/L	NC	20
8068843	Total Suspended Solids	2015/10/10			102	80 - 120	<1.0	mg/L		

Maxxam Job #: B588975  
Report Date: 2015/10/16

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUTZ ZE KAYAH  
Sampler Initials: AJS

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8069745	Total Nitrogen (N)	2015/10/13	99	80 - 120	95	80 - 120	<0.020	mg/L	1.8	20
8069818	Dissolved Phosphorus (P)	2015/10/09	104	80 - 120	94	80 - 120	<0.0020	mg/L	NC	20
8069820	Total Phosphorus (P)	2015/10/09	109	80 - 120	94	80 - 120	<0.0020	mg/L	NC	20
8069939	Nitrate plus Nitrite (N)	2015/10/09	103	80 - 120	98	80 - 120	<0.0020	mg/L	NC	25
8069941	Nitrite (N)	2015/10/09	100	80 - 120	95	80 - 120	<0.0020	mg/L	NC	25
8069963	Fluoride (F)	2015/10/09			102	80 - 120	<0.010	mg/L		
8069980	Dissolved Chloride (Cl)	2015/10/09	NC	80 - 120	106	80 - 120	0.56, RDL=0.50	mg/L	0.95	20
8069981	Dissolved Sulphate (SO4)	2015/10/09			101	80 - 120	<0.50	mg/L		
8070336	Total Dissolved Solids	2015/10/13	103	80 - 120	96	80 - 120	<1.0	mg/L	0.87	20
8070645	Orthophosphate (P)	2015/10/10	113	80 - 120	97	80 - 120	<0.0010	mg/L	NC	20
8072172	Total Aluminum (Al)	2015/10/13	108	80 - 120	105	80 - 120	<0.00050	mg/L	NC	20
8072172	Total Antimony (Sb)	2015/10/13	95	80 - 120	98	80 - 120	<0.000020	mg/L	NC	20
8072172	Total Arsenic (As)	2015/10/13	100	80 - 120	96	80 - 120	<0.000020	mg/L	NC	20
8072172	Total Barium (Ba)	2015/10/13	102	80 - 120	101	80 - 120	<0.000020	mg/L	NC	20
8072172	Total Beryllium (Be)	2015/10/13	95	80 - 120	93	80 - 120	<0.000010	mg/L	NC	20
8072172	Total Bismuth (Bi)	2015/10/13	100	80 - 120	98	80 - 120	<0.0000050	mg/L	NC	20
8072172	Total Boron (B)	2015/10/13					<0.010	mg/L	NC	20
8072172	Total Cadmium (Cd)	2015/10/13	98	80 - 120	93	80 - 120	<0.0000050	mg/L	NC	20
8072172	Total Chromium (Cr)	2015/10/13	102	80 - 120	99	80 - 120	<0.00010	mg/L	NC	20
8072172	Total Cobalt (Co)	2015/10/13	105	80 - 120	102	80 - 120	<0.0000050	mg/L	NC	20
8072172	Total Copper (Cu)	2015/10/13	103	80 - 120	103	80 - 120	<0.000050	mg/L	NC	20
8072172	Total Iron (Fe)	2015/10/13	97	80 - 120	104	80 - 120	<0.0010	mg/L	NC	20
8072172	Total Lead (Pb)	2015/10/13	105	80 - 120	103	80 - 120	<0.0000050	mg/L	NC	20
8072172	Total Lithium (Li)	2015/10/13	97	80 - 120	87	80 - 120	<0.00050	mg/L	NC	20
8072172	Total Manganese (Mn)	2015/10/13	102	80 - 120	99	80 - 120	<0.000050	mg/L	NC	20
8072172	Total Molybdenum (Mo)	2015/10/13	93	80 - 120	93	80 - 120	<0.000050	mg/L	NC	20
8072172	Total Nickel (Ni)	2015/10/13	103	80 - 120	100	80 - 120	<0.000020	mg/L	NC	20
8072172	Total Phosphorus (P)	2015/10/13					<0.0020	mg/L		
8072172	Total Selenium (Se)	2015/10/13	90	80 - 120	94	80 - 120	<0.000040	mg/L	NC	20
8072172	Total Silicon (Si)	2015/10/13					<0.050	mg/L	NC	20
8072172	Total Silver (Ag)	2015/10/13	89	80 - 120	95	80 - 120	<0.0000050	mg/L	NC	20



Maxxam Job #: B588975  
Report Date: 2015/10/16

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUTZ ZE KAYAH  
Sampler Initials: AJS

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8072172	Total Strontium (Sr)	2015/10/13	98	80 - 120	92	80 - 120	<0.000050	mg/L	NC	20
8072172	Total Thallium (Tl)	2015/10/13	99	80 - 120	98	80 - 120	<0.000020	mg/L	NC	20
8072172	Total Tin (Sn)	2015/10/13	93	80 - 120	115	80 - 120	<0.00020	mg/L	NC	20
8072172	Total Titanium (Ti)	2015/10/13	99	80 - 120	96	80 - 120	<0.00050	mg/L	NC	20
8072172	Total Uranium (U)	2015/10/13	105	80 - 120	104	80 - 120	<0.000020	mg/L	NC	20
8072172	Total Vanadium (V)	2015/10/13	110	80 - 120	108	80 - 120	<0.00020	mg/L	NC	20
8072172	Total Zinc (Zn)	2015/10/13	103	80 - 120	100	80 - 120	<0.00010	mg/L	NC	20
8072172	Total Zirconium (Zr)	2015/10/13					<0.00010	mg/L	NC	20
8073018	Total Organic Carbon (C)	2015/10/14	98	80 - 120	108	80 - 120	<0.50	mg/L	3.2	20
8073790	Total Mercury (Hg)	2015/10/14	92	80 - 120	97	80 - 120	<0.000020	mg/L	NC	20
8073885	Total Ammonia (N)	2015/10/14			103	80 - 120	<0.0050	mg/L		
8075120	Alkalinity (PP as CaCO3)	2015/10/11					<0.50	mg/L	NC	20
8075120	Alkalinity (Total as CaCO3)	2015/10/11	104	80 - 120	97	80 - 120	<0.50	mg/L	8.9	20
8075120	Bicarbonate (HCO3)	2015/10/11					<0.50	mg/L	8.9	20
8075120	Carbonate (CO3)	2015/10/11					<0.50	mg/L	NC	20
8075120	Hydroxide (OH)	2015/10/11					<0.50	mg/L	NC	20
8075131	pH	2015/10/11			101	97 - 103			1.4	N/A
8075132	Conductivity	2015/10/11			99	80 - 120	1.3, RDL=1.0	uS/cm	9.2	20
8075483	Dissolved Mercury (Hg)	2015/10/15	102	80 - 120	98	80 - 120	<0.000020	mg/L	NC	20

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

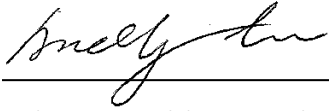
NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

Maxxam Job #: B588975  
Report Date: 2015/10/16

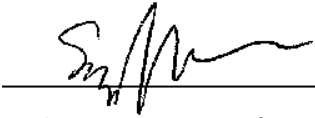
TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUTZ ZE KAYAH  
Sampler Initials: AJS

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Andy Lu, Data Validation Coordinator



Sandy Yuan, M.Sc., Scientific Specialist

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Invoice Information		Report Information (if differs from invoice)				Project Information (where applicable)				Turnaround Time (TAT) Required		
Company Name: <b>BMC MINERALS LTD.</b>		Company Name: <b>TETRATECH EBA</b>				Quotation #: <b>B50743</b>				<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses)		
Contact Name: <b>ACCOUNTS PAYABLE</b>		Contact Name: <b>Stephan Klump</b>				P.O. #/ AFE#:				<b>PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS</b>		
Address: <b>530-1130 WEST PENDER ST</b>		Address: <b>61 WASSON PLACE</b>				Project #: <b>ENVMIN03071-01</b>				Rush TAT (Surcharges will be applied)		
Vancouver, BC PC: V6E 4A4		Whitehorse, YK PC: V1A 0H7				Site Location: <b>Kudz Ze Kayah</b>				<input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days		
Phone:		Phone: <b>(867) 668-9220</b>				Site #:				<input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days		
Email:		Email: <b>Stephan.Klump@TETRATECH.COM</b>				Sampled By: <b>AJS</b>				Date Required:		
Regulatory Criteria		Special Instructions		Analysis Requested				Rush Confirmation #:				
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> BC CSR Water <input type="checkbox"/> CCME (Specify) <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC Water Quality		<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify) USE SCENARIO # <b>12485</b>		ROUTINE (incl. TDS, Alk, EC, pH, TOC, TSS (LL, Turb, Ion Bal)) MAJOR IONS (Chloride, Fluoride, Sulphate) NUTRIENTS (Total Nitrogen, NH4, NO2, NO3, PO4, TP, TAN) LOW LEVEL DISSOLVED METALS (Incl. CV Hg) LOW LEVEL TOTAL METALS (Incl. CV Hg) Phosphorous (LL Tot, dissolved)				LABORATORY USE ONLY CUSTODY SEAL Y/N Present Intact 1A      565 COOLING MEDIA PRESENT Y N COMMENTS				
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM												
Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	ROUTINE (incl. TDS, Alk, EC, pH, TOC, TSS (LL, Turb, Ion Bal))	MAJOR IONS (Chloride, Fluoride, Sulphate)	NUTRIENTS (Total Nitrogen, NH4, NO2, NO3, PO4, TP, TAN)	LOW LEVEL DISSOLVED METALS (Incl. CV Hg)	LOW LEVEL TOTAL METALS (Incl. CV Hg)	Phosphorous (LL Tot, dissolved)	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE
1	WW15-01	NJ474	10/5/2015	Water	X	X	X	X	X	X	13	
2												
3												
4												
5												
6												
7												
8												
9												
10												
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #				
				<i>CM Laurel Berthier</i>		2015/10/08	13:30	B588975				



Your Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Your C.O.C. #: G032789

**Attention:KRISTEN RANGE**

TETRATECH EBA  
61 WASSON PLACE  
WHITEHORSE, YT  
Canada Y1A 0H7

**Report Date: 2015/10/20**  
Report #: R2061631  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B590273**

**Received: 2015/10/13, 10:00**

Sample Matrix: Water  
# Samples Received: 1

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Analytical Method</b>
Acidity pH 4.5 & pH 8.3 (as CaCO3)	1	N/A	2015/10/15	BBY6SOP-00037	SM 22 2310 B m
Alkalinity - Water	1	2015/10/19	2015/10/19	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry	1	N/A	2015/10/15	BBY6SOP-00011	SM 22 4500-Cl- G m
Conductance - water	1	N/A	2015/10/19	BBY6SOP-00026	SM 22 2510 B m
Fluoride	1	N/A	2015/10/15	BBY6SOP-00048	SM 22 4500-F C m
Hardness Total (calculated as CaCO3)	1	N/A	2015/10/19	BBY7SOP-00002	EPA 6020a R1 m
Hardness (calculated as CaCO3)	1	N/A	2015/10/19	BBY7SOP-00002	EPA 6020a R1 m
Mercury (Dissolved-LowLevel) by CVAf	1	N/A	2015/10/20	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total-LowLevel) by CVAf	1	2015/10/20	2015/10/20	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Ion Balance	1	N/A	2015/10/20	BBY WI-00033	SM 22 1030E
Sum of cations, anions	1	N/A	2015/10/19	Calc	
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	1	N/A	2015/10/19	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Low Level (dissolved)	1	N/A	2015/10/17	BBY7SOP-00002	EPA 6020A R1 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	1	N/A	2015/10/19	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Low Level (total)	1	N/A	2015/10/17	BBY7SOP-00002	EPA 6020A R1 m
Nitrogen (Total)	1	2015/10/15	2015/10/15	BBY6SOP-00016	SM 22 4500-N C m
Ammonia-N (Preserved)	1	N/A	2015/10/19	BBY6SOP-00009	SM 22 4500-NH3- G m
Nitrate+Nitrite (N) (low level)	1	N/A	2015/10/15	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) (low level)	1	N/A	2015/10/15	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N)	1	N/A	2015/10/16	BBY6SOP-00010	SM 22 4500-NO3- I m
Filter and HNO3 Preserve for Metals	1	N/A	2015/10/17	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (1)	1	N/A	2015/10/19	BBY6SOP-00026	SM 22 4500-H+ B m
Orthophosphate by Konelab (low level)	1	N/A	2015/10/16	BBY6SOP-00013	SM 22 4500-P E m
Sulphate by Automated Colourimetry	1	N/A	2015/10/15	BBY6SOP-00017	SM 22 4500-SO42- E m
Total Dissolved Solids - Low Level	1	N/A	2015/10/17	BBY6SOP-00033	SM 22 2540 C m
TKN (Calc. TN, N/N) total	1	N/A	2015/10/16	BBY WI-00033	Calculation
Carbon (Total Organic) (2)	1	N/A	2015/10/15	BBY6SOP-00003	SM 22 5310 C m
Phosphorus-P (LL Tot, dissolved) - FF/FP	1	2015/10/15	2015/10/15	BBY6SOP-00013	SM 22 4500-P E m
Total Phosphorus	1	N/A	2015/10/15	BBY6SOP-00013	SM 22 4500-P E m
Total Suspended Solids-Low Level	1	2015/10/15	2015/10/16	BBY6SOP-00034	SM 22 2540 D

Your Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Your C.O.C. #: G032789

**Attention:KRISTEN RANGE**

TETRATECH EBA  
61 WASSON PLACE  
WHITEHORSE, YT  
Canada Y1A 0H7

**Report Date: 2015/10/20**  
Report #: R2061631  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B590273**

**Received: 2015/10/13, 10:00**

Sample Matrix: Water  
# Samples Received: 1

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Analytical Method</b>
Turbidity	1	N/A	2015/10/16	BBY6SOP-00027	SM 22 2130 B m

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

(2) TOC present in the sample should be considered as non-purgeable TOC.

**Encryption Key**

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Morgan Melnychuk, Burnaby Project Manager

Email: MMelnychuk@maxxam.ca

Phone# (604)638-8034 Ext:8034

=====

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B590273  
Report Date: 2015/10/20

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		NJ3446	NJ3446		
Sampling Date		2015/10/11 06:30	2015/10/11 06:30		
COC Number		G032789	G032789		
	UNITS	WW15-02	WW15-02 Lab-Dup	RDL	QC Batch
<b>Misc. Inorganics</b>					
Acidity (pH 4.5)	mg/L	<0.50	<0.50	0.50	8075811
Acidity (pH 8.3)	mg/L	3.38	2.82	0.50	8075811
<b>Calculated Parameters</b>					
Anion Sum	meq/L	4.3		N/A	8079391
Cation Sum	meq/L	4.5		N/A	8079391
Filter and HNO3 Preservation	N/A	FIELD		N/A	ONSITE
Ion Balance	N/A	1.0		0.010	8074314
Nitrate (N)	mg/L	0.0620		0.0020	8073530
<b>Misc. Inorganics</b>					
Fluoride (F)	mg/L	0.086		0.010	8075676
Alkalinity (Total as CaCO3)	mg/L	160		0.50	8079664
Total Organic Carbon (C)	mg/L	2.22		0.50	8075665
Alkalinity (PP as CaCO3)	mg/L	<0.50		0.50	8079664
Bicarbonate (HCO3)	mg/L	195		0.50	8079664
Carbonate (CO3)	mg/L	<0.50		0.50	8079664
Hydroxide (OH)	mg/L	<0.50		0.50	8079664
<b>Anions</b>					
Orthophosphate (P)	mg/L	<0.0010 (1)		0.0010	8077476
Dissolved Sulphate (SO4)	mg/L	51.8		0.50	8075963
Dissolved Chloride (Cl)	mg/L	0.75		0.50	8075962
<b>Nutrients</b>					
Total Ammonia (N)	mg/L	0.035		0.0050	8080100
Dissolved Phosphorus (P)	mg/L	0.0034	0.0029	0.0020	8077349
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.076		0.020	8073695
Nitrate plus Nitrite (N)	mg/L	0.0620 (1)		0.0020	8075970
Nitrite (N)	mg/L	<0.0020 (1)		0.0020	8075972
Total Nitrogen (N)	mg/L	0.138		0.020	8075849
Total Phosphorus (P)	mg/L	0.0027		0.0020	8075961
<b>Physical Properties</b>					
Conductivity	uS/cm	407		1.0	8079668
pH	pH	8.10		N/A	8079667
<b>Physical Properties</b>					
Total Suspended Solids	mg/L	1.1		1.0	8075018
RDL = Reportable Detection Limit					
Lab-Dup = Laboratory Initiated Duplicate					
(1) Sample analysed past recommended hold time.					

Maxxam Job #: B590273  
Report Date: 2015/10/20

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		NJ3446	NJ3446		
Sampling Date		2015/10/11 06:30	2015/10/11 06:30		
COC Number		G032789	G032789		
	UNITS	WW15-02	WW15-02 Lab-Dup	RDL	QC Batch
Total Dissolved Solids	mg/L	274	278	1.0	8076833
Turbidity	NTU	3.22		0.10	8076811
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate					

Maxxam Job #: B590273  
Report Date: 2015/10/20

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		NJ3446		
<b>Sampling Date</b>		2015/10/11 06:30		
<b>COC Number</b>		G032789		
	<b>UNITS</b>	<b>WW15-02</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Misc. Inorganics</b>				
Dissolved Hardness (CaCO3)	mg/L	218	0.50	8073129
<b>Elements</b>				
Dissolved Mercury (Hg)	mg/L	<0.000020	0.000020	8080723
<b>Dissolved Metals by ICPMS</b>				
Dissolved Aluminum (Al)	mg/L	0.00466	0.00050	8076694
Dissolved Antimony (Sb)	mg/L	0.000094	0.000020	8076694
Dissolved Arsenic (As)	mg/L	0.00177	0.000020	8076694
Dissolved Barium (Ba)	mg/L	0.0547	0.000020	8076694
Dissolved Beryllium (Be)	mg/L	<0.000010	0.000010	8076694
Dissolved Bismuth (Bi)	mg/L	<0.0000050	0.0000050	8076694
Dissolved Boron (B)	mg/L	<0.010	0.010	8076694
Dissolved Cadmium (Cd)	mg/L	0.0000150	0.0000050	8076694
Dissolved Chromium (Cr)	mg/L	<0.00010	0.00010	8076694
Dissolved Cobalt (Co)	mg/L	0.000157	0.0000050	8076694
Dissolved Copper (Cu)	mg/L	0.000136	0.000050	8076694
Dissolved Iron (Fe)	mg/L	0.468	0.0010	8076694
Dissolved Lead (Pb)	mg/L	0.0000710	0.0000050	8076694
Dissolved Lithium (Li)	mg/L	0.00684	0.00050	8076694
Dissolved Manganese (Mn)	mg/L	0.0867	0.000050	8076694
Dissolved Molybdenum (Mo)	mg/L	0.000446	0.000050	8076694
Dissolved Nickel (Ni)	mg/L	0.000506	0.000020	8076694
Dissolved Phosphorus (P)	mg/L	0.0033	0.0020	8076694
Dissolved Selenium (Se)	mg/L	0.000167	0.000040	8076694
Dissolved Silicon (Si)	mg/L	3.84	0.050	8076694
Dissolved Silver (Ag)	mg/L	<0.0000050	0.0000050	8076694
Dissolved Strontium (Sr)	mg/L	0.221	0.000050	8076694
Dissolved Thallium (Tl)	mg/L	0.0000020	0.0000020	8076694
Dissolved Tin (Sn)	mg/L	<0.00020	0.00020	8076694
Dissolved Titanium (Ti)	mg/L	<0.00050	0.00050	8076694
Dissolved Uranium (U)	mg/L	0.00515	0.0000020	8076694
Dissolved Vanadium (V)	mg/L	<0.00020	0.00020	8076694
Dissolved Zinc (Zn)	mg/L	0.00576	0.00010	8076694
Dissolved Zirconium (Zr)	mg/L	0.00034	0.00010	8076694
Dissolved Calcium (Ca)	mg/L	67.1	0.050	8073526
Dissolved Magnesium (Mg)	mg/L	12.4	0.050	8073526
RDL = Reportable Detection Limit				



Maxxam Job #: B590273  
Report Date: 2015/10/20

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		NJ3446		
<b>Sampling Date</b>		2015/10/11 06:30		
<b>COC Number</b>		G032789		
	<b>UNITS</b>	<b>WW15-02</b>	<b>RDL</b>	<b>QC Batch</b>
Dissolved Potassium (K)	mg/L	1.66	0.050	8073526
Dissolved Sodium (Na)	mg/L	1.05	0.050	8073526
Dissolved Sulphur (S)	mg/L	16.9	3.0	8073526
RDL = Reportable Detection Limit				

Maxxam Job #: B590273  
Report Date: 2015/10/20

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		NJ3446		
<b>Sampling Date</b>		2015/10/11 06:30		
<b>COC Number</b>		G032789		
	<b>UNITS</b>	<b>WW15-02</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>				
Total Hardness (CaCO3)	mg/L	214	0.50	8073033
<b>Elements</b>				
Total Mercury (Hg)	mg/L	<0.0000020	0.0000020	8080814
<b>Total Metals by ICPMS</b>				
Total Aluminum (Al)	mg/L	0.00575	0.00050	8076712
Total Antimony (Sb)	mg/L	0.000093	0.000020	8076712
Total Arsenic (As)	mg/L	0.00173	0.000020	8076712
Total Barium (Ba)	mg/L	0.0524	0.000020	8076712
Total Beryllium (Be)	mg/L	<0.000010	0.000010	8076712
Total Bismuth (Bi)	mg/L	<0.0000050	0.0000050	8076712
Total Boron (B)	mg/L	<0.010	0.010	8076712
Total Cadmium (Cd)	mg/L	0.0000250	0.0000050	8076712
Total Chromium (Cr)	mg/L	0.00015	0.00010	8076712
Total Cobalt (Co)	mg/L	0.000154	0.0000050	8076712
Total Copper (Cu)	mg/L	0.000228	0.000050	8076712
Total Iron (Fe)	mg/L	0.470	0.0010	8076712
Total Lead (Pb)	mg/L	0.0000970	0.0000050	8076712
Total Lithium (Li)	mg/L	0.00708	0.00050	8076712
Total Manganese (Mn)	mg/L	0.0841	0.000050	8076712
Total Molybdenum (Mo)	mg/L	0.000446	0.000050	8076712
Total Nickel (Ni)	mg/L	0.000474	0.000020	8076712
Total Phosphorus (P)	mg/L	0.0028	0.0020	8076712
Total Selenium (Se)	mg/L	0.000141	0.000040	8076712
Total Silicon (Si)	mg/L	3.75	0.050	8076712
Total Silver (Ag)	mg/L	<0.0000050	0.0000050	8076712
Total Strontium (Sr)	mg/L	0.211	0.000050	8076712
Total Thallium (Tl)	mg/L	0.0000020	0.0000020	8076712
Total Tin (Sn)	mg/L	<0.00020	0.00020	8076712
Total Titanium (Ti)	mg/L	0.00054	0.00050	8076712
Total Uranium (U)	mg/L	0.00507	0.0000020	8076712
Total Vanadium (V)	mg/L	<0.00020	0.00020	8076712
Total Zinc (Zn)	mg/L	0.00596	0.00010	8076712
Total Zirconium (Zr)	mg/L	0.00032	0.00010	8076712
Total Calcium (Ca)	mg/L	64.9	0.050	8073527
Total Magnesium (Mg)	mg/L	12.6	0.050	8073527
RDL = Reportable Detection Limit				

Maxxam Job #: B590273  
Report Date: 2015/10/20

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		NJ3446		
<b>Sampling Date</b>		2015/10/11 06:30		
<b>COC Number</b>		G032789		
	<b>UNITS</b>	<b>WW15-02</b>	<b>RDL</b>	<b>QC Batch</b>
Total Potassium (K)	mg/L	1.62	0.050	8073527
Total Sodium (Na)	mg/L	1.03	0.050	8073527
Total Sulphur (S)	mg/L	17.0	3.0	8073527
RDL = Reportable Detection Limit				

Maxxam Job #: B590273  
Report Date: 2015/10/20

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH

### GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	3.7°C
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Sample NJ3446-01 : Turbidity analyzed past recommended hold time.

**Results relate only to the items tested.**

Maxxam Job #: B590273  
Report Date: 2015/10/20

**QUALITY ASSURANCE REPORT**

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8075018	Total Suspended Solids	2015/10/16			101	80 - 120	<1.0	mg/L		
8075665	Total Organic Carbon (C)	2015/10/15	100	80 - 120	109	80 - 120	<0.50	mg/L	4.6	20
8075676	Fluoride (F)	2015/10/15			96	80 - 120	<0.010	mg/L		
8075811	Acidity (pH 4.5)	2015/10/15					<0.50	mg/L	NC	20
8075811	Acidity (pH 8.3)	2015/10/15			99	80 - 120	<0.50	mg/L	18	20
8075849	Total Nitrogen (N)	2015/10/15	NC	80 - 120	95	80 - 120	<0.020	mg/L	4.7	20
8075961	Total Phosphorus (P)	2015/10/15			110	80 - 120	<0.0020	mg/L		
8075962	Dissolved Chloride (Cl)	2015/10/15			102	80 - 120	<0.50	mg/L		
8075963	Dissolved Sulphate (SO4)	2015/10/15			94	80 - 120	<0.50	mg/L		
8075970	Nitrate plus Nitrite (N)	2015/10/15	108	80 - 120	102	80 - 120	<0.0020	mg/L	NC	25
8075972	Nitrite (N)	2015/10/15	100	80 - 120	92	80 - 120	<0.0020	mg/L	NC	25
8076694	Dissolved Aluminum (Al)	2015/10/17	108	80 - 120	105	80 - 120	<0.00050	mg/L	NC	20
8076694	Dissolved Antimony (Sb)	2015/10/17	105	80 - 120	104	80 - 120	<0.000020	mg/L	NC	20
8076694	Dissolved Arsenic (As)	2015/10/17	101	80 - 120	99	80 - 120	<0.000020	mg/L	NC	20
8076694	Dissolved Barium (Ba)	2015/10/17	108	80 - 120	107	80 - 120	<0.000020	mg/L	NC	20
8076694	Dissolved Beryllium (Be)	2015/10/17	101	80 - 120	100	80 - 120	<0.000010	mg/L	NC	20
8076694	Dissolved Bismuth (Bi)	2015/10/17	101	80 - 120	100	80 - 120	<0.0000050	mg/L	NC	20
8076694	Dissolved Boron (B)	2015/10/17					<0.010	mg/L	NC	20
8076694	Dissolved Cadmium (Cd)	2015/10/17	100	80 - 120	98	80 - 120	<0.0000050	mg/L	NC	20
8076694	Dissolved Chromium (Cr)	2015/10/17	102	80 - 120	101	80 - 120	<0.00010	mg/L	NC	20
8076694	Dissolved Cobalt (Co)	2015/10/17	106	80 - 120	106	80 - 120	<0.0000050	mg/L	NC	20
8076694	Dissolved Copper (Cu)	2015/10/17	103	80 - 120	102	80 - 120	<0.000050	mg/L	NC	20
8076694	Dissolved Iron (Fe)	2015/10/17	107	80 - 120	106	80 - 120	<0.0010	mg/L	NC	20
8076694	Dissolved Lead (Pb)	2015/10/17	105	80 - 120	104	80 - 120	<0.0000050	mg/L	NC	20
8076694	Dissolved Lithium (Li)	2015/10/17	99	80 - 120	103	80 - 120	<0.00050	mg/L	NC	20
8076694	Dissolved Manganese (Mn)	2015/10/17	101	80 - 120	101	80 - 120	<0.000050	mg/L	NC	20
8076694	Dissolved Molybdenum (Mo)	2015/10/17	97	80 - 120	95	80 - 120	<0.000050	mg/L	NC	20
8076694	Dissolved Nickel (Ni)	2015/10/17	101	80 - 120	101	80 - 120	<0.000020	mg/L	NC	20
8076694	Dissolved Phosphorus (P)	2015/10/17					<0.0020	mg/L	NC	20
8076694	Dissolved Selenium (Se)	2015/10/17	99	80 - 120	99	80 - 120	<0.000040	mg/L	NC	20
8076694	Dissolved Silicon (Si)	2015/10/17					<0.050	mg/L	NC	20

Maxxam Job #: B590273  
Report Date: 2015/10/20

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8076694	Dissolved Silver (Ag)	2015/10/17	104	80 - 120	92	80 - 120	<0.0000050	mg/L	NC	20
8076694	Dissolved Strontium (Sr)	2015/10/17	99	80 - 120	101	80 - 120	<0.000050	mg/L	NC	20
8076694	Dissolved Thallium (Tl)	2015/10/17	99	80 - 120	96	80 - 120	<0.0000020	mg/L	NC	20
8076694	Dissolved Tin (Sn)	2015/10/17	104	80 - 120	101	80 - 120	<0.00020	mg/L	NC	20
8076694	Dissolved Titanium (Ti)	2015/10/17	94	80 - 120	101	80 - 120	<0.00050	mg/L	NC	20
8076694	Dissolved Uranium (U)	2015/10/17	105	80 - 120	104	80 - 120	<0.0000020	mg/L	NC	20
8076694	Dissolved Vanadium (V)	2015/10/17	111	80 - 120	105	80 - 120	<0.00020	mg/L	NC	20
8076694	Dissolved Zinc (Zn)	2015/10/17	106	80 - 120	102	80 - 120	<0.00010	mg/L	NC	20
8076694	Dissolved Zirconium (Zr)	2015/10/17					<0.00010	mg/L	NC	20
8076712	Total Aluminum (Al)	2015/10/17	98	80 - 120	108	80 - 120	<0.00050	mg/L	NC	20
8076712	Total Antimony (Sb)	2015/10/17	97	80 - 120	106	80 - 120	<0.000020	mg/L	NC	20
8076712	Total Arsenic (As)	2015/10/17	96	80 - 120	102	80 - 120	<0.000020	mg/L	NC	20
8076712	Total Barium (Ba)	2015/10/17	102	80 - 120	109	80 - 120	<0.000020	mg/L	NC	20
8076712	Total Beryllium (Be)	2015/10/17	96	80 - 120	103	80 - 120	<0.000010	mg/L	NC	20
8076712	Total Bismuth (Bi)	2015/10/17	93	80 - 120	102	80 - 120	<0.0000050	mg/L	NC	20
8076712	Total Boron (B)	2015/10/17					<0.010	mg/L	NC	20
8076712	Total Cadmium (Cd)	2015/10/17	97	80 - 120	104	80 - 120	<0.0000050	mg/L	NC	20
8076712	Total Chromium (Cr)	2015/10/17	95	80 - 120	103	80 - 120	<0.00010	mg/L	NC	20
8076712	Total Cobalt (Co)	2015/10/17	98	80 - 120	106	80 - 120	<0.0000050	mg/L	NC	20
8076712	Total Copper (Cu)	2015/10/17	96	80 - 120	104	80 - 120	<0.000050	mg/L	NC	20
8076712	Total Iron (Fe)	2015/10/17	98	80 - 120	105	80 - 120	<0.0010	mg/L	NC	20
8076712	Total Lead (Pb)	2015/10/17	99	80 - 120	109	80 - 120	<0.0000050	mg/L	1.7	20
8076712	Total Lithium (Li)	2015/10/17	94	80 - 120	104	80 - 120	<0.00050	mg/L	NC	20
8076712	Total Manganese (Mn)	2015/10/17	95	80 - 120	104	80 - 120	<0.000050	mg/L	NC	20
8076712	Total Molybdenum (Mo)	2015/10/17	95	80 - 120	103	80 - 120	<0.000050	mg/L	NC	20
8076712	Total Nickel (Ni)	2015/10/17	94	80 - 120	103	80 - 120	<0.000020	mg/L	NC	20
8076712	Total Phosphorus (P)	2015/10/17					<0.0020	mg/L	NC	20
8076712	Total Selenium (Se)	2015/10/17	97	80 - 120	97	80 - 120	<0.000040	mg/L	NC	20
8076712	Total Silicon (Si)	2015/10/17					<0.050	mg/L	NC	20
8076712	Total Silver (Ag)	2015/10/17	101	80 - 120	94	80 - 120	<0.0000050	mg/L	NC	20
8076712	Total Strontium (Sr)	2015/10/17	93	80 - 120	102	80 - 120	<0.000050	mg/L	NC	20

Maxxam Job #: B590273  
Report Date: 2015/10/20

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8076712	Total Thallium (Tl)	2015/10/17	92	80 - 120	102	80 - 120	<0.0000020	mg/L	NC	20
8076712	Total Tin (Sn)	2015/10/17	93	80 - 120	102	80 - 120	<0.00020	mg/L	NC	20
8076712	Total Titanium (Ti)	2015/10/17	92	80 - 120	101	80 - 120	<0.00050	mg/L	NC	20
8076712	Total Uranium (U)	2015/10/17	95	80 - 120	104	80 - 120	<0.0000020	mg/L	NC	20
8076712	Total Vanadium (V)	2015/10/17	117	80 - 120	112	80 - 120	0.00030, RDL=0.00020	mg/L	NC	20
8076712	Total Zinc (Zn)	2015/10/17	97	80 - 120	101	80 - 120	<0.00010	mg/L	3.1	20
8076712	Total Zirconium (Zr)	2015/10/17					<0.00010	mg/L	NC	20
8076811	Turbidity	2015/10/16			100	80 - 120	<0.10	NTU	NC	20
8076833	Total Dissolved Solids	2015/10/17	100	80 - 120	102	80 - 120	<1.0	mg/L	1.4	20
8077349	Dissolved Phosphorus (P)	2015/10/15	89	80 - 120	107	80 - 120	<0.0020	mg/L	NC	20
8077476	Orthophosphate (P)	2015/10/16	99	80 - 120	91	80 - 120	<0.0010	mg/L	NC	20
8079664	Alkalinity (PP as CaCO3)	2015/10/19					<0.50	mg/L		
8079664	Alkalinity (Total as CaCO3)	2015/10/19			91	80 - 120	0.69, RDL=0.50	mg/L		
8079664	Bicarbonate (HCO3)	2015/10/19					0.84, RDL=0.50	mg/L		
8079664	Carbonate (CO3)	2015/10/19					<0.50	mg/L		
8079664	Hydroxide (OH)	2015/10/19					<0.50	mg/L		
8079667	pH	2015/10/19			101	97 - 103			0.28	N/A
8079668	Conductivity	2015/10/19			98	80 - 120	1.1, RDL=1.0	uS/cm		
8080100	Total Ammonia (N)	2015/10/19	NC	80 - 120	104	80 - 120	0.0065, RDL=0.0050	mg/L	1.1	20
8080723	Dissolved Mercury (Hg)	2015/10/20	90	80 - 120	106	80 - 120	<0.0000020	mg/L	NC	20
8080814	Total Mercury (Hg)	2015/10/20	101	80 - 120	106	80 - 120	<0.0000020	mg/L	NC	20

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

Maxxam Job #: B590273  
Report Date: 2015/10/20

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Andy Lu, Data Validation Coordinator

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.





**CHAIN OF CUSTODY RECORD**

Invoice Information		Report Information (if differs from invoice)				Project Information (where applicable)				Turnaround Time (TAT) Required			
Company Name: #11954 BMC Mineral (NO. 1) LTD.		Company Name: #31161 Tetra Tech EBA				Quotation #: B50743				<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses)			
Contact Name: ACCOUNTS PAYABLE		Contact Name: Stephan Klump				P.O. #/ AFE#:				PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS			
Address: 530-1130 West Pender Street, Vancouver BC V6E 4A4		Address: 61 Wasson Place Whitehorse, YT PC: V1A 0H7				Project #: ENVMIN03071-01				Rush TAT (Surcharges will be applied)			
Phone:		Phone: 867-668-9220				Site Location: Kudz Ze Kayah				<input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days			
Email: kdbergh@gmail.com		Email: stephan.klump@tetrattech.com				Site #:				<input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days			
Date Required:		Sampled By: Adam Seeley											
Regulatory Criteria		Special Instructions		Analysis Requested				Rush Confirmation #:					
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> BC CSR Water <input type="checkbox"/> CCME (Specify) <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC Water Quality		<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify)		# OF CONTAINERS SUBMITTED HOLD - DO NOT ANALYZE				LABORATORY USE ONLY CUSTODY SEAL Y / N Present    Intact COOLER TEMPERATURES COOLING MEDIA PRESENT Y / N COMMENTS					
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM													
Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	ROUTINE (incl. TDS)	MAJOR IONS	NUTRIENTS (INCLUDING NO <sub>3</sub> , NO <sub>2</sub> , TOTAL P)	Low Level Dissolved Metals with CV Hg	Low Level Total Metals with CV Hg	Phosphorus (LI Tot. dissolved) /FF/FP			
1	WW15-02	NJ3446	11/10/2015	6:30	water	x	x	x	x	x			
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)		TIME: (HH:MM)		RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)		TIME: (HH:MM)		MAXXAM JOB #	
<i>Adam Seeley</i>		11/10/15		4:30pm									



Your Project #: ENVMINO3071-01  
 Site Location: KUDZ ZE KAYAH  
 Your C.O.C. #: 08413339, G022395

**Attention:KRISTEN RANGE**

TETRATECH EBA  
 61 WASSON PLACE  
 WHITEHORSE, YT  
 Canada Y1A 0H7

**Report Date: 2015/11/19**  
 Report #: R2082050  
 Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B598984**

**Received: 2015/11/05, 09:35**

Sample Matrix: Water  
 # Samples Received: 13

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
Acidity pH 4.5 & pH 8.3 (as CaCO3)	13	N/A	2015/11/05	BBY6SOP-00037	SM 22 2310 B m
Alkalinity - Water	11	2015/11/06	2015/11/06	BBY6SOP-00026	SM 22 2320 B m
Alkalinity - Water	2	2015/11/16	2015/11/16	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry	8	N/A	2015/11/06	BBY6SOP-00011	SM 22 4500-Cl- G m
Chloride by Automated Colourimetry	3	N/A	2015/11/09	BBY6SOP-00011	SM 22 4500-Cl- G m
Chloride by Automated Colourimetry	2	N/A	2015/11/16	BBY6SOP-00011	SM 22 4500-Cl- G m
Conductance - water	13	N/A	2015/11/06	BBY6SOP-00026	SM 22 2510 B m
Fluoride	13	N/A	2015/11/06	BBY6SOP-00048	SM 22 4500-F C m
Hardness Total (calculated as CaCO3)	11	N/A	2015/11/09	BBY7SOP-00002	EPA 6020a R1 m
Hardness Total (calculated as CaCO3)	2	N/A	2015/11/19	BBY7SOP-00002	EPA 6020a R1 m
Hardness (calculated as CaCO3)	13	N/A	2015/11/10	BBY7SOP-00002	EPA 6020a R1 m
Mercury (Dissolved-LowLevel) by CVAf	13	N/A	2015/11/12	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total-LowLevel) by CVAf	5	2015/11/12	2015/11/12	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total-LowLevel) by CVAf	8	2015/11/13	2015/11/13	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Ion Balance	13	N/A	2015/11/12	BBY WI-00033	SM 22 1030E
Sum of cations, anions	11	N/A	2015/11/09	Calc	
Sum of cations, anions	1	N/A	2015/11/10	Calc	
Sum of cations, anions	1	N/A	2015/11/12	Calc	
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	11	N/A	2015/11/10	BBY7SOP-00002	EPA 6020A R1 m
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	2	N/A	2015/11/16	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Low Level (dissolved)	13	N/A	2015/11/09	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Digested LL (total)	8	2015/11/06	2015/11/08	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Digested LL (total)	1	2015/11/06	2015/11/09	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Digested LL (total)	1	2015/11/10	2015/11/10	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Digested LL (total)	1	2015/11/18	2015/11/19	BBY7SOP-00002	EPA 6020A R1 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	11	N/A	2015/11/09	BBY7SOP-00002	EPA 6020A R1 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	2	N/A	2015/11/19	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Low Level (total)	2	N/A	2015/11/06	BBY7SOP-00002	EPA 6020A R1 m
Nitrogen (Total)	13	2015/11/06	2015/11/09	BBY6SOP-00016	SM 22 4500-N C m
Ammonia-N (Preserved)	13	N/A	2015/11/09	BBY6SOP-00009	SM 22 4500-NH3- G m

Your Project #: ENVMINO3071-01  
 Site Location: KUDZ ZE KAYAH  
 Your C.O.C. #: 08413339, G022395

**Attention:KRISTEN RANGE**

TETRATECH EBA  
 61 WASSON PLACE  
 WHITEHORSE, YT  
 Canada Y1A 0H7

**Report Date: 2015/11/19**  
 Report #: R2082050  
 Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B598984**

**Received: 2015/11/05, 09:35**

Sample Matrix: Water  
 # Samples Received: 13

Analyses	Date		Laboratory Method	Analytical Method
	Quantity	Extracted		
Nitrate+Nitrite (N) (low level)	13	N/A	2015/11/05 BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) (low level)	13	N/A	2015/11/05 BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N)	13	N/A	2015/11/06 BBY6SOP-00010	SM 22 4500-NO3- I m
Filter and HNO3 Preserve for Metals	13	N/A	2015/11/06 BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (1)	13	N/A	2015/11/06 BBY6SOP-00026	SM 22 4500-H+ B m
Orthophosphate by Konelab (low level)	12	N/A	2015/11/06 BBY6SOP-00013	SM 22 4500-P E m
Orthophosphate by Konelab (low level)	1	N/A	2015/11/17 BBY6SOP-00013	SM 22 4500-P E m
Sulphate by Automated Colourimetry	11	N/A	2015/11/06 BBY6SOP-00017	SM 22 4500-SO42- E m
Sulphate by Automated Colourimetry	2	N/A	2015/11/16 BBY6SOP-00017	SM 22 4500-SO42- E m
Total Dissolved Solids - Low Level	13	N/A	2015/11/09 BBY6SOP-00033	SM 22 2540 C m
TKN (Calc. TN, N/N) total	13	N/A	2015/11/10 BBY WI-00033	Calculation
Carbon (Total Organic) (2)	13	N/A	2015/11/06 BBY6SOP-00003	SM 22 5310 C m
Phosphorus-P (LL Tot, dissolved) - FF/FP	13	2015/11/06	2015/11/06 BBY6SOP-00013	SM 22 4500-P E m
Total Phosphorus	13	N/A	2015/11/06 BBY6SOP-00013	SM 22 4500-P E m
Total Suspended Solids-Low Level	13	2015/11/06	2015/11/09 BBY6SOP-00034	SM 22 2540 D
Turbidity	13	N/A	2015/11/05 BBY6SOP-00027	SM 22 2130 B m

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

(2) TOC present in the sample should be considered as non-purgeable TOC.

**Encryption Key**

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Morgan Melnychuk, Burnaby Project Manager

Email: MMelnychuk@maxxam.ca

Phone# (604)638-8034 Ext:8034

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B598984  
Report Date: 2015/11/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		NO7325	NO7325			NO7326	NO7326		
Sampling Date		2015/11/01 11:30	2015/11/01 11:30			2015/10/31 14:45	2015/10/31 14:45		
COC Number		08413339	08413339			08413339	08413339		
	UNITS	MW15-01	MW15-01 Lab-Dup	RDL	QC Batch	MW15-04S	MW15-04S Lab-Dup	RDL	QC Batch
<b>Misc. Inorganics</b>									
Acidity (pH 4.5)	mg/L	<0.50		0.50	8103513	<0.50		0.50	8103513
Acidity (pH 8.3)	mg/L	3.19		0.50	8103513	0.88		0.50	8103513
<b>Calculated Parameters</b>									
Anion Sum	meq/L	5.0		N/A	8103427	2.6		N/A	8103427
Cation Sum	meq/L	5.1		N/A	8103427	2.5		N/A	8103427
Filter and HNO3 Preservation	N/A	FIELD		N/A	ONSITE	FIELD		N/A	ONSITE
Ion Balance	N/A	1.0		0.010	8102665	0.98		0.010	8102665
Nitrate (N)	mg/L	0.392		0.0020	8102944	0.204		0.0020	8102944
<b>Misc. Inorganics</b>									
Fluoride (F)	mg/L	0.086		0.010	8105108	0.082		0.010	8105108
Alkalinity (Total as CaCO3)	mg/L	147		0.50	8104328	116		0.50	8104328
Total Organic Carbon (C)	mg/L	2.30		0.50	8105389	0.82		0.50	8105389
Alkalinity (PP as CaCO3)	mg/L	<0.50		0.50	8104328	<0.50		0.50	8104328
Bicarbonate (HCO3)	mg/L	179		0.50	8104328	142		0.50	8104328
Carbonate (CO3)	mg/L	<0.50		0.50	8104328	<0.50		0.50	8104328
Hydroxide (OH)	mg/L	<0.50		0.50	8104328	<0.50		0.50	8104328
<b>Anions</b>									
Orthophosphate (P)	mg/L	0.0011 (1)		0.0010	8116059	0.0035 (1)		0.0010	8105363
Dissolved Sulphate (SO4)	mg/L	94.3		0.50	8104659	10.3		0.50	8104659
Dissolved Chloride (Cl)	mg/L	1.4		0.50	8104652	0.68	0.83	0.50	8104662
<b>Nutrients</b>									
Total Ammonia (N)	mg/L	0.086	0.089	0.0050	8107759	0.047		0.0050	8107759
Dissolved Phosphorus (P)	mg/L	0.0021		0.0020	8105367	0.0023	<0.0020	0.0020	8105367
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.103		0.020	8102798	0.075		0.020	8102798
Nitrate plus Nitrite (N)	mg/L	0.392 (1)		0.0020	8103818	0.204 (1)		0.0020	8103818
Nitrite (N)	mg/L	<0.0020 (1)		0.0020	8103819	<0.0020 (1)		0.0020	8103819
Total Nitrogen (N)	mg/L	0.495		0.020	8105024	0.279		0.020	8105024
Total Phosphorus (P)	mg/L	7.34		0.10	8105368	2.50		0.020	8105368
<b>Physical Properties</b>									
Conductivity	uS/cm	459		1.0	8104332	242		1.0	8104332
pH	pH	8.19		N/A	8104333	8.22		N/A	8104333
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate (1) Sample arrived to laboratory past recommended hold time.									

Maxxam Job #: B598984  
Report Date: 2015/11/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		NO7325	NO7325			NO7326	NO7326		
<b>Sampling Date</b>		2015/11/01 11:30	2015/11/01 11:30			2015/10/31 14:45	2015/10/31 14:45		
<b>COC Number</b>		08413339	08413339			08413339	08413339		
	<b>UNITS</b>	<b>MW15-01</b>	<b>MW15-01 Lab-Dup</b>	<b>RDL</b>	<b>QC Batch</b>	<b>MW15-04S</b>	<b>MW15-04S Lab-Dup</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Physical Properties</b>									
Total Suspended Solids	mg/L	1910 (1)		20	8104447	1620 (1)		20	8104447
Total Dissolved Solids	mg/L	344		1.0	8102716	170		1.0	8102716
Turbidity	NTU	4000 (2)		0.10	8103557	1310 (2)		0.10	8103557

RDL = Reportable Detection Limit  
 Lab-Dup = Laboratory Initiated Duplicate  
 (1) RDL raised due to high concentration of solids in the sample.  
 (2) Sample arrived to laboratory past recommended hold time.

Maxxam Job #: B598984  
Report Date: 2015/11/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		NO7327			NO7328	NO7328		
Sampling Date		2015/10/31 15:30			2015/11/01 15:00	2015/11/01 15:00		
COC Number		08413339			08413339	08413339		
	UNITS	MW15-04D	RDL	QC Batch	MW15-05D	MW15-05D Lab-Dup	RDL	QC Batch
<b>Misc. Inorganics</b>								
Acidity (pH 4.5)	mg/L	<0.50	0.50	8103513	<0.50		0.50	8103513
Acidity (pH 8.3)	mg/L	1.83	0.50	8103513	3.25		0.50	8103513
<b>Calculated Parameters</b>								
Anion Sum	meq/L	3.6	N/A	8103427	3.9		N/A	8103427
Cation Sum	meq/L	4.0	N/A	8103427	4.3		N/A	8103427
Filter and HNO3 Preservation	N/A	FIELD	N/A	ONSITE	FIELD		N/A	ONSITE
Ion Balance	N/A	1.1	0.010	8102665	1.1		0.010	8102665
Nitrate (N)	mg/L	0.0036	0.0020	8102944	0.207		0.0020	8102944
<b>Misc. Inorganics</b>								
Fluoride (F)	mg/L	0.240	0.010	8105108	0.120		0.010	8105108
Alkalinity (Total as CaCO3)	mg/L	140	0.50	8104328	160		0.50	8113055
Total Organic Carbon (C)	mg/L	1.91	0.50	8105389	<0.50		0.50	8105389
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8104328	<0.50		0.50	8113055
Bicarbonate (HCO3)	mg/L	171	0.50	8104328	195		0.50	8113055
Carbonate (CO3)	mg/L	<0.50	0.50	8104328	<0.50		0.50	8113055
Hydroxide (OH)	mg/L	<0.50	0.50	8104328	<0.50		0.50	8113055
<b>Anions</b>								
Orthophosphate (P)	mg/L	0.0029 (1)	0.0010	8105363	0.0023 (1)		0.0010	8105363
Dissolved Sulphate (SO4)	mg/L	34.8	0.50	8104659	32.8		0.50	8114703
Dissolved Chloride (Cl)	mg/L	2.6	0.50	8104652	<0.50		0.50	8114700
<b>Nutrients</b>								
Total Ammonia (N)	mg/L	0.047	0.0050	8107759	<0.0050		0.0050	8107753
Dissolved Phosphorus (P)	mg/L	0.0033	0.0020	8105367	<0.0020		0.0020	8105367
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.142	0.020	8102798	0.023		0.020	8102798
Nitrate plus Nitrite (N)	mg/L	0.0058 (1)	0.0020	8103818	0.210 (1)		0.0020	8103818
Nitrite (N)	mg/L	0.0022 (1)	0.0020	8103819	0.0030 (1)		0.0020	8103819
Total Nitrogen (N)	mg/L	0.148	0.020	8105024	0.233		0.020	8105024
Total Phosphorus (P)	mg/L	9.09	0.10	8105368	0.0431	0.0437	0.0020	8105368
<b>Physical Properties</b>								
Conductivity	uS/cm	344	1.0	8104332	397		1.0	8104332
pH	pH	8.23	N/A	8104333	8.14		N/A	8104333
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable (1) Sample arrived to laboratory past recommended hold time.								



Maxxam Job #: B598984  
Report Date: 2015/11/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		NO7327			NO7328	NO7328		
<b>Sampling Date</b>		2015/10/31 15:30			2015/11/01 15:00	2015/11/01 15:00		
<b>COC Number</b>		08413339			08413339	08413339		
	<b>UNITS</b>	<b>MW15-04D</b>	<b>RDL</b>	<b>QC Batch</b>	<b>MW15-05D</b>	<b>MW15-05D Lab-Dup</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Physical Properties</b>								
Total Suspended Solids	mg/L	5570 (1)	20	8104447	156		1.0	8104447
Total Dissolved Solids	mg/L	266	1.0	8102716	262		1.0	8102716
Turbidity	NTU	2890 (2)	0.50	8103557	72.2		0.10	8103557

RDL = Reportable Detection Limit  
Lab-Dup = Laboratory Initiated Duplicate  
(1) RDL raised due to high concentration of solids in the sample.  
(2) Sample arrived to laboratory past recommended hold time; RDL raised due to sample dilution.



Maxxam Job #: B598984  
Report Date: 2015/11/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		NO7329	NO7329		NO7330	NO7330		
Sampling Date		2015/10/30 18:15	2015/10/30 18:15		2015/11/01 16:45	2015/11/01 16:45		
COC Number		08413339	08413339		08413339	08413339		
	UNITS	BH95G-21	BH95G-21 Lab-Dup	RDL	BH95G-22	BH95G-22 Lab-Dup	RDL	QC Batch
<b>Misc. Inorganics</b>								
Acidity (pH 4.5)	mg/L	<0.50		0.50	<0.50		0.50	8103513
Acidity (pH 8.3)	mg/L	3.76		0.50	8.00		0.50	8103513
<b>Calculated Parameters</b>								
Anion Sum	meq/L	4.3		N/A	3.5		N/A	8103427
Cation Sum	meq/L	4.5		N/A	3.6		N/A	8103427
Filter and HNO3 Preservation	N/A	FIELD		N/A	FIELD		N/A	ONSITE
Ion Balance	N/A	1.0		0.010	1.0		0.010	8102665
Nitrate (N)	mg/L	0.0039		0.0020	0.198		0.0020	8102944
<b>Misc. Inorganics</b>								
Fluoride (F)	mg/L	0.083		0.010	0.048		0.010	8105108
Alkalinity (Total as CaCO3)	mg/L	165		0.50	129		0.50	8104328
Total Organic Carbon (C)	mg/L	2.20	2.35	0.50	2.79		0.50	8105389
Alkalinity (PP as CaCO3)	mg/L	<0.50		0.50	<0.50		0.50	8104328
Bicarbonate (HCO3)	mg/L	202		0.50	158		0.50	8104328
Carbonate (CO3)	mg/L	<0.50		0.50	<0.50		0.50	8104328
Hydroxide (OH)	mg/L	<0.50		0.50	<0.50		0.50	8104328
<b>Anions</b>								
Orthophosphate (P)	mg/L	0.0021 (1)		0.0010	0.0035 (1)		0.0010	8105363
Dissolved Sulphate (SO4)	mg/L	47.1		0.50	41.9		0.50	8104659
Dissolved Chloride (Cl)	mg/L	0.99		0.50	1.2	1.0	0.50	8104652
<b>Nutrients</b>								
Total Ammonia (N)	mg/L	0.052		0.0050	0.042		0.0050	8107759
Dissolved Phosphorus (P)	mg/L	0.0024		0.0020	0.0155		0.0020	8105367
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.256		0.020	0.270		0.020	8102798
Nitrate plus Nitrite (N)	mg/L	0.0039 (1)		0.0020	0.198 (1)		0.0020	8103818
Nitrite (N)	mg/L	<0.0020 (1)		0.0020	<0.0020 (1)		0.0020	8103819
Total Nitrogen (N)	mg/L	0.260		0.020	0.468		0.020	8105024
Total Phosphorus (P)	mg/L	7.33		0.10	3.70		0.020	8105368
<b>Physical Properties</b>								
Conductivity	uS/cm	403		1.0	332		1.0	8104332
pH	pH	8.22		N/A	8.23		N/A	8104333
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate (1) Sample arrived to laboratory past recommended hold time.								

Maxxam Job #: B598984  
Report Date: 2015/11/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		NO7329	NO7329		NO7330	NO7330		
<b>Sampling Date</b>		2015/10/30 18:15	2015/10/30 18:15		2015/11/01 16:45	2015/11/01 16:45		
<b>COC Number</b>		08413339	08413339		08413339	08413339		
	<b>UNITS</b>	<b>BH95G-21</b>	<b>BH95G-21 Lab-Dup</b>	<b>RDL</b>	<b>BH95G-22</b>	<b>BH95G-22 Lab-Dup</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Physical Properties</b>								
Total Suspended Solids	mg/L	6540 (1)		20	970 (1)		20	8104447
Total Dissolved Solids	mg/L	284		1.0	256		1.0	8102716
Turbidity	NTU	3570 (2)		0.50	1630 (3)		0.10	8103557

RDL = Reportable Detection Limit  
Lab-Dup = Laboratory Initiated Duplicate  
(1) RDL raised due to high concentration of solids in the sample.  
(2) Sample arrived to laboratory past recommended hold time, RDL raised due to sample dilution.  
(3) Sample arrived to laboratory past recommended hold time.

Maxxam Job #: B598984  
Report Date: 2015/11/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		NO7331	NO7331			NO7332		
Sampling Date		2015/11/01 18:15	2015/11/01 18:15			2015/11/01 18:00		
COC Number		08413339	08413339			08413339		
	UNITS	BH95G-25S	BH95G-25S Lab-Dup	RDL	QC Batch	BH95G-25D	RDL	QC Batch
<b>Misc. Inorganics</b>								
Acidity (pH 4.5)	mg/L	<0.50		0.50	8103513	<0.50	0.50	8103513
Acidity (pH 8.3)	mg/L	18.5		0.50	8103513	14.6	0.50	8103513
<b>Calculated Parameters</b>								
Anion Sum	meq/L	11		N/A	8103427	12	N/A	8103427
Cation Sum	meq/L	12		N/A	8103427	12	N/A	8103427
Filter and HNO3 Preservation	N/A	FIELD		N/A	ONSITE	FIELD	N/A	ONSITE
Ion Balance	N/A	1.1		0.010	8102665	1.0	0.010	8102665
Nitrate (N)	mg/L	<0.0020		0.0020	8102944	<0.0020	0.0020	8102944
<b>Misc. Inorganics</b>								
Fluoride (F)	mg/L	0.110		0.010	8105108	0.083	0.010	8105108
Alkalinity (Total as CaCO3)	mg/L	329		0.50	8104328	350	0.50	8104328
Total Organic Carbon (C)	mg/L	1.98		0.50	8105389	1.51	0.50	8105389
Alkalinity (PP as CaCO3)	mg/L	<0.50		0.50	8104328	<0.50	0.50	8104328
Bicarbonate (HCO3)	mg/L	401		0.50	8104328	427	0.50	8104328
Carbonate (CO3)	mg/L	<0.50		0.50	8104328	<0.50	0.50	8104328
Hydroxide (OH)	mg/L	<0.50		0.50	8104328	<0.50	0.50	8104328
<b>Anions</b>								
Orthophosphate (P)	mg/L	0.0011 (1)	0.0039	0.0010	8105363	0.0014 (1)	0.0010	8105363
Dissolved Sulphate (SO4)	mg/L	189		0.50	8104659	222	5.0	8104659
Dissolved Chloride (Cl)	mg/L	1.2		0.50	8104652	1.2	0.50	8104662
<b>Nutrients</b>								
Total Ammonia (N)	mg/L	0.20		0.0050	8107759	0.079	0.0050	8107759
Dissolved Phosphorus (P)	mg/L	0.0067		0.0020	8105367	0.0036	0.0020	8105367
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.319		0.020	8102798	0.171	0.020	8102798
Nitrate plus Nitrite (N)	mg/L	<0.0020 (1)		0.0020	8103818	<0.0020 (1)	0.0020	8103818
Nitrite (N)	mg/L	<0.0020 (1)		0.0020	8103819	<0.0020 (1)	0.0020	8103819
Total Nitrogen (N)	mg/L	0.319		0.020	8105026	0.171	0.020	8105024
Total Phosphorus (P)	mg/L	0.676		0.020	8105368	0.256	0.0020	8105368
<b>Physical Properties</b>								
Conductivity	uS/cm	962		1.0	8104332	1050	1.0	8104332
pH	pH	8.15		N/A	8104333	8.16	N/A	8104333
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable (1) Sample arrived to laboratory past recommended hold time.								

Maxxam Job #: B598984  
Report Date: 2015/11/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		NO7331	NO7331			NO7332		
<b>Sampling Date</b>		2015/11/01 18:15	2015/11/01 18:15			2015/11/01 18:00		
<b>COC Number</b>		08413339	08413339			08413339		
	<b>UNITS</b>	<b>BH95G-25S</b>	<b>BH95G-25S Lab-Dup</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH95G-25D</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Physical Properties</b>								
Total Suspended Solids	mg/L	539 (1)		10	8104447	459 (1)	10	8104447
Total Dissolved Solids	mg/L	688		1.0	8102716	772	1.0	8102716
Turbidity	NTU	193 (2)		0.10	8103557	201 (2)	0.10	8103557
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate (1) RDL raised due to high concentration of solids in the sample. (2) Sample arrived to laboratory past recommended hold time.								

Maxxam Job #: B598984  
Report Date: 2015/11/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		NO7333			NO7334			NO7335		
Sampling Date		2015/10/31 10:15			2015/10/31 15:30			2015/10/02 10:20		
COC Number		08413339			08413339			08413339		
	UNITS	BH95-131	RDL	QC Batch	DUP01	RDL	QC Batch	DUP02	RDL	QC Batch
<b>Misc. Inorganics</b>										
Acidity (pH 4.5)	mg/L	<0.50	0.50	8103513	<0.50	0.50	8103513	<0.50	0.50	8103513
Acidity (pH 8.3)	mg/L	18.0	0.50	8103513	1.27	0.50	8103513	3.61	0.50	8103513
<b>Calculated Parameters</b>										
Anion Sum	meq/L	12	N/A	8103427	3.6	N/A	8103427	4.3	N/A	8103427
Cation Sum	meq/L	13	N/A	8103427	4.2	N/A	8103427	4.4	N/A	8103427
Filter and HNO3 Preservation	N/A	FIELD	N/A	ONSITE	FIELD	N/A	ONSITE	FIELD	N/A	ONSITE
Ion Balance	N/A	1.1	0.010	8102665	1.1	0.010	8102665	1.0	0.010	8102665
Nitrate (N)	mg/L	0.0027	0.0020	8102944	0.0050	0.0020	8102944	<0.0020	0.0020	8102944
<b>Misc. Inorganics</b>										
Fluoride (F)	mg/L	0.085	0.010	8105110	0.250	0.010	8105108	0.150	0.010	8105108
Alkalinity (Total as CaCO3)	mg/L	355	0.50	8113055	139	0.50	8104328	187	0.50	8104328
Total Organic Carbon (C)	mg/L	1.42	0.50	8105389	1.66	0.50	8105389	0.91	0.50	8105389
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8113055	<0.50	0.50	8104328	<0.50	0.50	8104328
Bicarbonate (HCO3)	mg/L	433	0.50	8113055	169	0.50	8104328	228	0.50	8104328
Carbonate (CO3)	mg/L	<0.50	0.50	8113055	<0.50	0.50	8104328	<0.50	0.50	8104328
Hydroxide (OH)	mg/L	<0.50	0.50	8113055	<0.50	0.50	8104328	<0.50	0.50	8104328
<b>Anions</b>										
Orthophosphate (P)	mg/L	0.0021 (1)	0.0010	8105363	0.0018 (1)	0.0010	8105363	0.0021 (1)	0.0010	8105363
Dissolved Sulphate (SO4)	mg/L	235	5.0	8114703	36.8	0.50	8104659	23.9	0.50	8104659
Dissolved Chloride (Cl)	mg/L	0.69	0.50	8114700	3.2	0.50	8104652	1.6	0.50	8104662
<b>Nutrients</b>										
Total Ammonia (N)	mg/L	0.042	0.0050	8107759	0.065	0.0050	8107759	0.15	0.0050	8107759
Dissolved Phosphorus (P)	mg/L	0.0076	0.0020	8105367	0.0046	0.0020	8105367	0.0044	0.0020	8105367
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.153	0.020	8102798	0.170	0.020	8102798	0.202	0.020	8102798
Nitrate plus Nitrite (N)	mg/L	0.0027 (1)	0.0020	8103818	0.0050 (1)	0.0020	8103818	<0.0020 (1)	0.0020	8103818
Nitrite (N)	mg/L	<0.0020 (1)	0.0020	8103819	<0.0020 (1)	0.0020	8103819	<0.0020 (1)	0.0020	8103819
Total Nitrogen (N)	mg/L	0.156	0.020	8105024	0.175	0.020	8105024	0.202	0.020	8105024
Total Phosphorus (P)	mg/L	0.157	0.0020	8105368	9.58	0.10	8105368	0.0058	0.0020	8105368
<b>Physical Properties</b>										
Conductivity	uS/cm	1120	1.0	8104332	354	1.0	8104332	402	1.0	8104332
pH	pH	8.07	N/A	8104333	8.23	N/A	8104333	8.29	N/A	8104333
RDL = Reportable Detection Limit N/A = Not Applicable (1) Sample arrived to laboratory past recommended hold time.										

Maxxam Job #: B598984  
Report Date: 2015/11/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		NO7333			NO7334			NO7335		
Sampling Date		2015/10/31 10:15			2015/10/31 15:30			2015/10/02 10:20		
COC Number		08413339			08413339			08413339		
	UNITS	BH95-131	RDL	QC Batch	DUP01	RDL	QC Batch	DUP02	RDL	QC Batch
<b>Physical Properties</b>										
Total Suspended Solids	mg/L	154	1.0	8104447	5180 (1)	20	8104447	3.4	1.0	8104447
Total Dissolved Solids	mg/L	832	1.0	8102716	264	1.0	8102716	260	1.0	8102716
Turbidity	NTU	148 (2)	0.10	8103557	2710 (3)	0.50	8103557	3.18	0.10	8103557
RDL = Reportable Detection Limit										
(1) RDL raised due to high concentration of solids in the sample.										
(2) Sample arrived to laboratory past recommended hold time.										
(3) Sample arrived to laboratory past recommended hold time, RDL raised due to sample dilution.										

Maxxam Job #: B598984  
Report Date: 2015/11/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		NO7335			NO7341			NO7342		
Sampling Date		2015/10/02 10:20			2015/10/02 10:20			2015/10/02 10:50		
COC Number		08413339			G022395			G022395		
	UNITS	DUP02 Lab-Dup	RDL	QC Batch	MW15-03S	RDL	QC Batch	MW15-03D	RDL	QC Batch
<b>Misc. Inorganics</b>										
Acidity (pH 4.5)	mg/L	<0.50	0.50	8103513	<0.50	0.50	8103513	<0.50	0.50	8103513
Acidity (pH 8.3)	mg/L	3.69	0.50	8103513	1.28	0.50	8103513	4.26	0.50	8103513
<b>Calculated Parameters</b>										
Anion Sum	meq/L		N/A	8103427	2.9	N/A	8103427	4.3	N/A	8103427
Cation Sum	meq/L		N/A	8103427	2.9	N/A	8103427	4.4	N/A	8103427
Filter and HNO3 Preservation	N/A		N/A	ONSITE	FIELD	N/A	ONSITE	FIELD	N/A	ONSITE
Ion Balance	N/A		0.010	8102665	1.0	0.010	8102665	1.0	0.010	8102665
Nitrate (N)	mg/L		0.0020	8102944	0.0723	0.0020	8102944	0.0027	0.0020	8102944
<b>Misc. Inorganics</b>										
Fluoride (F)	mg/L		0.010	8105108	0.069	0.010	8105108	0.150	0.010	8105108
Alkalinity (Total as CaCO3)	mg/L	185	0.50	8104328	129	0.50	8104328	188	0.50	8104328
Total Organic Carbon (C)	mg/L		0.50	8105389	1.40	0.50	8105389	1.17	0.50	8105389
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8104328	<0.50	0.50	8104328	<0.50	0.50	8104328
Bicarbonate (HCO3)	mg/L	225	0.50	8104328	157	0.50	8104328	229	0.50	8104328
Carbonate (CO3)	mg/L	<0.50	0.50	8104328	<0.50	0.50	8104328	<0.50	0.50	8104328
Hydroxide (OH)	mg/L	<0.50	0.50	8104328	<0.50	0.50	8104328	<0.50	0.50	8104328
<b>Anions</b>										
Orthophosphate (P)	mg/L		0.0010	8105363	0.0041 (1)	0.0010	8105363	0.0018 (1)	0.0010	8105363
Dissolved Sulphate (SO4)	mg/L		0.50	8104659	11.6	0.50	8104659	24.0	0.50	8104659
Dissolved Chloride (Cl)	mg/L		0.50	8104662	0.99	0.50	8104652	1.1	0.50	8104652
<b>Nutrients</b>										
Total Ammonia (N)	mg/L		0.0050	8107759	0.027	0.0050	8107759	0.16	0.0050	8107759
Dissolved Phosphorus (P)	mg/L		0.0020	8105367	0.0035	0.0020	8105367	0.0031	0.0020	8105367
Total Total Kjeldahl Nitrogen (Calc)	mg/L		0.020	8102798	0.073	0.020	8102798	0.225	0.020	8102798
Nitrate plus Nitrite (N)	mg/L		0.0020	8103818	0.0723 (1)	0.0020	8103818	0.0027 (1)	0.0020	8103818
Nitrite (N)	mg/L		0.0020	8103819	<0.0020 (1)	0.0020	8103819	<0.0020 (1)	0.0020	8103819
Total Nitrogen (N)	mg/L		0.020	8105024	0.145	0.020	8105026	0.228	0.020	8105024
Total Phosphorus (P)	mg/L		0.0020	8105368	2.15	0.020	8105368	0.0092	0.0020	8105368
<b>Physical Properties</b>										
Conductivity	uS/cm	394	1.0	8104332	269	1.0	8104332	395	1.0	8104332
pH	pH	8.23	N/A	8104333	8.24	N/A	8104333	8.29	N/A	8104333
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable (1) Sample arrived to laboratory past recommended hold time.										

Maxxam Job #: B598984  
Report Date: 2015/11/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		NO7335			NO7341			NO7342		
<b>Sampling Date</b>		2015/10/02 10:20			2015/10/02 10:20			2015/10/02 10:50		
<b>COC Number</b>		08413339			G022395			G022395		
	<b>UNITS</b>	<b>DUP02 Lab-Dup</b>	<b>RDL</b>	<b>QC Batch</b>	<b>MW15-03S</b>	<b>RDL</b>	<b>QC Batch</b>	<b>MW15-03D</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Physical Properties</b>										
Total Suspended Solids	mg/L		1.0	8104447	821 (1)	10	8104447	3.5	1.0	8104447
Total Dissolved Solids	mg/L		1.0	8102716	190	1.0	8102716	240	1.0	8102716
Turbidity	NTU	3.45	0.10	8103557	275 (2)	0.10	8103557	3.59 (2)	0.10	8103557

RDL = Reportable Detection Limit  
 Lab-Dup = Laboratory Initiated Duplicate  
 (1) RDL raised due to high concentration of solids in the sample.  
 (2) Sample arrived to laboratory past recommended hold time.



Maxxam Job #: B598984  
Report Date: 2015/11/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		NO7325	NO7326	NO7327		NO7328		
Sampling Date		2015/11/01 11:30	2015/10/31 14:45	2015/10/31 15:30		2015/11/01 15:00		
COC Number		08413339	08413339	08413339		08413339		
	UNITS	MW15-01	MW15-04S	MW15-04D	QC Batch	MW15-05D	RDL	QC Batch
<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO3)	mg/L	251	121	78.9	8102664	206	0.50	8102664
<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	8111092	<0.0000020	0.0000020	8111092
<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	0.00921	0.00565	0.00299	8104319	0.00615	0.00050	8104319
Dissolved Antimony (Sb)	mg/L	0.000048	0.000025	0.000033	8104319	0.000022	0.000020	8104319
Dissolved Arsenic (As)	mg/L	0.000126	0.000270	0.00174	8104319	0.000110	0.000020	8104319
Dissolved Barium (Ba)	mg/L	0.0224	0.0737	0.0227	8104319	0.0408	0.000020	8104319
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	8104319	<0.000010	0.000010	8104319
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	8104319	<0.0000050	0.0000050	8104319
Dissolved Boron (B)	mg/L	<0.010	<0.010	0.023	8104319	<0.010	0.010	8104319
Dissolved Cadmium (Cd)	mg/L	0.0000200	0.0000140	0.0000280	8104319	0.0000570	0.0000050	8104319
Dissolved Chromium (Cr)	mg/L	<0.00010	0.00016	<0.00010	8104319	<0.00010	0.00010	8104319
Dissolved Cobalt (Co)	mg/L	0.0000760	0.000114	0.000343	8104319	0.000180	0.0000050	8104319
Dissolved Copper (Cu)	mg/L	0.000490	0.00117	0.000885	8104319	0.000396	0.000050	8104319
Dissolved Iron (Fe)	mg/L	0.0076	0.0051	0.0716	8104319	0.0106	0.0010	8104319
Dissolved Lead (Pb)	mg/L	0.0000140	0.0000100	0.0000960	8104319	0.0000950	0.0000050	8104319
Dissolved Lithium (Li)	mg/L	0.00113	<0.00050	0.00293	8104319	0.00121	0.00050	8104319
Dissolved Manganese (Mn)	mg/L	0.00541	0.0255	0.102	8104319	0.0217	0.000050	8104319
Dissolved Molybdenum (Mo)	mg/L	0.000912	0.00206	0.00519	8104319	0.000983	0.000050	8104319
Dissolved Nickel (Ni)	mg/L	0.000512	0.00219	0.00107	8104319	0.000487	0.000020	8104319
Dissolved Phosphorus (P)	mg/L	0.0028	<0.0020	0.0094	8104319	<0.0020	0.0020	8104319
Dissolved Selenium (Se)	mg/L	0.000579	0.000773	0.000089	8104319	0.00177	0.000040	8104319
Dissolved Silicon (Si)	mg/L	1.99	2.79	2.57	8104319	2.26	0.050	8104319
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	<0.0000050	8104319	<0.0000050	0.0000050	8104319
Dissolved Strontium (Sr)	mg/L	0.217	0.159	0.203	8104319	0.274	0.000050	8104319
Dissolved Thallium (Tl)	mg/L	0.0000020	0.0000020	0.0000040	8104319	0.0000020	0.0000020	8104319
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	8104319	<0.00020	0.00020	8104319
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	0.00065	8104319	<0.00050	0.00050	8104319
Dissolved Uranium (U)	mg/L	0.00377	0.000762	0.00391	8104319	0.00262	0.0000020	8104319
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	8104319	<0.00020	0.00020	8104319
Dissolved Zinc (Zn)	mg/L	0.00226	0.00255	0.00956	8104319	0.00346	0.00010	8104319
Dissolved Zirconium (Zr)	mg/L	0.00014	<0.00010	<0.00010	8104319	<0.00010	0.00010	8104319
Dissolved Calcium (Ca)	mg/L	85.7	42.2	28.3	8103428	70.3	0.050	8111939
RDL = Reportable Detection Limit								

Maxxam Job #: B598984  
Report Date: 2015/11/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		NO7325	NO7326	NO7327		NO7328		
Sampling Date		2015/11/01 11:30	2015/10/31 14:45	2015/10/31 15:30		2015/11/01 15:00		
COC Number		08413339	08413339	08413339		08413339		
	UNITS	MW15-01	MW15-04S	MW15-04D	QC Batch	MW15-05D	RDL	QC Batch
Dissolved Magnesium (Mg)	mg/L	9.01	3.66	3.05	8103428	7.49	0.050	8111939
Dissolved Potassium (K)	mg/L	0.633	1.48	2.69	8103428	1.71	0.050	8111939
Dissolved Sodium (Na)	mg/L	1.32	2.02	55.8 (1)	8103428	3.67	0.050	8111939
Dissolved Sulphur (S)	mg/L	31.5	3.5	17.3	8103428	10.8	3.0	8111939

RDL = Reportable Detection Limit

(1) Dissolved greater than total. Reanalysis yields similar results.

Maxxam Job #: B598984  
Report Date: 2015/11/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		NO7329	NO7330	NO7331	NO7332		
Sampling Date		2015/10/30 18:15	2015/11/01 16:45	2015/11/01 18:15	2015/11/01 18:00		
COC Number		08413339	08413339	08413339	08413339		
	UNITS	BH95G-21	BH95G-22	BH95G-25S	BH95G-25D	RDL	QC Batch
<b>Misc. Inorganics</b>							
Dissolved Hardness (CaCO3)	mg/L	219	177	558	593	0.50	8102664
<b>Elements</b>							
Dissolved Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000020	8111092
<b>Dissolved Metals by ICPMS</b>							
Dissolved Aluminum (Al)	mg/L	0.00569	0.0300	0.00204	0.00258	0.00050	8104319
Dissolved Antimony (Sb)	mg/L	0.000132	0.000097	<0.000020	0.000024	0.000020	8104319
Dissolved Arsenic (As)	mg/L	0.00156	0.000132	0.00824	0.00152	0.000020	8104319
Dissolved Barium (Ba)	mg/L	0.0458	0.106	0.0698	0.0233	0.000020	8104319
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	0.000010	8104319
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8104319
Dissolved Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	0.010	8104319
Dissolved Cadmium (Cd)	mg/L	0.0000150	0.000102	<0.0000050	<0.0000050	0.0000050	8104319
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	8104319
Dissolved Cobalt (Co)	mg/L	0.0000390	0.0000280	0.000176	0.000121	0.0000050	8104319
Dissolved Copper (Cu)	mg/L	0.000242	0.00105	0.000089	0.000134	0.000050	8104319
Dissolved Iron (Fe)	mg/L	0.592	0.0493	7.62	2.21	0.0010	8104319
Dissolved Lead (Pb)	mg/L	0.0000470	0.000195	0.0000170	0.0000540	0.0000050	8104319
Dissolved Lithium (Li)	mg/L	0.00490	0.00099	0.0111	0.0114	0.00050	8104319
Dissolved Manganese (Mn)	mg/L	0.0579	0.000498	0.389	0.317	0.000050	8104319
Dissolved Molybdenum (Mo)	mg/L	0.000331	0.000210	0.00149	0.000240	0.000050	8104319
Dissolved Nickel (Ni)	mg/L	0.000237	0.000248	0.000481	0.000252	0.000020	8104319
Dissolved Phosphorus (P)	mg/L	0.0022	<0.0020	0.0065	0.0061	0.0020	8104319
Dissolved Selenium (Se)	mg/L	<0.000040	0.000804	<0.000040	<0.000040	0.000040	8104319
Dissolved Silicon (Si)	mg/L	3.44	2.82	5.78	4.51	0.050	8104319
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	<0.0000050	0.0000110	0.0000050	8104319
Dissolved Strontium (Sr)	mg/L	0.201	0.156	0.468	0.490	0.000050	8104319
Dissolved Thallium (Tl)	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000020	8104319
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8104319
Dissolved Titanium (Ti)	mg/L	<0.00050	0.00125	<0.00050	<0.00050	0.00050	8104319
Dissolved Uranium (U)	mg/L	0.00509	0.00241	0.00495	0.00910	0.0000020	8104319
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8104319
Dissolved Zinc (Zn)	mg/L	0.00553	0.00735	0.00134	0.00794	0.00010	8104319
Dissolved Zirconium (Zr)	mg/L	<0.00010	<0.00010	<0.00010	0.00467	0.00010	8104319
Dissolved Calcium (Ca)	mg/L	67.7	56.5	150	146	0.050	8103428
RDL = Reportable Detection Limit							

Maxxam Job #: B598984  
Report Date: 2015/11/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		NO7329	NO7330	NO7331	NO7332		
Sampling Date		2015/10/30 18:15	2015/11/01 16:45	2015/11/01 18:15	2015/11/01 18:00		
COC Number		08413339	08413339	08413339	08413339		
	UNITS	BH95G-21	BH95G-22	BH95G-25S	BH95G-25D	RDL	QC Batch
Dissolved Magnesium (Mg)	mg/L	12.2	8.83	44.3	55.5	0.050	8103428
Dissolved Potassium (K)	mg/L	1.49	1.43	5.76	4.52	0.050	8103428
Dissolved Sodium (Na)	mg/L	1.04	1.16	2.22	2.31	0.050	8103428
Dissolved Sulphur (S)	mg/L	16.1	14.0	74.1	81.2	3.0	8103428
RDL = Reportable Detection Limit							

Maxxam Job #: B598984  
Report Date: 2015/11/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		NO7333		NO7334		NO7335		
Sampling Date		2015/10/31 10:15		2015/10/31 15:30		2015/10/02 10:20		
COC Number		08413339		08413339		08413339		
	UNITS	BH95-131	QC Batch	DUP01	QC Batch	DUP02	RDL	QC Batch
<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO3)	mg/L	653	8102664	89.0	8102664	208	0.50	8102664
<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	<0.0000020	8111092	<0.0000020	8111092	<0.0000020	0.0000020	8111127
<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	0.0136	8104319	0.00715	8104319	0.00781	0.00050	8104319
Dissolved Antimony (Sb)	mg/L	0.000616	8104319	0.000026	8104319	0.00174	0.000020	8104319
Dissolved Arsenic (As)	mg/L	0.00272	8104319	0.00182	8104319	0.00227	0.000020	8104319
Dissolved Barium (Ba)	mg/L	0.0173	8104319	0.0221	8104319	0.0460	0.000020	8104319
Dissolved Beryllium (Be)	mg/L	<0.000010	8104319	<0.000010	8104319	<0.000010	0.000010	8104319
Dissolved Bismuth (Bi)	mg/L	<0.0000050	8104319	<0.0000050	8104319	<0.0000050	0.0000050	8104319
Dissolved Boron (B)	mg/L	<0.010	8104319	0.022	8104319	<0.010	0.010	8104319
Dissolved Cadmium (Cd)	mg/L	0.0000200	8104319	0.0000280	8104319	<0.0000050	0.0000050	8104319
Dissolved Chromium (Cr)	mg/L	<0.00010	8104319	<0.00010	8104319	<0.00010	0.00010	8104319
Dissolved Cobalt (Co)	mg/L	0.0000980	8104319	0.000353	8104319	0.000128	0.0000050	8104319
Dissolved Copper (Cu)	mg/L	0.000359	8104319	0.000230	8104319	0.000094	0.000050	8104319
Dissolved Iron (Fe)	mg/L	1.43	8104319	0.0708	8104319	0.779	0.0010	8104319
Dissolved Lead (Pb)	mg/L	0.00194	8104319	0.0000320	8104319	0.0000470	0.0000050	8104319
Dissolved Lithium (Li)	mg/L	0.0131	8104319	0.00291	8104319	0.00588	0.00050	8104319
Dissolved Manganese (Mn)	mg/L	0.159	8104319	0.103	8104319	0.0733	0.000050	8104319
Dissolved Molybdenum (Mo)	mg/L	0.000071	8104319	0.00578	8104319	0.00325	0.000050	8104319
Dissolved Nickel (Ni)	mg/L	0.000196	8104319	0.000849	8104319	0.000476	0.000020	8104319
Dissolved Phosphorus (P)	mg/L	0.0099	8104319	0.0075	8104319	0.0044	0.0020	8104319
Dissolved Selenium (Se)	mg/L	<0.000040	8104319	0.000088	8104319	<0.000040	0.000040	8104319
Dissolved Silicon (Si)	mg/L	10.4	8104319	2.50	8104319	4.02	0.050	8104319
Dissolved Silver (Ag)	mg/L	0.0000230	8104319	<0.0000050	8104319	<0.0000050	0.0000050	8104319
Dissolved Strontium (Sr)	mg/L	0.686	8104319	0.206	8104319	0.243	0.000050	8104319
Dissolved Thallium (Tl)	mg/L	0.0000040	8104319	0.0000030	8104319	<0.0000020	0.0000020	8104319
Dissolved Tin (Sn)	mg/L	<0.00020	8104319	<0.00020	8104319	<0.00020	0.00020	8104319
Dissolved Titanium (Ti)	mg/L	0.00085	8104319	<0.00050	8104319	<0.00050	0.00050	8104319
Dissolved Uranium (U)	mg/L	0.0177	8104319	0.00378	8104319	0.00270	0.0000020	8104319
Dissolved Vanadium (V)	mg/L	<0.00020	8104319	<0.00020	8104319	<0.00020	0.00020	8104319
Dissolved Zinc (Zn)	mg/L	0.00467	8104319	0.00064	8104319	0.00039	0.00010	8104319
Dissolved Zirconium (Zr)	mg/L	0.00955	8104319	0.00019	8104319	0.00042	0.00010	8104319
Dissolved Calcium (Ca)	mg/L	166	8111939	27.6	8103428	56.5	0.050	8103428
RDL = Reportable Detection Limit								

Maxxam Job #: B598984  
Report Date: 2015/11/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		NO7333		NO7334		NO7335		
Sampling Date		2015/10/31 10:15		2015/10/31 15:30		2015/10/02 10:20		
COC Number		08413339		08413339		08413339		
	UNITS	BH95-131	QC Batch	DUP01	QC Batch	DUP02	RDL	QC Batch
Dissolved Magnesium (Mg)	mg/L	57.7	8111939	3.04	8103428	16.4	0.050	8103428
Dissolved Potassium (K)	mg/L	4.09	8111939	2.64	8103428	2.69	0.050	8103428
Dissolved Sodium (Na)	mg/L	1.71	8111939	55.0 (1)	8103428	2.70	0.050	8103428
Dissolved Sulphur (S)	mg/L	80.3	8111939	17.3	8103428	8.2	3.0	8103428

RDL = Reportable Detection Limit

(1) Dissolved greater than total. Reanalysis yields similar results.

Maxxam Job #: B598984  
Report Date: 2015/11/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		NO7341	NO7342		
Sampling Date		2015/10/02 10:20	2015/10/02 10:50		
COC Number		G022395	G022395		
	UNITS	MW15-03S	MW15-03D	RDL	QC Batch
<b>Misc. Inorganics</b>					
Dissolved Hardness (CaCO3)	mg/L	135	210	0.50	8102664
<b>Elements</b>					
Dissolved Mercury (Hg)	mg/L	<0.0000020	<0.0000020	0.0000020	8111127
<b>Dissolved Metals by ICPMS</b>					
Dissolved Aluminum (Al)	mg/L	0.0266	0.0144	0.00050	8104319
Dissolved Antimony (Sb)	mg/L	0.000040	0.00193	0.000020	8104319
Dissolved Arsenic (As)	mg/L	0.000207	0.00229	0.000020	8104319
Dissolved Barium (Ba)	mg/L	0.0459	0.0501	0.000020	8104319
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	0.000010	8104319
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	0.0000050	8104319
Dissolved Boron (B)	mg/L	<0.010	<0.010	0.010	8104319
Dissolved Cadmium (Cd)	mg/L	0.0000330	<0.0000050	0.0000050	8104319
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	0.00010	8104319
Dissolved Cobalt (Co)	mg/L	0.000606	0.000134	0.0000050	8104319
Dissolved Copper (Cu)	mg/L	0.000380	0.000091	0.000050	8104319
Dissolved Iron (Fe)	mg/L	0.112	0.806	0.0010	8104319
Dissolved Lead (Pb)	mg/L	0.0000580	0.0000140	0.0000050	8104319
Dissolved Lithium (Li)	mg/L	0.00087	0.00670	0.00050	8104319
Dissolved Manganese (Mn)	mg/L	0.135	0.0738	0.000050	8104319
Dissolved Molybdenum (Mo)	mg/L	0.00746	0.00372	0.000050	8104319
Dissolved Nickel (Ni)	mg/L	0.00210	0.000455	0.000020	8104319
Dissolved Phosphorus (P)	mg/L	0.0105	0.0041	0.0020	8104319
Dissolved Selenium (Se)	mg/L	0.000189	<0.000040	0.000040	8104319
Dissolved Silicon (Si)	mg/L	2.81	4.13	0.050	8104319
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	0.0000050	8104319
Dissolved Strontium (Sr)	mg/L	0.139	0.244	0.000050	8104319
Dissolved Thallium (Tl)	mg/L	0.0000080	<0.0000020	0.0000020	8104319
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	0.00020	8104319
Dissolved Titanium (Ti)	mg/L	0.00116	0.00062	0.00050	8104319
Dissolved Uranium (U)	mg/L	0.000884	0.00302	0.0000020	8104319
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	0.00020	8104319
Dissolved Zinc (Zn)	mg/L	0.00090	0.00048	0.00010	8104319
Dissolved Zirconium (Zr)	mg/L	<0.00010	0.00043	0.00010	8104319
Dissolved Calcium (Ca)	mg/L	45.6	57.6	0.050	8103428
RDL = Reportable Detection Limit					

Maxxam Job #: B598984  
Report Date: 2015/11/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		NO7341	NO7342		
Sampling Date		2015/10/02 10:20	2015/10/02 10:50		
COC Number		G022395	G022395		
	UNITS	MW15-03S	MW15-03D	RDL	QC Batch
Dissolved Magnesium (Mg)	mg/L	5.10	16.2	0.050	8103428
Dissolved Potassium (K)	mg/L	1.32	2.68	0.050	8103428
Dissolved Sodium (Na)	mg/L	2.61	2.71	0.050	8103428
Dissolved Sulphur (S)	mg/L	3.8	8.2	3.0	8103428
RDL = Reportable Detection Limit					



Maxxam Job #: B598984  
Report Date: 2015/11/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		NO7335	NO7342	NO7342		
Sampling Date		2015/10/02 10:20	2015/10/02 10:50	2015/10/02 10:50		
COC Number		08413339	G022395	G022395		
	UNITS	DUP02	MW15-03D	MW15-03D Lab-Dup	RDL	QC Batch
<b>Calculated Parameters</b>						
Total Hardness (CaCO3)	mg/L	207	199		0.50	8102299
<b>Elements</b>						
Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020		0.0000020	8112008
<b>Total Metals by ICPMS</b>						
Total Aluminum (Al)	mg/L	0.0141	0.0138	0.0140	0.00050	8104091
Total Antimony (Sb)	mg/L	0.00190	0.00181	0.00184	0.000020	8104091
Total Arsenic (As)	mg/L	0.00223	0.00244	0.00236	0.000020	8104091
Total Barium (Ba)	mg/L	0.0496	0.0494	0.0488	0.000020	8104091
Total Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	0.000010	8104091
Total Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	0.0000050	8104091
Total Boron (B)	mg/L	<0.010	<0.010	<0.010	0.010	8104091
Total Cadmium (Cd)	mg/L	<0.0000050	<0.0000050	<0.0000050	0.0000050	8104091
Total Chromium (Cr)	mg/L	0.00012	<0.00010	<0.00010	0.00010	8104091
Total Cobalt (Co)	mg/L	0.000193	0.000180	0.000185	0.0000050	8104091
Total Copper (Cu)	mg/L	0.000162	0.000143	0.000144	0.000050	8104091
Total Iron (Fe)	mg/L	0.846	0.856	0.826	0.0010	8104091
Total Lead (Pb)	mg/L	0.0000530	0.0000540	0.0000520	0.0000050	8104091
Total Lithium (Li)	mg/L	0.00639	0.00581	0.00624	0.00050	8104091
Total Manganese (Mn)	mg/L	0.0815	0.0809	0.0806	0.000050	8104091
Total Molybdenum (Mo)	mg/L	0.00333	0.00321	0.00333	0.000050	8104091
Total Nickel (Ni)	mg/L	0.000673	0.000546	0.000526	0.000020	8104091
Total Phosphorus (P)	mg/L	0.0100	0.0079	0.0072	0.0020	8104091
Total Selenium (Se)	mg/L	<0.000040	<0.000040	<0.000040	0.000040	8104091
Total Silicon (Si)	mg/L	4.91	4.91	4.90	0.050	8104091
Total Silver (Ag)	mg/L	<0.0000050	<0.0000050	<0.0000050	0.0000050	8104091
Total Strontium (Sr)	mg/L	0.257	0.263	0.263	0.000050	8104091
Total Thallium (Tl)	mg/L	<0.0000020	<0.0000020	<0.0000020	0.0000020	8104091
Total Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	0.00020	8104091
Total Titanium (Ti)	mg/L	0.00099	<0.00050	<0.00050	0.00050	8104091
Total Uranium (U)	mg/L	0.00271	0.00270	0.00277	0.0000020	8104091
Total Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	0.00020	8104091
Total Zinc (Zn)	mg/L	0.00059	0.00060	0.00057	0.00010	8104091
Total Zirconium (Zr)	mg/L	0.00060	0.00062	0.00060	0.00010	8104091
RDL = Reportable Detection Limit						
Lab-Dup = Laboratory Initiated Duplicate						

Maxxam Job #: B598984  
Report Date: 2015/11/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		NO7335	NO7342	NO7342		
Sampling Date		2015/10/02 10:20	2015/10/02 10:50	2015/10/02 10:50		
COC Number		08413339	G022395	G022395		
	UNITS	DUP02	MW15-03D	MW15-03D Lab-Dup	RDL	QC Batch
Total Calcium (Ca)	mg/L	56.4	53.6		0.050	8102943
Total Magnesium (Mg)	mg/L	16.2	15.8		0.050	8102943
Total Potassium (K)	mg/L	2.71	2.71		0.050	8102943
Total Sodium (Na)	mg/L	2.42	2.45		0.050	8102943
Total Sulphur (S)	mg/L	8.7	8.3		3.0	8102943
RDL = Reportable Detection Limit						
Lab-Dup = Laboratory Initiated Duplicate						

Maxxam Job #: B598984  
Report Date: 2015/11/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		NO7325	NO7326		NO7327		
Sampling Date		2015/11/01 11:30	2015/10/31 14:45		2015/10/31 15:30		
COC Number		08413339	08413339		08413339		
	UNITS	MW15-01	MW15-04S	QC Batch	MW15-04D	RDL	QC Batch
<b>Calculated Parameters</b>							
Total Hardness (CaCO3)	mg/L	1010	802	8102299	2530	0.50	8115569
<b>Elements</b>							
Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	8110604	<0.0000020	0.0000020	8110604
<b>Total Metals by ICPMS</b>							
Total Aluminum (Al)	mg/L	83.6	68.5	8104792	86.5	0.0030	8117507
Total Antimony (Sb)	mg/L	0.000448	0.000323	8104792	0.000285	0.000050	8117507
Total Arsenic (As)	mg/L	0.0239	0.0557	8104792	0.184	0.000020	8117507
Total Barium (Ba)	mg/L	0.599	1.79	8104792	4.52	0.00010	8117507
Total Beryllium (Be)	mg/L	0.00155	0.00248	8104792	0.00418	0.000010	8117507
Total Bismuth (Bi)	mg/L	0.000683	0.00207	8104792	0.00131	0.000020	8117507
Total Boron (B)	mg/L	<0.050	<0.050	8104792	<0.050	0.050	8117507
Total Cadmium (Cd)	mg/L	0.00314	0.00397	8104792	0.0100	0.0000050	8117507
Total Chromium (Cr)	mg/L	0.119	0.215	8104792	0.978	0.00050	8117507
Total Cobalt (Co)	mg/L	0.0760	0.120	8104792	0.356	0.000010	8117507
Total Copper (Cu)	mg/L	0.263	0.502	8104792	0.944	0.00020	8117507
Total Iron (Fe)	mg/L	200	130	8104792	264	0.0050	8117507
Total Lead (Pb)	mg/L	0.0424	0.230	8104792	0.338	0.000050	8117507
Total Lithium (Li)	mg/L	0.0449	0.0494	8104792	0.0938	0.00050	8117507
Total Manganese (Mn)	mg/L	3.86	4.82	8104792	10.8	0.00010	8117507
Total Molybdenum (Mo)	mg/L	0.00435	0.00673	8104792	0.0343	0.000050	8117507
Total Nickel (Ni)	mg/L	0.122	0.238	8104792	0.794	0.00010	8117507
Total Phosphorus (P)	mg/L	7.06	8.77	8104792	27.8	0.010	8117507
Total Selenium (Se)	mg/L	0.00314	0.00100	8104792	0.00278	0.000040	8117507
Total Silicon (Si)	mg/L	89.6	74.9	8104792	92.3	0.10	8117507
Total Silver (Ag)	mg/L	0.0428	0.0174	8104792	0.0129	0.0000050	8117507
Total Strontium (Sr)	mg/L	1.09	1.10	8104792	3.72	0.000050	8117507
Total Thallium (Tl)	mg/L	0.000328	0.00134	8104792	0.00161	0.0000020	8117507
Total Tin (Sn)	mg/L	0.00157	0.00180	8104792	0.00311	0.00020	8117507
Total Titanium (Ti)	mg/L	4.24	2.16	8104792	1.03	0.0050	8117507
Total Uranium (U)	mg/L	0.0179	0.00825	8104792	0.0205	0.0000050	8117507
Total Vanadium (V)	mg/L	0.463	0.180	8104792	0.150	0.00050	8117507
Total Zinc (Zn)	mg/L	0.719	0.704	8104792	1.14	0.0010	8117507
Total Zirconium (Zr)	mg/L	0.0147	0.0143	8104792	0.00668	0.00010	8117507
Total Calcium (Ca)	mg/L	305	248	8102943	910	0.25	8115599
RDL = Reportable Detection Limit							

Maxxam Job #: B598984  
Report Date: 2015/11/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		NO7325	NO7326		NO7327		
Sampling Date		2015/11/01 11:30	2015/10/31 14:45		2015/10/31 15:30		
COC Number		08413339	08413339		08413339		
	UNITS	MW15-01	MW15-04S	QC Batch	MW15-04D	RDL	QC Batch
Total Magnesium (Mg)	mg/L	60.7	44.8	8102943	61.2	0.25	8115599
Total Potassium (K)	mg/L	5.65	19.1	8102943	22.1	0.25	8115599
Total Sodium (Na)	mg/L	3.03	2.45	8102943	8.80	0.25	8115599
Total Sulphur (S)	mg/L	38	<15	8102943	19	15	8115599
RDL = Reportable Detection Limit							

Maxxam Job #: B598984  
Report Date: 2015/11/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		NO7328	NO7329		NO7330	NO7331		
Sampling Date		2015/11/01 15:00	2015/10/30 18:15		2015/11/01 16:45	2015/11/01 18:15		
COC Number		08413339	08413339		08413339	08413339		
	UNITS	MW15-05D	BH95G-21	QC Batch	BH95G-22	BH95G-25S	RDL	QC Batch
<b>Calculated Parameters</b>								
Total Hardness (CaCO3)	mg/L	247	573	8102299	289	565	0.50	8102299
<b>Elements</b>								
Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	8110604	0.0000070	<0.0000020	0.0000020	8112008
<b>Total Metals by ICPMS</b>								
Total Aluminum (Al)	mg/L	1.63	64.6	8104792	33.3	6.33	0.0030	8104792
Total Antimony (Sb)	mg/L	<0.000050	0.00122	8104792	0.00290	0.000179	0.000050	8104792
Total Arsenic (As)	mg/L	0.00101	0.0823	8104792	0.0927	0.0158	0.000020	8104792
Total Barium (Ba)	mg/L	0.0793	18.1	8104792	0.844	0.174	0.00010	8104792
Total Beryllium (Be)	mg/L	0.000502	0.00349	8104792	0.00154	0.000452	0.000010	8104792
Total Bismuth (Bi)	mg/L	0.000154	0.00690	8104792	0.00349	0.000263	0.000020	8104792
Total Boron (B)	mg/L	<0.050	<0.050	8104792	<0.050	<0.050	0.050	8104792
Total Cadmium (Cd)	mg/L	0.000151	0.00496	8104792	0.0142	0.000317	0.000050	8104792
Total Chromium (Cr)	mg/L	0.00095	0.108	8104792	0.0690	0.0140	0.00050	8104792
Total Cobalt (Co)	mg/L	0.000962	0.0644	8104792	0.0765	0.00599	0.000010	8104792
Total Copper (Cu)	mg/L	0.00810	0.770	8104792	0.533	0.0228	0.00020	8104792
Total Iron (Fe)	mg/L	1.54	228	8104792	118	21.7	0.0050	8104792
Total Lead (Pb)	mg/L	0.0177	0.321	8104792	0.406	0.0209	0.000050	8104792
Total Lithium (Li)	mg/L	0.00238	0.0664	8104792	0.0327	0.0191	0.00050	8104792
Total Manganese (Mn)	mg/L	0.0694	2.34	8104792	4.07	0.594	0.00010	8104792
Total Molybdenum (Mo)	mg/L	0.000997	0.000497	8104792	0.00147	0.00160	0.000050	8104792
Total Nickel (Ni)	mg/L	0.00189	0.125	8104792	0.121	0.0125	0.00010	8104792
Total Phosphorus (P)	mg/L	0.055	10.9	8104792	3.67	0.602	0.010	8104792
Total Selenium (Se)	mg/L	0.00219	0.00117	8104792	0.00122	0.000090	0.000040	8104792
Total Silicon (Si)	mg/L	5.06	74.7	8104792	46.7	16.9	0.10	8104792
Total Silver (Ag)	mg/L	0.000123	0.00499	8104792	0.00609	0.000180	0.000050	8104792
Total Strontium (Sr)	mg/L	0.320	1.04	8104792	0.254	0.544	0.000050	8104792
Total Thallium (Tl)	mg/L	0.000100	0.000991	8104792	0.000811	0.000142	0.0000020	8104792
Total Tin (Sn)	mg/L	0.00022	0.00076	8104792	0.00189	0.00039	0.00020	8104792
Total Titanium (Ti)	mg/L	0.0138	0.946	8104792	1.38	0.373	0.0050	8104792
Total Uranium (U)	mg/L	0.00390	0.0464	8104792	0.0100	0.00651	0.0000050	8104792
Total Vanadium (V)	mg/L	0.00101	0.142	8104792	0.122	0.0187	0.00050	8104792
Total Zinc (Zn)	mg/L	0.0178	1.69	8104792	1.97	0.0661	0.0010	8104792
Total Zirconium (Zr)	mg/L	0.00040	0.0436	8104792	0.00826	0.00059	0.00010	8104792
Total Calcium (Ca)	mg/L	82.6	147	8102943	71.5	149	0.25	8102943
RDL = Reportable Detection Limit								

Maxxam Job #: B598984  
Report Date: 2015/11/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
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Sampler Initials: ER

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		NO7328	NO7329		NO7330	NO7331		
Sampling Date		2015/11/01 15:00	2015/10/30 18:15		2015/11/01 16:45	2015/11/01 18:15		
COC Number		08413339	08413339		08413339	08413339		
	UNITS	MW15-05D	BH95G-21	QC Batch	BH95G-22	BH95G-25S	RDL	QC Batch
Total Magnesium (Mg)	mg/L	9.90	50.0	8102943	26.8	46.7	0.25	8102943
Total Potassium (K)	mg/L	2.42	16.4	8102943	8.88	8.11	0.25	8102943
Total Sodium (Na)	mg/L	5.02	1.72	8102943	1.20	2.12	0.25	8102943
Total Sulphur (S)	mg/L	<15	24	8102943	<15	72	15	8102943
RDL = Reportable Detection Limit								

Maxxam Job #: B598984  
Report Date: 2015/11/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		NO7332	NO7333	NO7334		NO7341		
Sampling Date		2015/11/01 18:00	2015/10/31 10:15	2015/10/31 15:30		2015/10/02 10:20		
COC Number		08413339	08413339	08413339		G022395		
	UNITS	BH95G-25D	BH95-131	DUP01	QC Batch	MW15-03S	RDL	QC Batch
<b>Calculated Parameters</b>								
Total Hardness (CaCO3)	mg/L	677	773	1460	8102299	159	0.50	8115569
<b>Elements</b>								
Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	8112008	<0.0000020	0.0000020	8112008
<b>Total Metals by ICPMS</b>								
Total Aluminum (Al)	mg/L	3.58	1.28	65.5	8104792	4.13	0.0030	8108439
Total Antimony (Sb)	mg/L	0.000619	0.0363	0.000277	8104792	0.000174	0.000050	8108439
Total Arsenic (As)	mg/L	0.00853	0.110	0.207	8104792	0.00616	0.000020	8108439
Total Barium (Ba)	mg/L	0.551	0.0601	3.84	8104792	0.106	0.00010	8108439
Total Beryllium (Be)	mg/L	0.000346	0.000152	0.00288	8104792	0.000234	0.000010	8108439
Total Bismuth (Bi)	mg/L	0.000239	0.000213	0.00117	8104792	0.000103	0.000020	8108439
Total Boron (B)	mg/L	<0.050	<0.050	<0.050	8104792	<0.050	0.050	8108439
Total Cadmium (Cd)	mg/L	0.000334	0.00107	0.00636	8104792	0.000275	0.0000050	8108439
Total Chromium (Cr)	mg/L	0.00483	0.00226	0.698	8104792	0.0281	0.00050	8108439
Total Cobalt (Co)	mg/L	0.00332	0.000931	0.327	8104792	0.00588	0.000010	8108439
Total Copper (Cu)	mg/L	0.0143	0.00953	0.736	8104792	0.0335	0.00020	8108439
Total Iron (Fe)	mg/L	12.3	15.3	194	8104792	12.4	0.0050	8108439
Total Lead (Pb)	mg/L	0.0219	0.423	0.195	8104792	0.0118	0.000050	8108439
Total Lithium (Li)	mg/L	0.0162	0.0184	0.0601	8104792	0.00569	0.00050	8108439
Total Manganese (Mn)	mg/L	0.580	0.269	6.53	8104792	0.309	0.00010	8108439
Total Molybdenum (Mo)	mg/L	0.000480	0.000306	0.0277	8104792	0.00723	0.000050	8108439
Total Nickel (Ni)	mg/L	0.00724	0.00211	0.695	8104792	0.0191	0.00010	8108439
Total Phosphorus (P)	mg/L	0.246	0.109	19.0	8104792	0.418	0.010	8108439
Total Selenium (Se)	mg/L	0.000102	0.000318	0.00416	8104792	0.000199	0.000040	8108439
Total Silicon (Si)	mg/L	11.4	15.9	72.2	8104792	8.90	0.10	8108439
Total Silver (Ag)	mg/L	0.000162	0.000529	0.0175	8104792	0.000345	0.0000050	8108439
Total Strontium (Sr)	mg/L	0.649	0.919	2.12	8104792	0.140	0.000050	8108439
Total Thallium (Tl)	mg/L	0.0000670	0.0000750	0.00111	8104792	0.0000900	0.0000020	8108439
Total Tin (Sn)	mg/L	0.00067	0.00075	0.00323	8104792	0.00045	0.00020	8108439
Total Titanium (Ti)	mg/L	0.129	0.0680	0.574	8104792	0.171	0.0050	8108439
Total Uranium (U)	mg/L	0.0116	0.0225	0.0174	8104792	0.00132	0.0000050	8108439
Total Vanadium (V)	mg/L	0.00778	0.00345	0.108	8104792	0.0130	0.00050	8108439
Total Zinc (Zn)	mg/L	0.313	0.197	0.849	8104792	0.0439	0.0010	8108439
Total Zirconium (Zr)	mg/L	0.00476	0.0976	0.0114	8104792	0.00075	0.00010	8108439
Total Calcium (Ca)	mg/L	165	193	512	8102943	49.7	0.25	8115599
RDL = Reportable Detection Limit								

Maxxam Job #: B598984  
Report Date: 2015/11/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
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Sampler Initials: ER

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		NO7332	NO7333	NO7334		NO7341		
Sampling Date		2015/11/01 18:00	2015/10/31 10:15	2015/10/31 15:30		2015/10/02 10:20		
COC Number		08413339	08413339	08413339		G022395		
	UNITS	BH95G-25D	BH95-131	DUP01	QC Batch	MW15-03S	RDL	QC Batch
Total Magnesium (Mg)	mg/L	64.4	70.4	44.4	8102943	8.47	0.25	8115599
Total Potassium (K)	mg/L	6.56	5.33	14.7	8102943	2.85	0.25	8115599
Total Sodium (Na)	mg/L	2.53	1.88	7.76	8102943	1.96	0.25	8115599
Total Sulphur (S)	mg/L	94	93	<15	8102943	<15	15	8115599
RDL = Reportable Detection Limit								



Maxxam Job #: B598984  
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TETRATECH EBA  
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**LL TOTAL METALS (DIGESTED) WITH CV HG**

<b>Maxxam ID</b>		NO7341		
<b>Sampling Date</b>		2015/10/02 10:20		
<b>COC Number</b>		G022395		
	<b>UNITS</b>	<b>MW15-03S Lab-Dup</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Total Metals by ICPMS</b>				
Total Aluminum (Al)	mg/L	4.21	0.0030	8108439
Total Antimony (Sb)	mg/L	0.000171	0.000050	8108439
Total Arsenic (As)	mg/L	0.00622	0.000020	8108439
Total Barium (Ba)	mg/L	0.101	0.00010	8108439
Total Beryllium (Be)	mg/L	0.000233	0.000010	8108439
Total Bismuth (Bi)	mg/L	0.000105	0.000020	8108439
Total Boron (B)	mg/L	<0.050	0.050	8108439
Total Cadmium (Cd)	mg/L	0.000258	0.0000050	8108439
Total Chromium (Cr)	mg/L	0.0279	0.00050	8108439
Total Cobalt (Co)	mg/L	0.00590	0.000010	8108439
Total Copper (Cu)	mg/L	0.0337	0.00020	8108439
Total Iron (Fe)	mg/L	12.4	0.0050	8108439
Total Lead (Pb)	mg/L	0.0120	0.000050	8108439
Total Lithium (Li)	mg/L	0.00566	0.00050	8108439
Total Manganese (Mn)	mg/L	0.307	0.00010	8108439
Total Molybdenum (Mo)	mg/L	0.00729	0.000050	8108439
Total Nickel (Ni)	mg/L	0.0190	0.00010	8108439
Total Phosphorus (P)	mg/L	0.416	0.010	8108439
Total Selenium (Se)	mg/L	0.000212	0.000040	8108439
Total Silicon (Si)	mg/L	8.28	0.10	8108439
Total Silver (Ag)	mg/L	0.000392	0.0000050	8108439
Total Strontium (Sr)	mg/L	0.141	0.000050	8108439
Total Thallium (Tl)	mg/L	0.0000940	0.0000020	8108439
Total Tin (Sn)	mg/L	0.00045	0.00020	8108439
Total Titanium (Ti)	mg/L	0.187	0.0050	8108439
Total Uranium (U)	mg/L	0.00133	0.0000050	8108439
Total Vanadium (V)	mg/L	0.0132	0.00050	8108439
Total Zinc (Zn)	mg/L	0.0437	0.0010	8108439
Total Zirconium (Zr)	mg/L	0.00083	0.00010	8108439
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate				

Maxxam Job #: B598984  
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TETRATECH EBA  
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### GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	4.7°C
Package 2	4.3°C

Sample NO7325-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample NO7326-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample NO7327-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample NO7328-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample NO7329-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample NO7330-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample NO7331-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample NO7332-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample NO7333-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample NO7334-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample NO7341-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

**Results relate only to the items tested.**

Maxxam Job #: B598984  
Report Date: 2015/11/19

**QUALITY ASSURANCE REPORT**

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8102716	Total Dissolved Solids	2015/11/09	102	80 - 120	98	80 - 120	<1.0	mg/L	2.8	20
8103513	Acidity (pH 4.5)	2015/11/05					<0.50	mg/L	NC	20
8103513	Acidity (pH 8.3)	2015/11/05			108	80 - 120	0.58, RDL=0.50	mg/L	2.1	20
8103557	Turbidity	2015/11/05			102	80 - 120	<0.10	NTU	8.1	20
8103818	Nitrate plus Nitrite (N)	2015/11/05	100	80 - 120	110	80 - 120	<0.0020	mg/L	NC	25
8103819	Nitrite (N)	2015/11/05	94	80 - 120	104	80 - 120	<0.0020	mg/L	NC	25
8104091	Total Aluminum (Al)	2015/11/06	99	80 - 120	107	80 - 120	<0.00050	mg/L	1.7	20
8104091	Total Antimony (Sb)	2015/11/06	NC	80 - 120	112	80 - 120	<0.000020	mg/L	1.2	20
8104091	Total Arsenic (As)	2015/11/06	98	80 - 120	96	80 - 120	<0.000020	mg/L	3.3	20
8104091	Total Barium (Ba)	2015/11/06	NC	80 - 120	117	80 - 120	0.000033, RDL=0.000020	mg/L	1.4	20
8104091	Total Beryllium (Be)	2015/11/06	95	80 - 120	100	80 - 120	<0.000010	mg/L	NC	20
8104091	Total Bismuth (Bi)	2015/11/06	101	80 - 120	113	80 - 120	<0.0000050	mg/L	NC	20
8104091	Total Boron (B)	2015/11/06					<0.010	mg/L	NC	20
8104091	Total Cadmium (Cd)	2015/11/06	99	80 - 120	97	80 - 120	<0.0000050	mg/L	NC	20
8104091	Total Chromium (Cr)	2015/11/06	99	80 - 120	97	80 - 120	<0.00010	mg/L	NC	20
8104091	Total Cobalt (Co)	2015/11/06	104	80 - 120	105	80 - 120	<0.0000050	mg/L	2.7	20
8104091	Total Copper (Cu)	2015/11/06	96	80 - 120	102	80 - 120	<0.000050	mg/L	NC	20
8104091	Total Iron (Fe)	2015/11/06	NC	80 - 120	106	80 - 120	<0.0010	mg/L	3.5	20
8104091	Total Lead (Pb)	2015/11/06	118	80 - 120	112	80 - 120	<0.0000050	mg/L	3.8	20
8104091	Total Lithium (Li)	2015/11/06	NC	80 - 120	98	80 - 120	<0.00050	mg/L	7.1	20
8104091	Total Manganese (Mn)	2015/11/06	NC	80 - 120	98	80 - 120	<0.000050	mg/L	0.35	20
8104091	Total Molybdenum (Mo)	2015/11/06	NC	80 - 120	106	80 - 120	<0.000050	mg/L	3.8	20
8104091	Total Nickel (Ni)	2015/11/06	93	80 - 120	99	80 - 120	0.000020, RDL=0.000020	mg/L	3.7	20
8104091	Total Phosphorus (P)	2015/11/06					<0.0020	mg/L	NC	20
8104091	Total Selenium (Se)	2015/11/06	96	80 - 120	92	80 - 120	<0.000040	mg/L	NC	20
8104091	Total Silicon (Si)	2015/11/06					<0.050	mg/L	0.25	20
8104091	Total Silver (Ag)	2015/11/06	97	80 - 120	108	80 - 120	<0.0000050	mg/L	NC	20
8104091	Total Strontium (Sr)	2015/11/06	NC	80 - 120	97	80 - 120	<0.000050	mg/L	0.12	20
8104091	Total Thallium (Tl)	2015/11/06	106	80 - 120	112	80 - 120	<0.0000020	mg/L	NC	20

Maxxam Job #: B598984  
Report Date: 2015/11/19

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8104091	Total Tin (Sn)	2015/11/06	102	80 - 120	113	80 - 120	<0.00020	mg/L	NC	20
8104091	Total Titanium (Ti)	2015/11/06	95	80 - 120	96	80 - 120	<0.00050	mg/L	NC	20
8104091	Total Uranium (U)	2015/11/06	119	80 - 120	113	80 - 120	<0.0000020	mg/L	2.8	20
8104091	Total Vanadium (V)	2015/11/06	101	80 - 120	100	80 - 120	<0.00020	mg/L	NC	20
8104091	Total Zinc (Zn)	2015/11/06	104	80 - 120	107	80 - 120	<0.00010	mg/L	5.1	20
8104091	Total Zirconium (Zr)	2015/11/06					<0.00010	mg/L	3.3	20
8104319	Dissolved Aluminum (Al)	2015/11/09	107	80 - 120	106	80 - 120	<0.00050	mg/L	NC	20
8104319	Dissolved Antimony (Sb)	2015/11/09	101	80 - 120	98	80 - 120	<0.000020	mg/L	NC	20
8104319	Dissolved Arsenic (As)	2015/11/09	100	80 - 120	95	80 - 120	<0.000020	mg/L	NC	20
8104319	Dissolved Barium (Ba)	2015/11/09	114	80 - 120	110	80 - 120	<0.000020	mg/L	NC	20
8104319	Dissolved Beryllium (Be)	2015/11/09	103	80 - 120	104	80 - 120	<0.000010	mg/L	NC	20
8104319	Dissolved Bismuth (Bi)	2015/11/09	104	80 - 120	105	80 - 120	<0.0000050	mg/L	NC	20
8104319	Dissolved Boron (B)	2015/11/09					<0.010	mg/L	NC	20
8104319	Dissolved Cadmium (Cd)	2015/11/09	98	80 - 120	97	80 - 120	<0.0000050	mg/L	NC	20
8104319	Dissolved Chromium (Cr)	2015/11/09	103	80 - 120	99	80 - 120	<0.00010	mg/L	NC	20
8104319	Dissolved Cobalt (Co)	2015/11/09	106	80 - 120	102	80 - 120	<0.0000050	mg/L	NC	20
8104319	Dissolved Copper (Cu)	2015/11/09	106	80 - 120	103	80 - 120	<0.000050	mg/L	NC	20
8104319	Dissolved Iron (Fe)	2015/11/09	102	80 - 120	109	80 - 120	<0.0010	mg/L	1.9	20
8104319	Dissolved Lead (Pb)	2015/11/09	118	80 - 120	113	80 - 120	<0.0000050	mg/L	NC	20
8104319	Dissolved Lithium (Li)	2015/11/09	90	80 - 120	85	80 - 120	<0.00050	mg/L	NC	20
8104319	Dissolved Manganese (Mn)	2015/11/09	97	80 - 120	96	80 - 120	<0.000050	mg/L	0.25	20
8104319	Dissolved Molybdenum (Mo)	2015/11/09	96	80 - 120	96	80 - 120	<0.000050	mg/L	NC	20
8104319	Dissolved Nickel (Ni)	2015/11/09	104	80 - 120	102	80 - 120	<0.000020	mg/L	NC	20
8104319	Dissolved Phosphorus (P)	2015/11/09					<0.0020	mg/L	9.6	20
8104319	Dissolved Selenium (Se)	2015/11/09	97	80 - 120	94	80 - 120	<0.000040	mg/L	NC	20
8104319	Dissolved Silicon (Si)	2015/11/09					<0.050	mg/L	NC	20
8104319	Dissolved Silver (Ag)	2015/11/09	101	80 - 120	98	80 - 120	<0.0000050	mg/L	NC	20
8104319	Dissolved Strontium (Sr)	2015/11/09	94	80 - 120	93	80 - 120	<0.000050	mg/L	8.3	20
8104319	Dissolved Thallium (Tl)	2015/11/09	104	80 - 120	103	80 - 120	<0.0000020	mg/L	NC	20
8104319	Dissolved Tin (Sn)	2015/11/09	98	80 - 120	97	80 - 120	<0.00020	mg/L	NC	20
8104319	Dissolved Titanium (Ti)	2015/11/09	95	80 - 120	91	80 - 120	<0.00050	mg/L	NC	20

Maxxam Job #: B598984  
Report Date: 2015/11/19

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8104319	Dissolved Uranium (U)	2015/11/09	115	80 - 120	115	80 - 120	<0.0000020	mg/L	1.7	20
8104319	Dissolved Vanadium (V)	2015/11/09	102	80 - 120	96	80 - 120	<0.00020	mg/L	NC	20
8104319	Dissolved Zinc (Zn)	2015/11/09	101	80 - 120	102	80 - 120	<0.00010	mg/L	NC	20
8104319	Dissolved Zirconium (Zr)	2015/11/09					<0.00010	mg/L	NC	20
8104328	Alkalinity (PP as CaCO3)	2015/11/06					<0.50	mg/L	NC	20
8104328	Alkalinity (Total as CaCO3)	2015/11/06	NC	80 - 120	99	80 - 120	<0.50	mg/L	1.1	20
8104328	Bicarbonate (HCO3)	2015/11/06					<0.50	mg/L	1.1	20
8104328	Carbonate (CO3)	2015/11/06					<0.50	mg/L	NC	20
8104328	Hydroxide (OH)	2015/11/06					<0.50	mg/L	NC	20
8104332	Conductivity	2015/11/06			100	80 - 120	<1.0	uS/cm	2.0	20
8104333	pH	2015/11/06			102	97 - 103			0.73	N/A
8104447	Total Suspended Solids	2015/11/09			92	80 - 120	<1.0	mg/L		
8104652	Dissolved Chloride (Cl)	2015/11/06			97	80 - 120	<0.50	mg/L	NC	20
8104659	Dissolved Sulphate (SO4)	2015/11/06			94	80 - 120	<0.50	mg/L		
8104662	Dissolved Chloride (Cl)	2015/11/09			99	80 - 120	<0.50	mg/L	NC	20
8104792	Total Aluminum (Al)	2015/11/07	NC	80 - 120	112	80 - 120	<0.0030	mg/L	3.9	20
8104792	Total Antimony (Sb)	2015/11/07	108	80 - 120	103	80 - 120	<0.000050	mg/L	NC	20
8104792	Total Arsenic (As)	2015/11/07	105	80 - 120	105	80 - 120	<0.000020	mg/L	1.4	20
8104792	Total Barium (Ba)	2015/11/07	NC	80 - 120	119	80 - 120	<0.00010	mg/L	0.47	20
8104792	Total Beryllium (Be)	2015/11/07	100	80 - 120	97	80 - 120	<0.000010	mg/L	NC	20
8104792	Total Bismuth (Bi)	2015/11/07	106	80 - 120	98	80 - 120	<0.000020	mg/L	NC	20
8104792	Total Boron (B)	2015/11/07					<0.050	mg/L	NC	20
8104792	Total Cadmium (Cd)	2015/11/07	101	80 - 120	102	80 - 120	<0.0000050	mg/L	2.2	20
8104792	Total Chromium (Cr)	2015/11/07	105	80 - 120	104	80 - 120	<0.00050	mg/L	NC	20
8104792	Total Cobalt (Co)	2015/11/07	109	80 - 120	112	80 - 120	<0.000010	mg/L	3.8	20
8104792	Total Copper (Cu)	2015/11/07	98	80 - 120	107	80 - 120	<0.00020	mg/L	3.0	20
8104792	Total Iron (Fe)	2015/11/07	NC	80 - 120	109	80 - 120	<0.0050	mg/L	2.8	20
8104792	Total Lead (Pb)	2015/11/07	119	80 - 120	110	80 - 120	<0.000050	mg/L	NC	20
8104792	Total Lithium (Li)	2015/11/07	102	80 - 120	98	80 - 120	<0.00050	mg/L	NC	20
8104792	Total Manganese (Mn)	2015/11/07	NC	80 - 120	106	80 - 120	<0.00010	mg/L	1.4	20
8104792	Total Molybdenum (Mo)	2015/11/07	NC	80 - 120	104	80 - 120	<0.000050	mg/L	2.6	20

Maxxam Job #: B598984  
Report Date: 2015/11/19

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8104792	Total Nickel (Ni)	2015/11/07	100	80 - 120	104	80 - 120	<0.00010	mg/L	2.0	20
8104792	Total Phosphorus (P)	2015/11/07					<0.010	mg/L	NC	20
8104792	Total Selenium (Se)	2015/11/07	95	80 - 120	94	80 - 120	<0.000040	mg/L	3.6	20
8104792	Total Silicon (Si)	2015/11/07					<0.10	mg/L	2.0	20
8104792	Total Silver (Ag)	2015/11/07	101	80 - 120	97	80 - 120	<0.0000050	mg/L	NC	20
8104792	Total Strontium (Sr)	2015/11/07	NC	80 - 120	108	80 - 120	<0.000050	mg/L	1.3	20
8104792	Total Thallium (Tl)	2015/11/07	103	80 - 120	97	80 - 120	<0.0000020	mg/L	NC	20
8104792	Total Tin (Sn)	2015/11/07	102	80 - 120	102	80 - 120	<0.00020	mg/L	NC	20
8104792	Total Titanium (Ti)	2015/11/07	109	80 - 120	110	80 - 120	<0.0050	mg/L	NC	20
8104792	Total Uranium (U)	2015/11/07	122 (1)	80 - 120	108	80 - 120	<0.0000050	mg/L	0.80	20
8104792	Total Vanadium (V)	2015/11/07	104	80 - 120	104	80 - 120	<0.00050	mg/L	NC	20
8104792	Total Zinc (Zn)	2015/11/07	99	80 - 120	107	80 - 120	<0.0010	mg/L	NC	20
8104792	Total Zirconium (Zr)	2015/11/07					<0.00010	mg/L	NC	20
8105024	Total Nitrogen (N)	2015/11/09	NC	80 - 120	99	80 - 120	<0.020	mg/L	7.9	20
8105026	Total Nitrogen (N)	2015/11/09	119	80 - 120	91	80 - 120	<0.020	mg/L	NC	20
8105108	Fluoride (F)	2015/11/06			98	80 - 120	0.012, RDL=0.010	mg/L		
8105110	Fluoride (F)	2015/11/06	98	80 - 120	96	80 - 120	0.013, RDL=0.010	mg/L	1.9	20
8105363	Orthophosphate (P)	2015/11/06	104	80 - 120	102	80 - 120	0.0017, RDL=0.0010	mg/L	NC	20
8105367	Dissolved Phosphorus (P)	2015/11/06	96	80 - 120	103	80 - 120	<0.0020	mg/L	NC	20
8105368	Total Phosphorus (P)	2015/11/06	NC	80 - 120	99	80 - 120	<0.0020	mg/L	1.3	20
8105389	Total Organic Carbon (C)	2015/11/06	85	80 - 120	100	80 - 120	0.75, RDL=0.50	mg/L	NC	20
8107753	Total Ammonia (N)	2015/11/09	106	80 - 120	108	80 - 120	<0.0050	mg/L	NC	20
8107759	Total Ammonia (N)	2015/11/09	NC	80 - 120	102	80 - 120	<0.0050	mg/L	3.2	20
8108439	Total Aluminum (Al)	2015/11/10	NC	80 - 120	103	80 - 120	<0.0030	mg/L	1.9	20
8108439	Total Antimony (Sb)	2015/11/10	95	80 - 120	99	80 - 120	<0.000050	mg/L	NC	20
8108439	Total Arsenic (As)	2015/11/10	NC	80 - 120	96	80 - 120	<0.000020	mg/L	0.94	20
8108439	Total Barium (Ba)	2015/11/10	NC	80 - 120	105	80 - 120	<0.00010	mg/L	4.9	20
8108439	Total Beryllium (Be)	2015/11/10	99	80 - 120	94	80 - 120	<0.000010	mg/L	0.43	20

Maxxam Job #: B598984  
Report Date: 2015/11/19

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8108439	Total Bismuth (Bi)	2015/11/10	106	80 - 120	99	80 - 120	<0.000020	mg/L	1.9	20
8108439	Total Boron (B)	2015/11/10					<0.050	mg/L	NC	20
8108439	Total Cadmium (Cd)	2015/11/10	97	80 - 120	96	80 - 120	<0.0000050	mg/L	6.4	20
8108439	Total Chromium (Cr)	2015/11/10	NC	80 - 120	98	80 - 120	<0.00050	mg/L	0.65	20
8108439	Total Cobalt (Co)	2015/11/10	NC	80 - 120	99	80 - 120	<0.000010	mg/L	0.36	20
8108439	Total Copper (Cu)	2015/11/10	NC	80 - 120	101	80 - 120	<0.00020	mg/L	0.64	20
8108439	Total Iron (Fe)	2015/11/10	NC	80 - 120	102	80 - 120	<0.0050	mg/L	0.53	20
8108439	Total Lead (Pb)	2015/11/10	NC	80 - 120	100	80 - 120	<0.000050	mg/L	1.9	20
8108439	Total Lithium (Li)	2015/11/10	NC	80 - 120	90	80 - 120	<0.00050	mg/L	0.56	20
8108439	Total Manganese (Mn)	2015/11/10	NC	80 - 120	98	80 - 120	<0.00010	mg/L	0.53	20
8108439	Total Molybdenum (Mo)	2015/11/10	NC	80 - 120	94	80 - 120	<0.000050	mg/L	0.74	20
8108439	Total Nickel (Ni)	2015/11/10	NC	80 - 120	100	80 - 120	<0.00010	mg/L	0.81	20
8108439	Total Phosphorus (P)	2015/11/10					<0.010	mg/L	0.52	20
8108439	Total Selenium (Se)	2015/11/10	84	80 - 120	93	80 - 120	<0.000040	mg/L	NC	20
8108439	Total Silicon (Si)	2015/11/10					<0.10	mg/L	7.3	20
8108439	Total Silver (Ag)	2015/11/10	117	80 - 120	98	80 - 120	<0.0000050	mg/L	13	20
8108439	Total Strontium (Sr)	2015/11/10	NC	80 - 120	96	80 - 120	<0.000050	mg/L	0.94	20
8108439	Total Thallium (Tl)	2015/11/10	105	80 - 120	98	80 - 120	<0.0000020	mg/L	4.3	20
8108439	Total Tin (Sn)	2015/11/10	100	80 - 120	98	80 - 120	<0.00020	mg/L	NC	20
8108439	Total Titanium (Ti)	2015/11/10	NC	80 - 120	94	80 - 120	<0.0050	mg/L	9.0	20
8108439	Total Uranium (U)	2015/11/10	118	80 - 120	105	80 - 120	<0.0000050	mg/L	1.1	20
8108439	Total Vanadium (V)	2015/11/10	NC	80 - 120	97	80 - 120	<0.00050	mg/L	1.3	20
8108439	Total Zinc (Zn)	2015/11/10	NC	80 - 120	108	80 - 120	<0.0010	mg/L	0.35	20
8108439	Total Zirconium (Zr)	2015/11/10					<0.00010	mg/L	11	20
8110604	Total Mercury (Hg)	2015/11/12	104	80 - 120	98	80 - 120	<0.0000020	mg/L	NC	20
8111092	Dissolved Mercury (Hg)	2015/11/12	97	80 - 120	94	80 - 120	<0.0000020	mg/L	NC	20
8111127	Dissolved Mercury (Hg)	2015/11/12	92	80 - 120	101	80 - 120	<0.0000020	mg/L	NC	20
8112008	Total Mercury (Hg)	2015/11/13	92	80 - 120	93	80 - 120	<0.0000020	mg/L	NC	20
8113055	Alkalinity (PP as CaCO3)	2015/11/14					<0.50	mg/L	NC	20
8113055	Alkalinity (Total as CaCO3)	2015/11/14	103	80 - 120	93	80 - 120	0.58, RDL=0.50	mg/L	3.2	20
8113055	Bicarbonate (HCO3)	2015/11/14					0.71, RDL=0.50	mg/L	3.2	20

Maxxam Job #: B598984  
Report Date: 2015/11/19

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8113055	Carbonate (CO3)	2015/11/14					<0.50	mg/L	NC	20
8113055	Hydroxide (OH)	2015/11/14					<0.50	mg/L	NC	20
8114700	Dissolved Chloride (Cl)	2015/11/16			103	80 - 120	<0.50	mg/L		
8114703	Dissolved Sulphate (SO4)	2015/11/16			98	80 - 120	<0.50	mg/L		
8116059	Orthophosphate (P)	2015/11/17	NC	80 - 120	103	80 - 120	<0.0010	mg/L	0.17	20
8117507	Total Aluminum (Al)	2015/11/19	NC	80 - 120	104	80 - 120	<0.0030	mg/L		
8117507	Total Antimony (Sb)	2015/11/19	115	80 - 120	104	80 - 120	<0.000050	mg/L		
8117507	Total Arsenic (As)	2015/11/19	101	80 - 120	100	80 - 120	<0.000020	mg/L		
8117507	Total Barium (Ba)	2015/11/19	NC	80 - 120	103	80 - 120	<0.00010	mg/L		
8117507	Total Beryllium (Be)	2015/11/19	101	80 - 120	95	80 - 120	<0.000010	mg/L		
8117507	Total Bismuth (Bi)	2015/11/19	100	80 - 120	103	80 - 120	<0.000020	mg/L	NC	20
8117507	Total Boron (B)	2015/11/19					<0.050	mg/L		
8117507	Total Cadmium (Cd)	2015/11/19	97	80 - 120	96	80 - 120	<0.0000050	mg/L		
8117507	Total Chromium (Cr)	2015/11/19	101	80 - 120	100	80 - 120	<0.00050	mg/L		
8117507	Total Cobalt (Co)	2015/11/19	101	80 - 120	102	80 - 120	<0.000010	mg/L		
8117507	Total Copper (Cu)	2015/11/19	99	80 - 120	105	80 - 120	<0.00020	mg/L		
8117507	Total Iron (Fe)	2015/11/19	NC	80 - 120	104	80 - 120	<0.0050	mg/L		
8117507	Total Lead (Pb)	2015/11/19	105	80 - 120	105	80 - 120	<0.000050	mg/L		
8117507	Total Lithium (Li)	2015/11/19	NC	80 - 120	91	80 - 120	<0.00050	mg/L		
8117507	Total Manganese (Mn)	2015/11/19	NC	80 - 120	101	80 - 120	<0.00010	mg/L		
8117507	Total Molybdenum (Mo)	2015/11/19	NC	80 - 120	97	80 - 120	<0.000050	mg/L		
8117507	Total Nickel (Ni)	2015/11/19	103	80 - 120	100	80 - 120	<0.00010	mg/L		
8117507	Total Phosphorus (P)	2015/11/19					<0.010	mg/L		
8117507	Total Selenium (Se)	2015/11/19	93	80 - 120	94	80 - 120	<0.000040	mg/L		
8117507	Total Silicon (Si)	2015/11/19					<0.10	mg/L		
8117507	Total Silver (Ag)	2015/11/19	99	80 - 120	92	80 - 120	<0.0000050	mg/L		
8117507	Total Strontium (Sr)	2015/11/19	NC	80 - 120	100	80 - 120	<0.000050	mg/L		
8117507	Total Thallium (Tl)	2015/11/19	100	80 - 120	100	80 - 120	<0.0000020	mg/L		
8117507	Total Tin (Sn)	2015/11/19	105	80 - 120	101	80 - 120	<0.00020	mg/L		
8117507	Total Titanium (Ti)	2015/11/19	110	80 - 120	98	80 - 120	<0.0050	mg/L		
8117507	Total Uranium (U)	2015/11/19	110	80 - 120	104	80 - 120	<0.0000050	mg/L		



Maxxam Job #: B598984  
Report Date: 2015/11/19

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8117507	Total Vanadium (V)	2015/11/19	NC	80 - 120	100	80 - 120	<0.00050	mg/L		
8117507	Total Zinc (Zn)	2015/11/19	NC	80 - 120	102	80 - 120	<0.0010	mg/L		
8117507	Total Zirconium (Zr)	2015/11/19					<0.00010	mg/L		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Maxxam Job #: B598984  
Report Date: 2015/11/19

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



---

Rob Reinert, Data Validation Coordinator

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

## CHAIN OF CUSTODY RECORD

08413339

BBY FCD-00077/05

Page 1 of 2

Invoice Information		Report Information (if differs from invoice)				Project Information		Turnaround Time (TAT) Required					
Company Name: #11954 BMC Mineral (NO. 1) LTD.	Company Name: #31161 Tetra Tech ERA	Quotation #: B50743	<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses)		PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS								
Contact Name: ACCOUNTS PAYABLE	Contact Name: Kristen Range / Eliane Roy	P.O. #/ A/F/R:	Rush TAT (Surcharges will be applied)		<input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days <input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days								
Address: 530-1130 West Fender Street, Vancouver BC                      PC: V5E 6A4	Address: 61 Wesson Place Whitehorse, YT                      PC: V1A 0K7	Project #: ENVMNO3071-01	Date Required:										
Phone:	Phone: 867-668-6225	Site Location: Kudzi La Kayah	Rush Confirmation #:										
Email: kdbergh@gmail.com	Email: kristen.range / eliane.roy@tetratech.com	Site #:	Analysis Requested										
Regulatory Criteria		Special Instructions		Analysis Requested		Rush Confirmation #:		LABORATORY USE ONLY					
<input type="checkbox"/> BC CSA Soil <input type="checkbox"/> BC CSR Water <input checked="" type="checkbox"/> CCME (Specify) AN <input checked="" type="checkbox"/> Other (Specify) MMER <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC Water Quality		<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify)		ROUTINE ANALYSIS MAJOR IONS NUTRIENTS INCLUDING NH4, NO2, TOTAL P Lead Level Disinfectant Residual with CV log Lead Level Total Mercury with CV log Pesticides (LL Tox, atrazine+PPYP)		# OF CONTAINERS SUBMITTED MOOD - DO NOT ANALYZE		CUSTODY SEAL <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Present    Intact MA                      6/6/2 MA                      4/5/4 COOLING MEDIA PRESENT <input checked="" type="checkbox"/> Y <input type="checkbox"/> N COMMENTS: MAXXAM					
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM													
Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	ROUTINE ANALYSIS	MAJOR IONS	NUTRIENTS INCLUDING NH4, NO2, TOTAL P	Lead Level Disinfectant Residual with CV log	Lead Level Total Mercury with CV log	Pesticides (LL Tox, atrazine+PPYP)	# OF CONTAINERS SUBMITTED	MOOD - DO NOT ANALYZE	LABORATORY USE ONLY
1 MWIS-01	NO7325	NOV 1	1130pm	(AW)	x	x	x	x	x	x	13		Dissolved metals and phosphorus were field filtered and preserved.
2 MWIS-04S	NO7326	OCT 31	245pm		x	x	x	x	x	x	13		Total metals were field preserved.
3 MWIS-04D	NO7327	OCT 31	330pm		x	x	x	x	x	x			
4 MWIS-05D	NO7328	NOV 2	3pm		x	x	x	x	x	x			
5 BH95G-21	NO7329	OCT 30	615pm		x	x	x	x	x	x			
6 BH95G-22	NO7330	NOV 1	445pm		x	x	x	x	x	x			
7 BH95G-25S	NO7331	NOV 1	615pm		x	x	x	x	x	x			
8 BH95G-25D	NO7332	NOV 1	6pm		x	x	x	x	x	x			
9 BH95-131	NO7333	OCT 31	1015pm		x	x	x	x	x	x			
10 Dup 01	NO7334	OCT 31	330pm		x	x	x	x	x	x			
11 Dup 02	NO7335	NOV 2	1020pm		x	x	x	x	x	x			
RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)							
Eliane Roy	NOV 3, 2015	8 AM.	C. Laurel Berthier		2015/11/05	09:35							



B598984



4606 Canada Way, Burnaby, BC Canada V5G 1K5 Ph: 604 734 7276 Toll Free: 1 800 665 8586 Fax: 604 731 2386

**CHAIN OF CUSTODY RECORD**

Page: 2 of 2

Maxxam Job#: B598984

G 022395

Invoice To: Require Report? Yes  No

Report To:

Company Name: \_\_\_\_\_  
 Contact Name: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 PC: \_\_\_\_\_  
 Phone / Fax#: Ph: \_\_\_\_\_ Fax: \_\_\_\_\_  
 E-mail: \_\_\_\_\_

Company Name: \_\_\_\_\_  
 Contact Name: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 PC: \_\_\_\_\_  
 Phone / Fax#: Ph: \_\_\_\_\_ Fax: \_\_\_\_\_  
 E-mail: \_\_\_\_\_

PO #: \_\_\_\_\_  
 Quotation #: \_\_\_\_\_  
 Project #: \_\_\_\_\_  
 Proj. Name: \_\_\_\_\_  
 Location: \_\_\_\_\_  
 Sampled By: \_\_\_\_\_

**REGULATORY REQUIREMENTS SERVICE REQUESTED:**

- CSR
  - CCME
  - BC Water Quality
  - Other
  - DRINKING WATER
- Regular Turn Around Time (TAT)  
 (5 days for most tests)  
 RUSH (Please contact the lab)  
 1 Day  2 Day  3 Day
- Date Required: \_\_\_\_\_

**Special Instructions:**

Return Cooler  Ship Sample Bottles (please specify)

**ANALYSIS REQUESTED**

Sample ID	Lab ID	Sample Type	Date/Time Sampled	MTBE	BTEX/PH	VOC/PH	EPH	PAH	LEP/HEPH	CCME-PHC (Regulations 1-4 Plus BTEX)	CCME-PHC (Regulations 2-4)	CCME BTEX (Regulation 1 Plus BTEX)	PCB	Phenols by 4Type	Phenols by GCMS	MOG	SWOG	TOG	Disolved Metals	Total Metals Fair Auditor?	Nitrite	Nitrate	Ammonia	Chloride	Fluoride	Sulphate	Total Suspended Solids-TSS	TDS	pH	Conductivity	Alkalinity	BOD	COD	Coliform, Total & E.coli	Fecal	Asbestos	HOLD	YES	NO	YES	NO								
1	MWIS-03S	GW	NOV2, 10:30																																														
2	MWIS-03D	GW	NOV2, 10:30																																														
3																																																	
4																																																	
5																																																	
6																																																	
7																																																	
8																																																	
9																																																	
10																																																	
11																																																	
12																																																	



B598984

Does source supply multiple households?  
 YES  NO

<b>*Relinquished by:</b>	Date (YY/MM/DD):	Time:	<b>Received by:</b>	Date (YY/MM/DD):	Time:	Time Sensitive <input type="checkbox"/>	Temperature on Receipt (°C)	Custody Seal Intact on Cooler?	
			<i>Laurel Beamer</i>	2015/11/05	09:35		6/62/454	Yes	No

\*IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS. Maxxam International Corporation o/a Maxxam Analytics. White: Maxxam Yellow: Client

Your Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Your C.O.C. #: 08413422

**Attention:KRISTEN RANGE**

TETRATECH EBA  
61 WASSON PLACE  
WHITEHORSE, YT  
Canada Y1A 0H7

**Report Date: 2015/11/17**  
Report #: R2080972  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B5A0147**

**Received: 2015/11/09, 10:00**

Sample Matrix: Water  
# Samples Received: 4

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Analytical Method</b>
Acidity pH 4.5 & pH 8.3 (as CaCO3)	4	N/A	2015/11/09	BBY6SOP-00037	SM 22 2310 B m
Alkalinity - Water	4	2015/11/09	2015/11/10	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry	4	N/A	2015/11/10	BBY6SOP-00011	SM 22 4500-Cl- G m
Conductance - water	4	N/A	2015/11/10	BBY6SOP-00026	SM 22 2510 B m
Fluoride	4	N/A	2015/11/10	BBY6SOP-00048	SM 22 4500-F C m
Hardness Total (calculated as CaCO3)	4	N/A	2015/11/12	BBY7SOP-00002	EPA 6020a R1 m
Hardness (calculated as CaCO3)	4	N/A	2015/11/12	BBY7SOP-00002	EPA 6020a R1 m
Mercury (Dissolved-LowLevel) by CVAF	4	N/A	2015/11/13	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total-LowLevel) by CVAF	4	2015/11/13	2015/11/13	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Ion Balance	4	N/A	2015/11/12	BBY WI-00033	SM 22 1030E
Sum of cations, anions	4	N/A	2015/11/12	Calc	
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	4	N/A	2015/11/12	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Low Level (dissolved)	4	N/A	2015/11/12	BBY7SOP-00002	EPA 6020A R1 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	4	N/A	2015/11/12	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Low Level (total)	4	N/A	2015/11/12	BBY7SOP-00002	EPA 6020A R1 m
Nitrogen (Total)	4	2015/11/12	2015/11/12	BBY6SOP-00016	SM 22 4500-N C m
Ammonia-N (Preserved)	4	N/A	2015/11/12	BBY6SOP-00009	SM 22 4500-NH3- G m
Nitrate+Nitrite (N) (low level)	4	N/A	2015/11/10	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) (low level)	4	N/A	2015/11/10	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N)	4	N/A	2015/11/12	BBY6SOP-00010	SM 22 4500-NO3- I m
Filter and HNO3 Preserve for Metals	4	N/A	2015/11/10	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (1)	4	N/A	2015/11/10	BBY6SOP-00026	SM 22 4500-H+ B m
Orthophosphate by Konelab (low level)	3	N/A	2015/11/10	BBY6SOP-00013	SM 22 4500-P E m
Orthophosphate by Konelab (low level)	1	N/A	2015/11/14	BBY6SOP-00013	SM 22 4500-P E m
Sulphate by Automated Colourimetry	4	N/A	2015/11/10	BBY6SOP-00017	SM 22 4500-SO42- E m
Total Dissolved Solids - Low Level	4	N/A	2015/11/13	BBY6SOP-00033	SM 22 2540 C m
TKN (Calc. TN, N/N) total	4	N/A	2015/11/12	BBY WI-00033	Calculation
Carbon (Total Organic) (2)	4	N/A	2015/11/10	BBY6SOP-00003	SM 22 5310 C m
Phosphorus-P (LL Tot, dissolved) - FF/FP	3	2015/11/10	2015/11/10	BBY6SOP-00013	SM 22 4500-P E m
Phosphorus-P (LL Tot, dissolved) - FF/FP	1	2015/11/14	2015/11/14	BBY6SOP-00013	SM 22 4500-P E m

Your Project #: ENVMIN03071-01  
 Site Location: KUDZ ZE KAYAH  
 Your C.O.C. #: 08413422

**Attention:KRISTEN RANGE**

TETRATECH EBA  
 61 WASSON PLACE  
 WHITEHORSE, YT  
 Canada Y1A 0H7

**Report Date: 2015/11/17**  
 Report #: R2080972  
 Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B5A0147**

**Received: 2015/11/09, 10:00**

Sample Matrix: Water  
 # Samples Received: 4

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Total Phosphorus	4	N/A	2015/11/10	BBY6SOP-00013	SM 22 4500-P E m
Total Suspended Solids-Low Level	4	2015/11/12	2015/11/12	BBY6SOP-00034	SM 22 2540 D
Turbidity	4	N/A	2015/11/09	BBY6SOP-00027	SM 22 2130 B m

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

(2) TOC present in the sample should be considered as non-purgeable TOC.

**Encryption Key**

Please direct all questions regarding this Certificate of Analysis to your Project Manager.  
 Morgan Melnychuk, Burnaby Project Manager  
 Email: MMelnychuk@maxxam.ca  
 Phone# (604)638-8034 Ext:8034

=====

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B5A0147  
Report Date: 2015/11/17

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		NP4192			NP4193	NP4193		NP4194		
Sampling Date		2015/11/05 12:30			2015/11/05 10:30	2015/11/05 10:30		2015/11/05 16:30		
COC Number		08413422			08413422	08413422		08413422		
	UNITS	MW15-075	RDL	QC Batch	BH95G-2	BH95G-2 Lab-Dup	RDL	BH95G-31	RDL	QC Batch
<b>Misc. Inorganics</b>										
Acidity (pH 4.5)	mg/L	<0.50	0.50	8107366	<0.50		0.50	<0.50	0.50	8107366
Acidity (pH 8.3)	mg/L	2.99	0.50	8107366	4.31		0.50	0.72	0.50	8107366
<b>Calculated Parameters</b>										
Anion Sum	meq/L	4.2	N/A	8107236	6.3		N/A	3.0	N/A	8107236
Cation Sum	meq/L	4.0	N/A	8107236	6.5		N/A	3.4	N/A	8107236
Filter and HNO3 Preservation	N/A	FIELD	N/A	ONSITE	FIELD		N/A	FIELD	N/A	ONSITE
Ion Balance	N/A	0.96	0.010	8107235	1.0		0.010	1.1	0.010	8107235
Nitrate (N)	mg/L	0.0048	0.0020	8107001	0.407		0.0020	0.199	0.0020	8107001
<b>Misc. Inorganics</b>										
Fluoride (F)	mg/L	0.300	0.010	8109106	0.057		0.010	0.100	0.010	8109106
Alkalinity (Total as CaCO3)	mg/L	173	0.50	8108305	260		0.50	127	0.50	8108305
Total Organic Carbon (C)	mg/L	<0.50	0.50	8108996	<0.50		0.50	<0.50	0.50	8108996
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8108305	<0.50		0.50	<0.50	0.50	8108305
Bicarbonate (HCO3)	mg/L	211	0.50	8108305	317		0.50	155	0.50	8108305
Carbonate (CO3)	mg/L	<0.50	0.50	8108305	<0.50		0.50	<0.50	0.50	8108305
Hydroxide (OH)	mg/L	<0.50	0.50	8108305	<0.50		0.50	<0.50	0.50	8108305
<b>Anions</b>										
Orthophosphate (P)	mg/L	<0.0010 (1)	0.0010	8113324	0.0062 (1)		0.0010	0.0062 (1)	0.0010	8109179
Dissolved Sulphate (SO4)	mg/L	33.2	0.50	8108713	51.1		0.50	20.4	0.50	8108713
Dissolved Chloride (Cl)	mg/L	0.94	0.50	8108674	0.79		0.50	0.60	0.50	8108674
<b>Nutrients</b>										
Total Ammonia (N)	mg/L	0.053	0.0050	8111290	0.051		0.0050	0.20	0.0050	8111290
Dissolved Phosphorus (P)	mg/L	0.0031	0.0020	8113323	0.0048		0.0020	0.0029	0.0020	8109181
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.113	0.020	8107003	0.029		0.020	0.160	0.020	8107003
Nitrate plus Nitrite (N)	mg/L	0.0048 (1)	0.0020	8109074	0.409 (1)		0.0020	0.202 (1)	0.0020	8109074
Nitrite (N)	mg/L	<0.0020 (1)	0.0020	8109077	0.0020 (1)		0.0020	0.0032 (1)	0.0020	8109077
Total Nitrogen (N)	mg/L	0.118	0.020	8110996	0.438		0.020	0.362	0.020	8110996
Total Phosphorus (P)	mg/L	1.03	0.020	8109182	0.442		0.0020	1.09	0.020	8109182
<b>Physical Properties</b>										
Conductivity	uS/cm	393	1.0	8108308	564		1.0	289	1.0	8108308
pH	pH	8.10	N/A	8108309	8.18		N/A	8.16	N/A	8108309
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable (1) Sample arrived to laboratory past recommended hold time.										

Maxxam Job #: B5A0147  
Report Date: 2015/11/17

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		NP4192			NP4193	NP4193		NP4194		
<b>Sampling Date</b>		2015/11/05 12:30			2015/11/05 10:30	2015/11/05 10:30		2015/11/05 16:30		
<b>COC Number</b>		08413422			08413422	08413422		08413422		
	<b>UNITS</b>	<b>MW15-07S</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH95G-2</b>	<b>BH95G-2 Lab-Dup</b>	<b>RDL</b>	<b>BH95G-31</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Physical Properties</b>										
Total Suspended Solids	mg/L	6590 (1)	20	8110933	162 (1)		3.0	713 (1)	10	8110933
Total Dissolved Solids	mg/L	250	1.0	8109205	310		1.0	172	1.0	8109205
Turbidity	NTU	1600 (2)	0.10	8107703	55.3 (2)	57.7	0.10	323 (2)	0.10	8107703

RDL = Reportable Detection Limit  
 Lab-Dup = Laboratory Initiated Duplicate  
 (1) RDL raised due to high concentration of solids in the sample.  
 (2) Sample arrived to laboratory past recommended hold time.



Maxxam Job #: B5A0147  
Report Date: 2015/11/17

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		NP4194		NP4195		
Sampling Date		2015/11/05 16:30		2015/11/05 15:00		
COC Number		08413422		08413422		
	UNITS	BH95G-31 Lab-Dup	RDL	BH95G-32	RDL	QC Batch
<b>Misc. Inorganics</b>						
Acidity (pH 4.5)	mg/L		0.50	<0.50	0.50	8107366
Acidity (pH 8.3)	mg/L		0.50	3.18	0.50	8107366
<b>Calculated Parameters</b>						
Anion Sum	meq/L		N/A	4.3	N/A	8107236
Cation Sum	meq/L		N/A	4.2	N/A	8107236
Filter and HNO3 Preservation	N/A		N/A	FIELD	N/A	ONSITE
Ion Balance	N/A		0.010	0.97	0.010	8107235
Nitrate (N)	mg/L		0.0020	0.0512	0.0020	8107001
<b>Misc. Inorganics</b>						
Fluoride (F)	mg/L		0.010	0.039	0.010	8109106
Alkalinity (Total as CaCO3)	mg/L		0.50	179	0.50	8108305
Total Organic Carbon (C)	mg/L		0.50	<0.50	0.50	8108996
Alkalinity (PP as CaCO3)	mg/L		0.50	<0.50	0.50	8108305
Bicarbonate (HCO3)	mg/L		0.50	219	0.50	8108305
Carbonate (CO3)	mg/L		0.50	<0.50	0.50	8108305
Hydroxide (OH)	mg/L		0.50	<0.50	0.50	8108305
<b>Anions</b>						
Orthophosphate (P)	mg/L		0.0010	0.0026 (1)	0.0010	8109179
Dissolved Sulphate (SO4)	mg/L		0.50	34.4	0.50	8108713
Dissolved Chloride (Cl)	mg/L		0.50	0.75	0.50	8108674
<b>Nutrients</b>						
Total Ammonia (N)	mg/L		0.0050	0.029	0.0050	8111290
Dissolved Phosphorus (P)	mg/L		0.0020	0.0025	0.0020	8109181
Total Total Kjeldahl Nitrogen (Calc)	mg/L		0.020	0.076	0.020	8107003
Nitrate plus Nitrite (N)	mg/L		0.0020	0.0533 (1)	0.0020	8109074
Nitrite (N)	mg/L		0.0020	0.0021 (1)	0.0020	8109077
Total Nitrogen (N)	mg/L		0.020	0.129	0.020	8110996
Total Phosphorus (P)	mg/L		0.020	0.454	0.0020	8109182
<b>Physical Properties</b>						
Conductivity	uS/cm		1.0	409	1.0	8108308
pH	pH		N/A	8.12	N/A	8108309
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable (1) Sample arrived to laboratory past recommended hold time.						

Maxxam Job #: B5A0147  
Report Date: 2015/11/17

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		NP4194		NP4195		
<b>Sampling Date</b>		2015/11/05 16:30		2015/11/05 15:00		
<b>COC Number</b>		08413422		08413422		
	<b>UNITS</b>	<b>BH95G-31 Lab-Dup</b>	<b>RDL</b>	<b>BH95G-32</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Physical Properties</b>						
Total Suspended Solids	mg/L		10	301 (1)	10	8110933
Total Dissolved Solids	mg/L	168	1.0	244	1.0	8109205
Turbidity	NTU		0.10	251 (2)	0.10	8107703
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate (1) RDL raised due to high concentration of solids in the sample. (2) Sample arrived to laboratory past recommended hold time.						

Maxxam Job #: B5A0147  
Report Date: 2015/11/17

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		NP4192	NP4193		NP4194	NP4195		
Sampling Date		2015/11/05 12:30	2015/11/05 10:30		2015/11/05 16:30	2015/11/05 15:00		
COC Number		08413422	08413422		08413422	08413422		
	<b>UNITS</b>	<b>MW15-07S</b>	<b>BH95G-2</b>	<b>QC Batch</b>	<b>BH95G-31</b>	<b>BH95G-32</b>	<b>RDL</b>	<b>QC Batch</b>

Misc. Inorganics								
Dissolved Hardness (CaCO3)	mg/L	191	325	8106998	162	202	0.50	8106998
Elements								
Dissolved Mercury (Hg)	mg/L	<0.000020	<0.000020	8112092	<0.000020	<0.000020	0.000020	8112092
Dissolved Metals by ICPMS								
Dissolved Aluminum (Al)	mg/L	0.0239	0.0244	8110655	0.0852	0.0142	0.00050	8110655
Dissolved Antimony (Sb)	mg/L	0.000023	<0.000020	8110655	0.000108 (1)	0.000033	0.000020	8110655
Dissolved Arsenic (As)	mg/L	0.00507	0.000085	8110655	0.000137	0.000256	0.000020	8110655
Dissolved Barium (Ba)	mg/L	0.0341	0.0247	8110655	0.146	0.176	0.000020	8110655
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	8110655	<0.000010	<0.000010	0.000010	8110655
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	8110655	<0.0000050	<0.0000050	0.0000050	8110655
Dissolved Boron (B)	mg/L	<0.010	<0.010	8110655	<0.010	<0.010	0.010	8110655
Dissolved Cadmium (Cd)	mg/L	0.0000150	0.00157	8110655	0.0000230	0.0000510	0.0000050	8110655
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	8110655	0.00023	<0.00010	0.00010	8110655
Dissolved Cobalt (Co)	mg/L	0.000517	0.0000090	8110655	0.000162	0.000279	0.0000050	8110655
Dissolved Copper (Cu)	mg/L	0.000219	0.000368	8110655	0.00132	0.000305	0.000050	8110655
Dissolved Iron (Fe)	mg/L	0.307	0.0026	8110655	0.0875	0.129	0.0010	8110655
Dissolved Lead (Pb)	mg/L	0.0000570	0.0000610	8110655	0.000259	0.0000520	0.0000050	8110655
Dissolved Lithium (Li)	mg/L	0.00624	0.00154	8110655	0.00102	0.00119	0.00050	8110655
Dissolved Manganese (Mn)	mg/L	0.155	0.000446	8110655	0.00121	0.0729	0.000050	8110655
Dissolved Molybdenum (Mo)	mg/L	0.000837	0.00194	8110655	0.00179 (1)	0.000721 (1)	0.000050	8112287
Dissolved Nickel (Ni)	mg/L	0.00125	0.000439	8110655	0.000597	0.00110	0.000020	8110655
Dissolved Phosphorus (P)	mg/L	0.0069	0.0097	8110655	0.0090	<0.0020	0.0020	8110655
Dissolved Selenium (Se)	mg/L	<0.000040	0.00623	8110655	0.00166	0.000561	0.000040	8110655
Dissolved Silicon (Si)	mg/L	6.46	2.23	8110655	2.97	2.09	0.050	8110655
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	8110655	<0.0000050	<0.0000050	0.0000050	8110655
Dissolved Strontium (Sr)	mg/L	0.264	0.247	8110655	0.197	0.266	0.000050	8110655
Dissolved Thallium (Tl)	mg/L	<0.0000020	<0.0000020	8110655	0.0000020	0.0000060	0.0000020	8110655
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	8110655	<0.00020	<0.00020	0.00020	8110655
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	8110655	0.00357	<0.00050	0.00050	8110655
Dissolved Uranium (U)	mg/L	0.00200	0.00316	8110655	0.00120	0.00123	0.0000020	8110655
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	8110655	<0.00020	<0.00020	0.00020	8110655
Dissolved Zinc (Zn)	mg/L	0.00107	0.0245	8110655	0.00260	0.00218	0.00010	8110655
Dissolved Zirconium (Zr)	mg/L	<0.00010	<0.00010	8110655	<0.00010	<0.00010	0.00010	8110655
RDL = Reportable Detection Limit								
(1) Dissolved greater than total. Reanalysis yields similar results.								

Maxxam Job #: B5A0147  
Report Date: 2015/11/17

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		NP4192	NP4193		NP4194	NP4195		
Sampling Date		2015/11/05 12:30	2015/11/05 10:30		2015/11/05 16:30	2015/11/05 15:00		
COC Number		08413422	08413422		08413422	08413422		
	UNITS	MW15-07S	BH95G-2	QC Batch	BH95G-31	BH95G-32	RDL	QC Batch
Dissolved Calcium (Ca)	mg/L	59.9	80.0	8107508	59.8	74.3	0.050	8107508
Dissolved Magnesium (Mg)	mg/L	9.96	30.4	8107508	3.13	3.93	0.050	8107508
Dissolved Potassium (K)	mg/L	1.39	0.445	8107508	3.15	4.31	0.050	8107508
Dissolved Sodium (Na)	mg/L	3.56	0.726	8107508	1.09	0.664	0.050	8107508
Dissolved Sulphur (S)	mg/L	11.8	17.2	8107508	7.3	10.7	3.0	8107508
RDL = Reportable Detection Limit								

Maxxam Job #: B5A0147  
Report Date: 2015/11/17

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		NP4192	NP4193	NP4194	NP4195		
Sampling Date		2015/11/05 12:30	2015/11/05 10:30	2015/11/05 16:30	2015/11/05 15:00		
COC Number		08413422	08413422	08413422	08413422		
	UNITS	MW15-07S	BH95G-2	BH95G-31	BH95G-32	RDL	QC Batch
<b>Calculated Parameters</b>							
Total Hardness (CaCO3)	mg/L	453	289	152	215	0.50	8106997
<b>Elements</b>							
Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000020	8112008
<b>Total Metals by ICPMS</b>							
Total Aluminum (Al)	mg/L	5.14	0.167	1.89	3.14	0.00050	8110793
Total Antimony (Sb)	mg/L	0.000052	0.000052	0.000063	0.000101	0.000020	8110793
Total Arsenic (As)	mg/L	0.00936	0.000767	0.00627	0.00501	0.000020	8110793
Total Barium (Ba)	mg/L	0.308	0.0331	0.275	0.423	0.000020	8110793
Total Beryllium (Be)	mg/L	0.000950	0.000021	0.000136	0.000434	0.000010	8110793
Total Bismuth (Bi)	mg/L	0.0000930	0.0000080	0.000270	0.000219	0.0000050	8110793
Total Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	0.010	8110793
Total Cadmium (Cd)	mg/L	0.000510	0.00275	0.000699	0.000798	0.0000050	8110793
Total Chromium (Cr)	mg/L	0.0284	0.00067	0.00454	0.00920	0.00010	8110793
Total Cobalt (Co)	mg/L	0.0123	0.000768	0.0164	0.00683	0.0000050	8110793
Total Copper (Cu)	mg/L	0.168	0.00781	0.104	0.0179	0.000050	8110793
Total Iron (Fe)	mg/L	26.2	0.898	13.8	8.93	0.0010	8110793
Total Lead (Pb)	mg/L	0.0248	0.0106	0.0809	0.0258	0.0000050	8110793
Total Lithium (Li)	mg/L	0.0114	0.00151	0.00191	0.00245	0.00050	8110793
Total Manganese (Mn)	mg/L	1.72	0.0305	0.327	0.436	0.000050	8110793
Total Molybdenum (Mo)	mg/L	0.00161	0.00180	0.00129	0.000578	0.000050	8110793
Total Nickel (Ni)	mg/L	0.0264	0.00226	0.0246	0.00983	0.000020	8110793
Total Phosphorus (P)	mg/L	3.09	0.245	0.247	0.357	0.0020	8110793
Total Selenium (Se)	mg/L	0.000150	0.00530	0.00142	0.000752	0.000040	8110793
Total Silicon (Si)	mg/L	12.5	2.35	6.09	7.82	0.050	8110793
Total Silver (Ag)	mg/L	0.000646	0.000189	0.000703	0.000101	0.0000050	8110793
Total Strontium (Sr)	mg/L	0.487	0.250	0.192	0.307	0.000050	8110793
Total Thallium (Tl)	mg/L	0.0000980	0.0000070	0.0000370	0.0000740	0.0000020	8110793
Total Tin (Sn)	mg/L	<0.00020	<0.00020	0.00034	<0.00020	0.00020	8110793
Total Titanium (Ti)	mg/L	0.159	0.00509	0.142	0.281	0.00050	8110793
Total Uranium (U)	mg/L	0.00986	0.00320	0.00144	0.00191	0.0000020	8110793
Total Vanadium (V)	mg/L	0.0261	0.00085	0.0196	0.0290	0.00020	8110793
Total Zinc (Zn)	mg/L	0.0765	0.0681	0.0514	0.0491	0.00010	8110793
Total Zirconium (Zr)	mg/L	0.00670	0.00020	0.00086	0.00088	0.00010	8110793
Total Calcium (Ca)	mg/L	154	67.4	54.8	76.8	0.050	8107509
RDL = Reportable Detection Limit							

Maxxam Job #: B5A0147  
Report Date: 2015/11/17

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		NP4192	NP4193	NP4194	NP4195		
Sampling Date		2015/11/05 12:30	2015/11/05 10:30	2015/11/05 16:30	2015/11/05 15:00		
COC Number		08413422	08413422	08413422	08413422		
	<b>UNITS</b>	<b>MW15-07S</b>	<b>BH95G-2</b>	<b>BH95G-31</b>	<b>BH95G-32</b>	<b>RDL</b>	<b>QC Batch</b>
Total Magnesium (Mg)	mg/L	16.8	29.4	3.74	5.57	0.050	8107509
Total Potassium (K)	mg/L	3.25	0.466	3.22	5.51	0.050	8107509
Total Sodium (Na)	mg/L	3.53	0.689	0.922	0.752	0.050	8107509
Total Sulphur (S)	mg/L	11.0	17.3	6.8	11.5	3.0	8107509
RDL = Reportable Detection Limit							

Maxxam Job #: B5A0147  
Report Date: 2015/11/17

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

### GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	1.3°C
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Sample NP4194, Elements by ICPMS Low Level (dissolved): Test repeated.  
Sample NP4195, Elements by ICPMS Low Level (dissolved): Test repeated.

**Results relate only to the items tested.**

Maxxam Job #: B5A0147  
Report Date: 2015/11/17

**QUALITY ASSURANCE REPORT**

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8107366	Acidity (pH 4.5)	2015/11/09					<0.50	mg/L	NC	20
8107366	Acidity (pH 8.3)	2015/11/09			97	80 - 120	<0.50	mg/L	8.2	20
8107703	Turbidity	2015/11/09			101	80 - 120	<0.10	NTU	4.2	20
8108305	Alkalinity (PP as CaCO3)	2015/11/09					<0.50	mg/L	NC	20
8108305	Alkalinity (Total as CaCO3)	2015/11/09	NC	80 - 120	101	80 - 120	<0.50	mg/L	0.41	20
8108305	Bicarbonate (HCO3)	2015/11/09					<0.50	mg/L	0.41	20
8108305	Carbonate (CO3)	2015/11/09					<0.50	mg/L	NC	20
8108305	Hydroxide (OH)	2015/11/09					<0.50	mg/L	NC	20
8108308	Conductivity	2015/11/09			102	80 - 120	1.0, RDL=1.0	uS/cm	0.43	20
8108309	pH	2015/11/10			102	97 - 103			0.25	N/A
8108674	Dissolved Chloride (Cl)	2015/11/10	89	80 - 120	103	80 - 120	0.55, RDL=0.50	mg/L	1.2	20
8108713	Dissolved Sulphate (SO4)	2015/11/10			97	80 - 120	0.69, RDL=0.50	mg/L		
8108996	Total Organic Carbon (C)	2015/11/10	90	80 - 120	106	80 - 120	<0.50	mg/L	NC	20
8109074	Nitrate plus Nitrite (N)	2015/11/10			98	80 - 120	<0.0020	mg/L		
8109077	Nitrite (N)	2015/11/10			99	80 - 120	<0.0020	mg/L		
8109106	Fluoride (F)	2015/11/10	NC	80 - 120	104	80 - 120	<0.010	mg/L	NC	20
8109179	Orthophosphate (P)	2015/11/10			102	80 - 120	<0.0010	mg/L		
8109181	Dissolved Phosphorus (P)	2015/11/10	102	80 - 120	97	80 - 120	<0.0020	mg/L		
8109182	Total Phosphorus (P)	2015/11/10			96	80 - 120	<0.0020	mg/L		
8109205	Total Dissolved Solids	2015/11/13	103	80 - 120	94	80 - 120	<1.0	mg/L	2.4	20
8110655	Dissolved Aluminum (Al)	2015/11/12	97	80 - 120	105	80 - 120	<0.00050	mg/L	0.90	20
8110655	Dissolved Antimony (Sb)	2015/11/12	97	80 - 120	99	80 - 120	<0.000020	mg/L	NC	20
8110655	Dissolved Arsenic (As)	2015/11/12	93	80 - 120	100	80 - 120	<0.000020	mg/L	NC	20
8110655	Dissolved Barium (Ba)	2015/11/12	104	80 - 120	108	80 - 120	<0.000020	mg/L	NC	20
8110655	Dissolved Beryllium (Be)	2015/11/12	92	80 - 120	101	80 - 120	<0.000010	mg/L	NC	20
8110655	Dissolved Bismuth (Bi)	2015/11/12	96	80 - 120	103	80 - 120	<0.0000050	mg/L	NC	20
8110655	Dissolved Boron (B)	2015/11/12					<0.010	mg/L	NC	20
8110655	Dissolved Cadmium (Cd)	2015/11/12	85	80 - 120	98	80 - 120	<0.0000050	mg/L	NC	20
8110655	Dissolved Chromium (Cr)	2015/11/12	95	80 - 120	104	80 - 120	<0.00010	mg/L	NC	20
8110655	Dissolved Cobalt (Co)	2015/11/12	95	80 - 120	105	80 - 120	<0.0000050	mg/L	NC	20
8110655	Dissolved Copper (Cu)	2015/11/12	96	80 - 120	103	80 - 120	<0.000050	mg/L	NC	20



Maxxam Job #: B5A0147  
Report Date: 2015/11/17

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8110655	Dissolved Iron (Fe)	2015/11/12	96	80 - 120	109	80 - 120	<0.0010	mg/L	NC	20
8110655	Dissolved Lead (Pb)	2015/11/12	101	80 - 120	108	80 - 120	<0.0000050	mg/L	NC	20
8110655	Dissolved Lithium (Li)	2015/11/12	94	80 - 120	102	80 - 120	<0.00050	mg/L	NC	20
8110655	Dissolved Manganese (Mn)	2015/11/12	96	80 - 120	104	80 - 120	<0.000050	mg/L	NC	20
8110655	Dissolved Molybdenum (Mo)	2015/11/12	93	80 - 120	96	80 - 120	<0.000050	mg/L	NC	20
8110655	Dissolved Nickel (Ni)	2015/11/12	94	80 - 120	103	80 - 120	<0.000020	mg/L	NC	20
8110655	Dissolved Phosphorus (P)	2015/11/12					<0.0020	mg/L	NC	20
8110655	Dissolved Selenium (Se)	2015/11/12	90	80 - 120	98	80 - 120	<0.000040	mg/L	NC	20
8110655	Dissolved Silicon (Si)	2015/11/12					<0.050	mg/L	NC	20
8110655	Dissolved Silver (Ag)	2015/11/12	93	80 - 120	99	80 - 120	<0.0000050	mg/L	NC	20
8110655	Dissolved Strontium (Sr)	2015/11/12	95	80 - 120	104	80 - 120	<0.000050	mg/L	NC	20
8110655	Dissolved Thallium (Tl)	2015/11/12	96	80 - 120	101	80 - 120	<0.0000020	mg/L	NC	20
8110655	Dissolved Tin (Sn)	2015/11/12	98	80 - 120	104	80 - 120	<0.00020	mg/L	NC	20
8110655	Dissolved Titanium (Ti)	2015/11/12	98	80 - 120	102	80 - 120	<0.00050	mg/L	NC	20
8110655	Dissolved Uranium (U)	2015/11/12	102	80 - 120	108	80 - 120	<0.0000020	mg/L	NC	20
8110655	Dissolved Vanadium (V)	2015/11/12	92	80 - 120	101	80 - 120	<0.00020	mg/L	NC	20
8110655	Dissolved Zinc (Zn)	2015/11/12	97	80 - 120	109	80 - 120	<0.00010	mg/L	NC	20
8110655	Dissolved Zirconium (Zr)	2015/11/12					<0.00010	mg/L	NC	20
8110793	Total Aluminum (Al)	2015/11/12	NC	80 - 120	102	80 - 120	<0.00050	mg/L	19	20
8110793	Total Antimony (Sb)	2015/11/12	97	80 - 120	104	80 - 120	<0.000020	mg/L	NC	20
8110793	Total Arsenic (As)	2015/11/12	97	80 - 120	101	80 - 120	<0.000020	mg/L	6.4	20
8110793	Total Barium (Ba)	2015/11/12	NC	80 - 120	110	80 - 120	<0.000020	mg/L	1.9	20
8110793	Total Beryllium (Be)	2015/11/12	93	80 - 120	96	80 - 120	<0.000010	mg/L	NC	20
8110793	Total Bismuth (Bi)	2015/11/12	90	80 - 120	105	80 - 120	<0.0000050	mg/L	NC	20
8110793	Total Boron (B)	2015/11/12					<0.010	mg/L	NC	20
8110793	Total Cadmium (Cd)	2015/11/12	91	80 - 120	100	80 - 120	<0.0000050	mg/L	NC	20
8110793	Total Chromium (Cr)	2015/11/12	93	80 - 120	104	80 - 120	<0.00010	mg/L	NC	20
8110793	Total Cobalt (Co)	2015/11/12	92	80 - 120	105	80 - 120	<0.0000050	mg/L	7.2	20
8110793	Total Copper (Cu)	2015/11/12	89	80 - 120	103	80 - 120	<0.000050	mg/L	3.9	20
8110793	Total Iron (Fe)	2015/11/12	NC	80 - 120	111	80 - 120	<0.0010	mg/L	2.8	20
8110793	Total Lead (Pb)	2015/11/12	97	80 - 120	108	80 - 120	<0.0000050	mg/L	1.1	20

Maxxam Job #: B5A0147  
Report Date: 2015/11/17

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8110793	Total Lithium (Li)	2015/11/12	NC	80 - 120	94	80 - 120	<0.00050	mg/L	8.6	20
8110793	Total Manganese (Mn)	2015/11/12	NC	80 - 120	104	80 - 120	<0.000050	mg/L	0.23	20
8110793	Total Molybdenum (Mo)	2015/11/12	NC	80 - 120	98	80 - 120	<0.000050	mg/L	0.92	20
8110793	Total Nickel (Ni)	2015/11/12	90	80 - 120	103	80 - 120	<0.000020	mg/L	2.9	20
8110793	Total Phosphorus (P)	2015/11/12					<0.0020	mg/L		
8110793	Total Selenium (Se)	2015/11/12	96	80 - 120	98	80 - 120	<0.000040	mg/L	NC	20
8110793	Total Silicon (Si)	2015/11/12					<0.050	mg/L	18	20
8110793	Total Silver (Ag)	2015/11/12	92	80 - 120	100	80 - 120	<0.0000050	mg/L	NC	20
8110793	Total Strontium (Sr)	2015/11/12	NC	80 - 120	105	80 - 120	<0.000050	mg/L	2.3	20
8110793	Total Thallium (Tl)	2015/11/12	91	80 - 120	103	80 - 120	<0.0000020	mg/L	NC	20
8110793	Total Tin (Sn)	2015/11/12	96	80 - 120	107	80 - 120	<0.00020	mg/L	NC	20
8110793	Total Titanium (Ti)	2015/11/12	90	80 - 120	106	80 - 120	<0.00050	mg/L	NC	20
8110793	Total Uranium (U)	2015/11/12	101	80 - 120	109	80 - 120	<0.0000020	mg/L	1.5	20
8110793	Total Vanadium (V)	2015/11/12	93	80 - 120	102	80 - 120	<0.00020	mg/L	NC	20
8110793	Total Zinc (Zn)	2015/11/12	117	80 - 120	107	80 - 120	0.00016, RDL=0.00010	mg/L	6.7	20
8110793	Total Zirconium (Zr)	2015/11/12					<0.00010	mg/L	NC	20
8110933	Total Suspended Solids	2015/11/12			96	80 - 120	<1.0	mg/L		
8110996	Total Nitrogen (N)	2015/11/12	87	80 - 120	94	80 - 120	<0.020	mg/L	7.9	20
8111290	Total Ammonia (N)	2015/11/12	NC	80 - 120	108	80 - 120	<0.0050	mg/L	1.4	20
8112008	Total Mercury (Hg)	2015/11/13	92	80 - 120	93	80 - 120	<0.0000020	mg/L	NC	20
8112092	Dissolved Mercury (Hg)	2015/11/13	97	80 - 120	99	80 - 120	<0.0000020	mg/L	NC	20
8112287	Dissolved Molybdenum (Mo)	2015/11/13			94	80 - 120	<0.000050	mg/L		
8113323	Dissolved Phosphorus (P)	2015/11/14			93	80 - 120	<0.0020	mg/L		

Maxxam Job #: B5A0147  
Report Date: 2015/11/17

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8113324	Orthophosphate (P)	2015/11/14	104	80 - 120	109	80 - 120	<0.0010	mg/L	NC	20

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

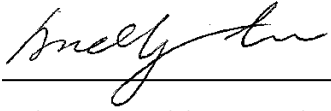
NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

Maxxam Job #: B5A0147  
Report Date: 2015/11/17

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Andy Lu, Data Validation Coordinator

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Invoice Information		Report Information (if differs from invoice)				Project Information				Turnaround Time (TAT) Required			
Company Name: #11954 BMC Mineral (NO. 1) LTD.		Company Name: #31161 Tetra Tech EBA				Quotation #: B50743				<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses) <b>PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS</b> Rush TAT (Surcharges will be applied) <input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days <input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days Date Required:			
Contact Name: ACCOUNTS PAYABLE		Contact Name: Kristen Range / Eliane Roy				P.O. #/ AFE#:							
Address: 530-1130 West Pender Street, Vancouver BC PC: V6E 4A4		Address: 61 Wasson Place Whitehorse, YT PC: V1A 0H7				Project #: ENVMINO3071-01							
Phone:		Phone: 867-668-6225				Site Location: Kudz Ze Kayah							
Email: kdbergh@gmail.com		Email: kristen.range / eliane.roy@tetratech.com				Site #:							
Sampled By: Eliane Roy													
Regulatory Criteria		Special Instructions		Analysis Requested								Rush Confirmation #:	
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> BC CSR Water <input checked="" type="checkbox"/> CCME (Specify) <u>AN</u> <input checked="" type="checkbox"/> Other (Specify) <u>MMEC</u> <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC Water Quality		<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify)		Analysis Requested: [Grid for various analytes including Major Ions, Nutrients, Metals, etc.]								LABORATORY USE ONLY CUSTODY SEAL Y/N <u>Y</u> COOLER TEMPERATURES <u>2, 1, 1</u> COOLING MEDIA PRESENT <u>Y</u> / N COMMENTS <u>MS</u>	
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM													
Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	ROUTINE (incl. TDS)	MAJOR IONS	NUTRIENTS (INCLUDING NH3, NO2, TOTAL P)	Low Level Dissolved Metals with CV-Hg	Low Level Total Metals with CV-Hg	Phosphorus (LL Tot, dissolved-PF/FP)	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	
1	MWIS-07S	NOV 5	1250pm	GW	x	x	x	x	x	x	13		
2	BH95G-2	NOV 5	1030am	GW	x	x	x	x	x	x	13		
3	BH95G-31	NOV 5	430pm	GW	α	α	α	α	α	α	13		
4	BH95G-32	NOV 5	3pm	GW	α	α	α	α	α	α	13		
5													
6													
7													
8													
9													
10													
11													
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #					
<u>Flora</u>				<u>Laurel Bernier</u>		2015/11/09	10:00	B5A0147					



B5A0147\_COC

Your Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Your C.O.C. #: 08413452

**Attention:KRISTEN RANGE**

TETRATECH EBA  
61 WASSON PLACE  
WHITEHORSE, YT  
Canada Y1A 0H7

**Report Date: 2015/11/16**  
Report #: R2080050  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B5A0448**

**Received: 2015/11/10, 09:20**

Sample Matrix: Water  
# Samples Received: 1

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Analytical Method</b>
Acidity pH 4.5 & pH 8.3 (as CaCO3)	1	N/A	2015/11/13	BBY6SOP-00037	SM 22 2310 B m
Alkalinity - Water	1	2015/11/10	2015/11/10	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry	1	N/A	2015/11/12	BBY6SOP-00011	SM 22 4500-Cl- G m
Conductance - water	1	N/A	2015/11/10	BBY6SOP-00026	SM 22 2510 B m
Fluoride	1	N/A	2015/11/12	BBY6SOP-00048	SM 22 4500-F C m
Hardness Total (calculated as CaCO3)	1	N/A	2015/11/13	BBY7SOP-00002	EPA 6020a R1 m
Hardness (calculated as CaCO3)	1	N/A	2015/11/12	BBY7SOP-00002	EPA 6020a R1 m
Mercury (Dissolved-LowLevel) by CVAf	1	N/A	2015/11/13	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total-LowLevel) by CVAf	1	2015/11/13	2015/11/13	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Ion Balance	1	N/A	2015/11/13	BBY WI-00033	SM 22 1030E
Sum of cations, anions	1	N/A	2015/11/12	Calc	
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	1	N/A	2015/11/12	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Low Level (dissolved)	1	N/A	2015/11/12	BBY7SOP-00002	EPA 6020A R1 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	1	N/A	2015/11/13	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Low Level (total)	1	N/A	2015/11/12	BBY7SOP-00002	EPA 6020A R1 m
Nitrogen (Total)	1	2015/11/12	2015/11/12	BBY6SOP-00016	SM 22 4500-N C m
Ammonia-N (Preserved)	1	N/A	2015/11/13	BBY6SOP-00009	SM 22 4500-NH3- G m
Nitrate+Nitrite (N) (low level)	1	N/A	2015/11/10	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) (low level)	1	N/A	2015/11/10	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N)	1	N/A	2015/11/12	BBY6SOP-00010	SM 22 4500-NO3- I m
Filter and HNO3 Preserve for Metals	1	N/A	2015/11/12	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (1)	1	N/A	2015/11/10	BBY6SOP-00026	SM 22 4500-H+ B m
Orthophosphate by Konelab (low level)	1	N/A	2015/11/12	BBY6SOP-00013	SM 22 4500-P E m
Sulphate by Automated Colourimetry	1	N/A	2015/11/12	BBY6SOP-00017	SM 22 4500-SO42- E m
Total Dissolved Solids - Low Level	1	N/A	2015/11/13	BBY6SOP-00033	SM 22 2540 C m
TKN (Calc. TN, N/N) total	1	N/A	2015/11/12	BBY WI-00033	Calculation
Carbon (Total Organic) (2)	1	N/A	2015/11/13	BBY6SOP-00003	SM 22 5310 C m
Phosphorus-P (LL Tot, dissolved) - FF/FP	1	2015/11/12	2015/11/12	BBY6SOP-00013	SM 22 4500-P E m
Total Phosphorus	1	N/A	2015/11/12	BBY6SOP-00013	SM 22 4500-P E m
Total Suspended Solids-Low Level	1	2015/11/12	2015/11/13	BBY6SOP-00034	SM 22 2540 D

Your Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Your C.O.C. #: 08413452

**Attention:KRISTEN RANGE**

TETRATECH EBA  
61 WASSON PLACE  
WHITEHORSE, YT  
Canada Y1A 0H7

**Report Date: 2015/11/16**  
Report #: R2080050  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B5A0448**

**Received: 2015/11/10, 09:20**

Sample Matrix: Water  
# Samples Received: 1

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Analytical Method</b>
Turbidity	1	N/A	2015/11/10	BBY6SOP-00027	SM 22 2130 B m

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

(2) TOC present in the sample should be considered as non-purgeable TOC.

**Encryption Key**

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Morgan Melnychuk, Burnaby Project Manager

Email: MMelnychuk@maxxam.ca

Phone# (604)638-8034 Ext:8034

=====

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B5A0448  
Report Date: 2015/11/16

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		NP5786	NP5786		
Sampling Date		2015/11/08 10:00	2015/11/08 10:00		
COC Number		08413452	08413452		
	UNITS	MW15-11S	MW15-11S Lab-Dup	RDL	QC Batch
<b>Misc. Inorganics</b>					
Acidity (pH 4.5)	mg/L	<0.50		0.50	8112180
Acidity (pH 8.3)	mg/L	1.01		0.50	8112180
<b>Calculated Parameters</b>					
Anion Sum	meq/L	7.1		N/A	8108484
Cation Sum	meq/L	6.8		N/A	8108484
Filter and HNO3 Preservation	N/A	FIELD		N/A	ONSITE
Ion Balance	N/A	0.96		0.010	8108483
Nitrate (N)	mg/L	0.0871		0.0020	8108185
<b>Misc. Inorganics</b>					
Fluoride (F)	mg/L	0.190		0.010	8111038
Alkalinity (Total as CaCO3)	mg/L	188		0.50	8109230
Total Organic Carbon (C)	mg/L	34.3		0.50	8112479
Alkalinity (PP as CaCO3)	mg/L	<0.50		0.50	8109230
Bicarbonate (HCO3)	mg/L	230		0.50	8109230
Carbonate (CO3)	mg/L	<0.50		0.50	8109230
Hydroxide (OH)	mg/L	<0.50		0.50	8109230
<b>Anions</b>					
Orthophosphate (P)	mg/L	0.0015 (1)	0.0019	0.0010	8111483
Dissolved Sulphate (SO4)	mg/L	128		0.50	8110898
Dissolved Chloride (Cl)	mg/L	24		0.50	8110892
<b>Nutrients</b>					
Total Ammonia (N)	mg/L	0.64		0.0050	8112193
Dissolved Phosphorus (P)	mg/L	0.0114	0.0112	0.0020	8111493
Total Total Kjeldahl Nitrogen (Calc)	mg/L	4.65		0.20	8108188
Nitrate plus Nitrite (N)	mg/L	0.109		0.0020	8109063
Nitrite (N)	mg/L	0.0216		0.0020	8109073
Total Nitrogen (N)	mg/L	4.76		0.20	8111003
Total Phosphorus (P)	mg/L	0.122		0.0020	8111495
<b>Physical Properties</b>					
Conductivity	uS/cm	680		1.0	8109234
pH	pH	7.98		N/A	8109233
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate (1) Sample analysed past recommended hold time.					



Maxxam Job #: B5A0448  
Report Date: 2015/11/16

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		NP5786	NP5786		
<b>Sampling Date</b>		2015/11/08 10:00	2015/11/08 10:00		
<b>COC Number</b>		08413452	08413452		
	<b>UNITS</b>	<b>MW15-11S</b>	<b>MW15-11S Lab-Dup</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Physical Properties</b>					
Total Suspended Solids	mg/L	88 (1)		10	8110940
Total Dissolved Solids	mg/L	462		1.0	8109205
Turbidity	NTU	42.4		0.10	8108609
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate (1) RDL raised due to sample matrix interference.					

Maxxam Job #: B5A0448  
Report Date: 2015/11/16

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		NP5786		
<b>Sampling Date</b>		2015/11/08 10:00		
<b>COC Number</b>		08413452		
	<b>UNITS</b>	<b>MW15-11S</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Misc. Inorganics</b>				
Dissolved Hardness (CaCO3)	mg/L	226	0.50	8108384
<b>Elements</b>				
Dissolved Mercury (Hg)	mg/L	<0.0000020	0.0000020	8112092
<b>Dissolved Metals by ICPMS</b>				
Dissolved Aluminum (Al)	mg/L	0.0462	0.00050	8110655
Dissolved Antimony (Sb)	mg/L	0.00286	0.000020	8110655
Dissolved Arsenic (As)	mg/L	0.000407	0.000020	8110655
Dissolved Barium (Ba)	mg/L	0.0722	0.000020	8110655
Dissolved Beryllium (Be)	mg/L	<0.000010	0.000010	8110655
Dissolved Bismuth (Bi)	mg/L	<0.0000050	0.0000050	8110655
Dissolved Boron (B)	mg/L	0.018	0.010	8110655
Dissolved Cadmium (Cd)	mg/L	0.000171	0.0000050	8110655
Dissolved Chromium (Cr)	mg/L	0.00021	0.00010	8110655
Dissolved Cobalt (Co)	mg/L	0.000564	0.0000050	8110655
Dissolved Copper (Cu)	mg/L	0.00109	0.000050	8110655
Dissolved Iron (Fe)	mg/L	0.114	0.0010	8110655
Dissolved Lead (Pb)	mg/L	0.000179	0.0000050	8110655
Dissolved Lithium (Li)	mg/L	0.00970	0.00050	8110655
Dissolved Manganese (Mn)	mg/L	0.158	0.000050	8110655
Dissolved Molybdenum (Mo)	mg/L	0.0103	0.000050	8110655
Dissolved Nickel (Ni)	mg/L	0.00193	0.000020	8110655
Dissolved Phosphorus (P)	mg/L	0.0165	0.0020	8110655
Dissolved Selenium (Se)	mg/L	0.00135	0.000040	8110655
Dissolved Silicon (Si)	mg/L	3.17	0.050	8110655
Dissolved Silver (Ag)	mg/L	0.0000110	0.0000050	8110655
Dissolved Strontium (Sr)	mg/L	0.242	0.000050	8110655
Dissolved Thallium (Tl)	mg/L	0.0000090	0.0000020	8110655
Dissolved Tin (Sn)	mg/L	<0.00020	0.00020	8110655
Dissolved Titanium (Ti)	mg/L	<0.00050	0.00050	8110655
Dissolved Uranium (U)	mg/L	0.00934	0.0000020	8110655
Dissolved Vanadium (V)	mg/L	<0.00020	0.00020	8110655
Dissolved Zinc (Zn)	mg/L	0.00391	0.00010	8110655
Dissolved Zirconium (Zr)	mg/L	<0.00010	0.00010	8110655
Dissolved Calcium (Ca)	mg/L	68.5	0.050	8108485
RDL = Reportable Detection Limit				

Maxxam Job #: B5A0448  
Report Date: 2015/11/16

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		NP5786		
<b>Sampling Date</b>		2015/11/08 10:00		
<b>COC Number</b>		08413452		
	<b>UNITS</b>	<b>MW15-11S</b>	<b>RDL</b>	<b>QC Batch</b>
Dissolved Magnesium (Mg)	mg/L	13.4	0.050	8108485
Dissolved Potassium (K)	mg/L	11.5	0.050	8108485
Dissolved Sodium (Na)	mg/L	44.4	0.050	8108485
Dissolved Sulphur (S)	mg/L	37.9	3.0	8108485
RDL = Reportable Detection Limit				

Maxxam Job #: B5A0448  
Report Date: 2015/11/16

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		NP5786		
<b>Sampling Date</b>		2015/11/08 10:00		
<b>COC Number</b>		08413452		
	<b>UNITS</b>	<b>MW15-11S</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>				
Total Hardness (CaCO3)	mg/L	218	0.50	8108183
<b>Elements</b>				
Total Mercury (Hg)	mg/L	0.0000040	0.0000020	8112135
<b>Total Metals by ICPMS</b>				
Total Aluminum (Al)	mg/L	0.867	0.00050	8110793
Total Antimony (Sb)	mg/L	0.00285	0.000020	8110793
Total Arsenic (As)	mg/L	0.00110	0.000020	8110793
Total Barium (Ba)	mg/L	0.110	0.000020	8110793
Total Beryllium (Be)	mg/L	0.000049	0.000010	8110793
Total Bismuth (Bi)	mg/L	0.0000260	0.0000050	8110793
Total Boron (B)	mg/L	0.017	0.010	8110793
Total Cadmium (Cd)	mg/L	0.000371	0.0000050	8110793
Total Chromium (Cr)	mg/L	0.00270	0.00010	8110793
Total Cobalt (Co)	mg/L	0.00121	0.0000050	8110793
Total Copper (Cu)	mg/L	0.00851	0.000050	8110793
Total Iron (Fe)	mg/L	3.51	0.0010	8110793
Total Lead (Pb)	mg/L	0.00498	0.0000050	8110793
Total Lithium (Li)	mg/L	0.0106	0.00050	8110793
Total Manganese (Mn)	mg/L	0.310	0.000050	8110793
Total Molybdenum (Mo)	mg/L	0.0117	0.000050	8110793
Total Nickel (Ni)	mg/L	0.00367	0.000020	8110793
Total Phosphorus (P)	mg/L	0.131	0.0020	8110793
Total Selenium (Se)	mg/L	0.00139	0.000040	8110793
Total Silicon (Si)	mg/L	4.66	0.050	8110793
Total Silver (Ag)	mg/L	0.00292	0.0000050	8110793
Total Strontium (Sr)	mg/L	0.240	0.000050	8110793
Total Thallium (Tl)	mg/L	0.0000360	0.0000020	8110793
Total Tin (Sn)	mg/L	0.00041	0.00020	8110793
Total Titanium (Ti)	mg/L	0.0837	0.00050	8110793
Total Uranium (U)	mg/L	0.00948	0.0000020	8110793
Total Vanadium (V)	mg/L	0.00354	0.00020	8110793
Total Zinc (Zn)	mg/L	0.0196	0.00010	8110793
Total Zirconium (Zr)	mg/L	0.00079	0.00010	8110793
Total Calcium (Ca)	mg/L	65.3	0.050	8108486
RDL = Reportable Detection Limit				

Maxxam Job #: B5A0448  
Report Date: 2015/11/16

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		NP5786		
<b>Sampling Date</b>		2015/11/08 10:00		
<b>COC Number</b>		08413452		
	<b>UNITS</b>	<b>MW15-11S</b>	<b>RDL</b>	<b>QC Batch</b>
Total Magnesium (Mg)	mg/L	13.3	0.050	8108486
Total Potassium (K)	mg/L	11.1	0.050	8108486
Total Sodium (Na)	mg/L	43.0	0.050	8108486
Total Sulphur (S)	mg/L	36.7	3.0	8108486
RDL = Reportable Detection Limit				

Maxxam Job #: B5A0448  
Report Date: 2015/11/16

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**GENERAL COMMENTS**

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	1.0°C
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**Results relate only to the items tested.**

Maxxam Job #: B5A0448  
Report Date: 2015/11/16

**QUALITY ASSURANCE REPORT**

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8108609	Turbidity	2015/11/10			102	80 - 120	<0.10	NTU	NC	20
8109063	Nitrate plus Nitrite (N)	2015/11/10	NC	80 - 120	97	80 - 120	<0.0020	mg/L	0.62	25
8109073	Nitrite (N)	2015/11/10	103	80 - 120	101	80 - 120	<0.0020	mg/L	NC	25
8109205	Total Dissolved Solids	2015/11/13	103	80 - 120	94	80 - 120	<1.0	mg/L	2.4	20
8109230	Alkalinity (PP as CaCO3)	2015/11/10					<0.50	mg/L	NC	20
8109230	Alkalinity (Total as CaCO3)	2015/11/10	NC	80 - 120	94	80 - 120	0.82, RDL=0.50	mg/L	0.15	20
8109230	Bicarbonate (HCO3)	2015/11/10					1.00, RDL=0.50	mg/L	0.15	20
8109230	Carbonate (CO3)	2015/11/10					<0.50	mg/L	NC	20
8109230	Hydroxide (OH)	2015/11/10					<0.50	mg/L	NC	20
8109233	pH	2015/11/10			102	97 - 103			0.50	N/A
8109234	Conductivity	2015/11/10			102	80 - 120	1.1, RDL=1.0	uS/cm	0.18	20
8110655	Dissolved Aluminum (Al)	2015/11/12	97	80 - 120	105	80 - 120	<0.00050	mg/L	0.90	20
8110655	Dissolved Antimony (Sb)	2015/11/12	97	80 - 120	99	80 - 120	<0.000020	mg/L	NC	20
8110655	Dissolved Arsenic (As)	2015/11/12	93	80 - 120	100	80 - 120	<0.000020	mg/L	NC	20
8110655	Dissolved Barium (Ba)	2015/11/12	104	80 - 120	108	80 - 120	<0.000020	mg/L	NC	20
8110655	Dissolved Beryllium (Be)	2015/11/12	92	80 - 120	101	80 - 120	<0.000010	mg/L	NC	20
8110655	Dissolved Bismuth (Bi)	2015/11/12	96	80 - 120	103	80 - 120	<0.0000050	mg/L	NC	20
8110655	Dissolved Boron (B)	2015/11/12					<0.010	mg/L	NC	20
8110655	Dissolved Cadmium (Cd)	2015/11/12	85	80 - 120	98	80 - 120	<0.0000050	mg/L	NC	20
8110655	Dissolved Chromium (Cr)	2015/11/12	95	80 - 120	104	80 - 120	<0.00010	mg/L	NC	20
8110655	Dissolved Cobalt (Co)	2015/11/12	95	80 - 120	105	80 - 120	<0.0000050	mg/L	NC	20
8110655	Dissolved Copper (Cu)	2015/11/12	96	80 - 120	103	80 - 120	<0.000050	mg/L	NC	20
8110655	Dissolved Iron (Fe)	2015/11/12	96	80 - 120	109	80 - 120	<0.0010	mg/L	NC	20
8110655	Dissolved Lead (Pb)	2015/11/12	101	80 - 120	108	80 - 120	<0.0000050	mg/L	NC	20
8110655	Dissolved Lithium (Li)	2015/11/12	94	80 - 120	102	80 - 120	<0.00050	mg/L	NC	20
8110655	Dissolved Manganese (Mn)	2015/11/12	96	80 - 120	104	80 - 120	<0.000050	mg/L	NC	20
8110655	Dissolved Molybdenum (Mo)	2015/11/12	93	80 - 120	96	80 - 120	<0.000050	mg/L	NC	20
8110655	Dissolved Nickel (Ni)	2015/11/12	94	80 - 120	103	80 - 120	<0.000020	mg/L	NC	20
8110655	Dissolved Phosphorus (P)	2015/11/12					<0.0020	mg/L	NC	20
8110655	Dissolved Selenium (Se)	2015/11/12	90	80 - 120	98	80 - 120	<0.000040	mg/L	NC	20
8110655	Dissolved Silicon (Si)	2015/11/12					<0.050	mg/L	NC	20

Maxxam Job #: B5A0448  
Report Date: 2015/11/16

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8110655	Dissolved Silver (Ag)	2015/11/12	93	80 - 120	99	80 - 120	<0.0000050	mg/L	NC	20
8110655	Dissolved Strontium (Sr)	2015/11/12	95	80 - 120	104	80 - 120	<0.000050	mg/L	NC	20
8110655	Dissolved Thallium (Tl)	2015/11/12	96	80 - 120	101	80 - 120	<0.0000020	mg/L	NC	20
8110655	Dissolved Tin (Sn)	2015/11/12	98	80 - 120	104	80 - 120	<0.00020	mg/L	NC	20
8110655	Dissolved Titanium (Ti)	2015/11/12	98	80 - 120	102	80 - 120	<0.00050	mg/L	NC	20
8110655	Dissolved Uranium (U)	2015/11/12	102	80 - 120	108	80 - 120	<0.0000020	mg/L	NC	20
8110655	Dissolved Vanadium (V)	2015/11/12	92	80 - 120	101	80 - 120	<0.00020	mg/L	NC	20
8110655	Dissolved Zinc (Zn)	2015/11/12	97	80 - 120	109	80 - 120	<0.00010	mg/L	NC	20
8110655	Dissolved Zirconium (Zr)	2015/11/12					<0.00010	mg/L	NC	20
8110793	Total Aluminum (Al)	2015/11/12	NC	80 - 120	102	80 - 120	<0.00050	mg/L	19	20
8110793	Total Antimony (Sb)	2015/11/12	97	80 - 120	104	80 - 120	<0.000020	mg/L	NC	20
8110793	Total Arsenic (As)	2015/11/12	97	80 - 120	101	80 - 120	<0.000020	mg/L	6.4	20
8110793	Total Barium (Ba)	2015/11/12	NC	80 - 120	110	80 - 120	<0.000020	mg/L	1.9	20
8110793	Total Beryllium (Be)	2015/11/12	93	80 - 120	96	80 - 120	<0.000010	mg/L	NC	20
8110793	Total Bismuth (Bi)	2015/11/12	90	80 - 120	105	80 - 120	<0.0000050	mg/L	NC	20
8110793	Total Boron (B)	2015/11/12					<0.010	mg/L	NC	20
8110793	Total Cadmium (Cd)	2015/11/12	91	80 - 120	100	80 - 120	<0.0000050	mg/L	NC	20
8110793	Total Chromium (Cr)	2015/11/12	93	80 - 120	104	80 - 120	<0.00010	mg/L	NC	20
8110793	Total Cobalt (Co)	2015/11/12	92	80 - 120	105	80 - 120	<0.0000050	mg/L	7.2	20
8110793	Total Copper (Cu)	2015/11/12	89	80 - 120	103	80 - 120	<0.000050	mg/L	3.9	20
8110793	Total Iron (Fe)	2015/11/12	NC	80 - 120	111	80 - 120	<0.0010	mg/L	2.8	20
8110793	Total Lead (Pb)	2015/11/12	97	80 - 120	108	80 - 120	<0.0000050	mg/L	1.1	20
8110793	Total Lithium (Li)	2015/11/12	NC	80 - 120	94	80 - 120	<0.00050	mg/L	8.6	20
8110793	Total Manganese (Mn)	2015/11/12	NC	80 - 120	104	80 - 120	<0.000050	mg/L	0.23	20
8110793	Total Molybdenum (Mo)	2015/11/12	NC	80 - 120	98	80 - 120	<0.000050	mg/L	0.92	20
8110793	Total Nickel (Ni)	2015/11/12	90	80 - 120	103	80 - 120	<0.000020	mg/L	2.9	20
8110793	Total Phosphorus (P)	2015/11/12					<0.0020	mg/L		
8110793	Total Selenium (Se)	2015/11/12	96	80 - 120	98	80 - 120	<0.000040	mg/L	NC	20
8110793	Total Silicon (Si)	2015/11/12					<0.050	mg/L	18	20
8110793	Total Silver (Ag)	2015/11/12	92	80 - 120	100	80 - 120	<0.0000050	mg/L	NC	20
8110793	Total Strontium (Sr)	2015/11/12	NC	80 - 120	105	80 - 120	<0.000050	mg/L	2.3	20



Maxxam Job #: B5A0448  
Report Date: 2015/11/16

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8110793	Total Thallium (Tl)	2015/11/12	91	80 - 120	103	80 - 120	<0.0000020	mg/L	NC	20
8110793	Total Tin (Sn)	2015/11/12	96	80 - 120	107	80 - 120	<0.00020	mg/L	NC	20
8110793	Total Titanium (Ti)	2015/11/12	90	80 - 120	106	80 - 120	<0.00050	mg/L	NC	20
8110793	Total Uranium (U)	2015/11/12	101	80 - 120	109	80 - 120	<0.0000020	mg/L	1.5	20
8110793	Total Vanadium (V)	2015/11/12	93	80 - 120	102	80 - 120	<0.00020	mg/L	NC	20
8110793	Total Zinc (Zn)	2015/11/12	117	80 - 120	107	80 - 120	0.00016, RDL=0.00010	mg/L	6.7	20
8110793	Total Zirconium (Zr)	2015/11/12					<0.00010	mg/L	NC	20
8110892	Dissolved Chloride (Cl)	2015/11/12	94	80 - 120	103	80 - 120	<0.50	mg/L	NC	20
8110898	Dissolved Sulphate (SO4)	2015/11/12			98	80 - 120	<0.50	mg/L		
8110940	Total Suspended Solids	2015/11/13			109	80 - 120	<1.0	mg/L		
8111003	Total Nitrogen (N)	2015/11/12	NC	80 - 120	94	80 - 120	<0.020	mg/L	0.87	20
8111038	Fluoride (F)	2015/11/12	NC	80 - 120	100	80 - 120	0.014, RDL=0.010	mg/L	0	20
8111483	Orthophosphate (P)	2015/11/12	96	80 - 120	95	80 - 120	0.0010, RDL=0.0010	mg/L	14	20
8111493	Dissolved Phosphorus (P)	2015/11/12	91	80 - 120	102	80 - 120	<0.0020	mg/L	1.4	20
8111495	Total Phosphorus (P)	2015/11/12	88	80 - 120	102	80 - 120	<0.0020	mg/L	NC	20
8112092	Dissolved Mercury (Hg)	2015/11/13	97	80 - 120	99	80 - 120	<0.0000020	mg/L	NC	20
8112135	Total Mercury (Hg)	2015/11/13	99	80 - 120	95	80 - 120	<0.0000020	mg/L	NC	20
8112180	Acidity (pH 4.5)	2015/11/13					<0.50	mg/L	NC	20
8112180	Acidity (pH 8.3)	2015/11/13			101	80 - 120	<0.50	mg/L	NC	20
8112193	Total Ammonia (N)	2015/11/13	108	80 - 120	104	80 - 120	<0.0050	mg/L	NC	20

Maxxam Job #: B5A0448  
Report Date: 2015/11/16

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8112479	Total Organic Carbon (C)	2015/11/13	89	80 - 120	103	80 - 120	<0.50	mg/L	7.4	20

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

Maxxam Job #: B5A0448  
Report Date: 2015/11/16

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Rob Reinert, Data Validation Coordinator

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

## CHAIN OF CUSTODY RECORD

08413452

Invoice Information		Report Information (if differs from invoice)				Project Information				Turnaround Time (TAT) Required			
Company Name: #11954 BMC Mineral (NO. 1) LTD.		Company Name: #31161 Tetra Tech EBA				Quotation #: B50743				<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses)			
Contact Name: ACCOUNTS PAYABLE		Contact Name: Kristen Range / Eliane Roy				P.O. #/ AFE#:				PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS			
Address: 530-1130 West Pender Street, Vancouver BC PC: V6E 4A4		Address: 61 Wasson Place Whitehorse, YT PC: V1A 0H7				Project #: ENVMINO3071-01				Rush TAT (Surcharges will be applied)			
Phone:		Phone: 867-668-6225				Site Location: Kudz Ze Kayah				<input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days			
Email: kdbergh@gmail.com		Email: kristen.range / eliane.roy@tetratech.com				Site #:				<input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days			
Date Required:		Sampled By: Eliane Roy											
Regulatory Criteria		Special Instructions		Analysis Requested				Rush Confirmation #:					
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> BC CSR Water <input checked="" type="checkbox"/> CCME (Specify) <input checked="" type="checkbox"/> Other (Specify) AW MMR <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC Water Quality		<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify)		Analysis Requested MAJOR IONS NUTRIENTS (INCLUDING NO3, NO2, TOTAL P) Low Level Dissolved Metals with CV Hig Low Level Total Metals with CV Hig Phosphorus (L Tot, doshvel)-FF/PP				LABORATORY USE ONLY CUSTODY SEAL Y / (N) Present Intact COOLING MEDIA PRESENT Y / N					
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM													
Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	ROUTINE (incl. TD5)	MAJOR IONS	NUTRIENTS (INCLUDING NO3, NO2, TOTAL P)	Low Level Dissolved Metals with CV Hig	Low Level Total Metals with CV Hig	Phosphorus (L Tot, doshvel)-FF/PP	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	COMMENTS
1	MW15-115	NP5786	11/8/2015	10am	GW	X	X	X	X	X	13		Dissolved metals and mercury were field filtered and preserved.
2	Travel Blank	NP5787	-	-	DI						7	X	Total metals were field preserved.
3													
4													
5													
6													
7													
8													
9													
10													
11													
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #					
		NOV 9	1 pm			2015/11/09	09:20	B5A 0448					



B5A0448\_COC

Your Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Your C.O.C. #: 08413393

**Attention:KRISTEN RANGE**

TETRATECH EBA  
61 WASSON PLACE  
WHITEHORSE, YT  
Canada Y1A 0H7

**Report Date: 2015/11/13**  
Report #: R2078284  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B599724**

**Received: 2015/11/06, 13:35**

Sample Matrix: Water  
# Samples Received: 4

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Analytical Method</b>
Acidity pH 4.5 & pH 8.3 (as CaCO3)	4	N/A	2015/11/09	BBY6SOP-00037	SM 22 2310 B m
Alkalinity - Water	4	2015/11/09	2015/11/09	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry	3	N/A	2015/11/09	BBY6SOP-00011	SM 22 4500-Cl- G m
Chloride by Automated Colourimetry	1	N/A	2015/11/10	BBY6SOP-00011	SM 22 4500-Cl- G m
Conductance - water	4	N/A	2015/11/09	BBY6SOP-00026	SM 22 2510 B m
Fluoride	4	N/A	2015/11/10	BBY6SOP-00048	SM 22 4500-F C m
Hardness Total (calculated as CaCO3)	4	N/A	2015/11/10	BBY7SOP-00002	EPA 6020a R1 m
Hardness (calculated as CaCO3)	4	N/A	2015/11/10	BBY7SOP-00002	EPA 6020a R1 m
Mercury (Dissolved-LowLevel) by CVAf	4	N/A	2015/11/11	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total-LowLevel) by CVAf	4	2015/11/11	2015/11/11	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Ion Balance	4	N/A	2015/11/10	BBY WI-00033	SM 22 1030E
Sum of cations, anions	4	N/A	2015/11/10	Calc	
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	4	N/A	2015/11/10	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Low Level (dissolved)	4	N/A	2015/11/10	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Digested LL (total)	4	2015/11/10	2015/11/10	BBY7SOP-00002	EPA 6020A R1 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	4	N/A	2015/11/10	BBY7SOP-00002	EPA 6020A R1 m
Nitrogen (Total)	4	2015/11/12	2015/11/12	BBY6SOP-00016	SM 22 4500-N C m
Ammonia-N (Preserved)	4	N/A	2015/11/10	BBY6SOP-00009	SM 22 4500-NH3- G m
Nitrate+Nitrite (N) (low level)	4	N/A	2015/11/10	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) (low level)	4	N/A	2015/11/10	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N)	4	N/A	2015/11/10	BBY6SOP-00010	SM 22 4500-NO3- I m
Filter and HNO3 Preserve for Metals	4	N/A	2015/11/09	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (1)	4	N/A	2015/11/09	BBY6SOP-00026	SM 22 4500-H+ B m
Orthophosphate by Konelab (low level)	4	N/A	2015/11/09	BBY6SOP-00013	SM 22 4500-P E m
Sulphate by Automated Colourimetry	4	N/A	2015/11/09	BBY6SOP-00017	SM 22 4500-SO42- E m
Total Dissolved Solids - Low Level	4	N/A	2015/11/12	BBY6SOP-00033	SM 22 2540 C m
TKN (Calc. TN, N/N) total	4	N/A	2015/11/12	BBY WI-00033	Calculation
Carbon (Total Organic) (2)	4	N/A	2015/11/10	BBY6SOP-00003	SM 22 5310 C m
Phosphorus-P (LL Tot, dissolved) - FF/FP	4	2015/11/09	2015/11/09	BBY6SOP-00013	SM 22 4500-P E m
Total Phosphorus	4	N/A	2015/11/09	BBY6SOP-00013	SM 22 4500-P E m

Your Project #: ENVMINO3071-01  
 Site Location: KUDZ ZE KAYAH  
 Your C.O.C. #: 08413393

**Attention:KRISTEN RANGE**

TETRATECH EBA  
 61 WASSON PLACE  
 WHITEHORSE, YT  
 Canada Y1A 0H7

**Report Date: 2015/11/13**  
 Report #: R2078284  
 Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B599724**

**Received: 2015/11/06, 13:35**

Sample Matrix: Water  
 # Samples Received: 4

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
Total Suspended Solids-Low Level	4	2015/11/10	2015/11/10	BBY6SOP-00034	SM 22 2540 D
Turbidity	2	N/A	2015/11/07	BBY6SOP-00027	SM 22 2130 B m
Turbidity	2	N/A	2015/11/09	BBY6SOP-00027	SM 22 2130 B m

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

(2) TOC present in the sample should be considered as non-purgeable TOC.

**Encryption Key**

Please direct all questions regarding this Certificate of Analysis to your Project Manager.  
 Morgan Melnychuk, Burnaby Project Manager  
 Email: MMelnychuk@maxxam.ca  
 Phone# (604)638-8034 Ext:8034

=====

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B599724  
Report Date: 2015/11/13

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		NP1435			NP1436	NP1436		
Sampling Date		2015/11/03 16:30			2015/11/04 15:00	2015/11/04 15:00		
COC Number		08413393			08413393	08413393		
	UNITS	MW15-08D	RDL	QC Batch	MW15-10D	MW15-10D Lab-Dup	RDL	QC Batch
<b>Misc. Inorganics</b>								
Acidity (pH 4.5)	mg/L	<0.50	0.50	8107366	<0.50	<0.50	0.50	8107366
Acidity (pH 8.3)	mg/L	5.27	0.50	8107366	395	428	0.50	8107366
<b>Calculated Parameters</b>								
Anion Sum	meq/L	5.9	N/A	8105885	37		N/A	8105885
Cation Sum	meq/L	6.0	N/A	8105885	43		N/A	8105885
Filter and HNO3 Preservation	N/A	FIELD	N/A	ONSITE	FIELD		N/A	ONSITE
Ion Balance	N/A	1.0	0.010	8105884	1.2		0.010	8105884
Nitrate (N)	mg/L	0.0047	0.0020	8105888	0.0051		0.0020	8105888
<b>Misc. Inorganics</b>								
Fluoride (F)	mg/L	0.540	0.010	8108983	1.30		0.010	8108983
Alkalinity (Total as CaCO3)	mg/L	245	0.50	8108283	1840		0.50	8108283
Total Organic Carbon (C)	mg/L	0.93	0.50	8108879	<0.50		0.50	8108879
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8108283	<0.50		0.50	8108283
Bicarbonate (HCO3)	mg/L	299	0.50	8108283	2240		0.50	8108283
Carbonate (CO3)	mg/L	<0.50	0.50	8108283	<0.50		0.50	8108283
Hydroxide (OH)	mg/L	<0.50	0.50	8108283	<0.50		0.50	8108283
<b>Anions</b>								
Orthophosphate (P)	mg/L	0.0038 (1)	0.0010	8107607	0.0081 (2)		0.0010	8107607
Dissolved Sulphate (SO4)	mg/L	45.0	0.50	8107604	1.01		0.50	8107604
Dissolved Chloride (Cl)	mg/L	0.96	0.50	8107598	3.8		0.50	8107598
<b>Nutrients</b>								
Total Ammonia (N)	mg/L	0.12	0.0050	8108976	0.24		0.0050	8108976
Dissolved Phosphorus (P)	mg/L	0.0050	0.0020	8107611	0.0085	0.0084	0.0020	8107611
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.550	0.020	8105889	0.269		0.020	8105889
Nitrate plus Nitrite (N)	mg/L	0.0047 (1)	0.0020	8108883	0.0051 (2)		0.0020	8108883
Nitrite (N)	mg/L	<0.0020 (1)	0.0020	8108887	<0.0020 (2)		0.0020	8108887
Total Nitrogen (N)	mg/L	0.555	0.020	8110996	0.274		0.020	8110996
Total Phosphorus (P)	mg/L	0.0048	0.0020	8107613	0.253		0.0020	8107613
<b>Physical Properties</b>								
Conductivity	uS/cm	539	1.0	8108286	2850		1.0	8108286
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable (1) Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis. (2) Sample analysed past recommended hold time.								

Maxxam Job #: B599724  
Report Date: 2015/11/13

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		NP1435			NP1436	NP1436		
Sampling Date		2015/11/03 16:30			2015/11/04 15:00	2015/11/04 15:00		
COC Number		08413393			08413393	08413393		
	UNITS	MW15-08D	RDL	QC Batch	MW15-10D	MW15-10D Lab-Dup	RDL	QC Batch
pH	pH	8.05	N/A	8108287	6.77		N/A	8108287
<b>Physical Properties</b>								
Total Suspended Solids	mg/L	242	1.0	8108289	302 (1)		5.0	8108292
Total Dissolved Solids	mg/L	338	1.0	8109205	1940		1.0	8109205
Turbidity	NTU	149 (2)	0.10	8107635	188		0.10	8106063
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable (1) RDL raised due to high concentration of solids in the sample. (2) Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis.								



Maxxam Job #: B599724  
Report Date: 2015/11/13

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		NP1437	NP1437			NP1438	NP1438		
Sampling Date		2015/11/03 10:45	2015/11/03 10:45			2015/11/04 20:00	2015/11/04 20:00		
COC Number		08413393	08413393			08413393	08413393		
	<b>UNITS</b>	<b>BNH95G-33D</b>	<b>BNH95G-33D Lab-Dup</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH95-129</b>	<b>BH95-129 Lab-Dup</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Misc. Inorganics</b>									
Acidity (pH 4.5)	mg/L	<0.50		0.50	8107366	<0.50		0.50	8107363
Acidity (pH 8.3)	mg/L	<0.50		0.50	8107366	<0.50		0.50	8107363

<b>Calculated Parameters</b>									
Anion Sum	meq/L	4.9		N/A	8105885	4.0		N/A	8105885
Cation Sum	meq/L	5.2		N/A	8105885	4.4		N/A	8105885
Filter and HNO3 Preservation	N/A	FIELD		N/A	ONSITE	FIELD		N/A	ONSITE
Ion Balance	N/A	1.0		0.010	8105884	1.1		0.010	8105884
Nitrate (N)	mg/L	0.213		0.0020	8105888	0.0055		0.0020	8105888

<b>Misc. Inorganics</b>									
Fluoride (F)	mg/L	0.055		0.010	8108983	0.220		0.010	8108983
Alkalinity (Total as CaCO3)	mg/L	173		0.50	8108283	160		0.50	8108283
Total Organic Carbon (C)	mg/L	1.08		0.50	8108879	0.84		0.50	8108879
Alkalinity (PP as CaCO3)	mg/L	<0.50		0.50	8108283	<0.50		0.50	8108283
Bicarbonate (HCO3)	mg/L	211		0.50	8108283	195		0.50	8108283
Carbonate (CO3)	mg/L	<0.50		0.50	8108283	<0.50		0.50	8108283
Hydroxide (OH)	mg/L	<0.50		0.50	8108283	<0.50		0.50	8108283

<b>Anions</b>									
Orthophosphate (P)	mg/L	0.0024 (1)		0.0010	8107607	0.0022 (2)	0.0019	0.0010	8107607
Dissolved Sulphate (SO4)	mg/L	68.6		0.50	8107604	37.2		0.50	8107596
Dissolved Chloride (Cl)	mg/L	0.78		0.50	8109038	2.5	2.5	0.50	8107594

<b>Nutrients</b>									
Total Ammonia (N)	mg/L	0.019		0.0050	8108976	0.032		0.0050	8108976
Dissolved Phosphorus (P)	mg/L	0.151		0.0020	8107611	0.0035		0.0020	8107611
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.089		0.020	8105889	0.105		0.020	8105889
Nitrate plus Nitrite (N)	mg/L	0.216 (1)		0.0020	8108883	0.0076 (2)	0.0059	0.0020	8108883
Nitrite (N)	mg/L	0.0022 (1)		0.0020	8108887	0.0021 (2)	<0.0020	0.0020	8108887
Total Nitrogen (N)	mg/L	0.304		0.020	8110996	0.113	0.104	0.020	8110996
Total Phosphorus (P)	mg/L	1.05	1.08	0.020	8107613	0.0321		0.0020	8107613

<b>Physical Properties</b>									
Conductivity	uS/cm	460		1.0	8108286	383		1.0	8108286
pH	pH	8.17		N/A	8108287	8.17		N/A	8108287

RDL = Reportable Detection Limit  
Lab-Dup = Laboratory Initiated Duplicate  
(1) Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis.  
(2) Sample analysed past recommended hold time.

Maxxam Job #: B599724  
Report Date: 2015/11/13

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		NP1437	NP1437			NP1438	NP1438		
<b>Sampling Date</b>		2015/11/03 10:45	2015/11/03 10:45			2015/11/04 20:00	2015/11/04 20:00		
<b>COC Number</b>		08413393	08413393			08413393	08413393		
	<b>UNITS</b>	<b>BNH95G-33D</b>	<b>BNH95G-33D Lab-Dup</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH95-129</b>	<b>BH95-129 Lab-Dup</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Physical Properties</b>									
Total Suspended Solids	mg/L	1290 (1)		20	8108292	20.1		1.0	8108292
Total Dissolved Solids	mg/L	326		1.0	8109205	230		1.0	8109205
Turbidity	NTU	598 (2)		0.10	8107635	12.3		0.10	8106063

RDL = Reportable Detection Limit  
 Lab-Dup = Laboratory Initiated Duplicate  
 (1) RDL raised due to high concentration of solids in the sample.  
 (2) Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis.

Maxxam Job #: B599724  
Report Date: 2015/11/13

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		NP1435	NP1436	NP1437	NP1438		
Sampling Date		2015/11/03 16:30	2015/11/04 15:00	2015/11/03 10:45	2015/11/04 20:00		
COC Number		08413393	08413393	08413393	08413393		
	UNITS	MW15-08D	MW15-10D	BNH95G-33D	BH95-129	RDL	QC Batch
<b>Misc. Inorganics</b>							
Dissolved Hardness (CaCO3)	mg/L	269	2020	255	211	0.50	8105764
<b>Elements</b>							
Dissolved Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000020	8109005
<b>Dissolved Metals by ICPMS</b>							
Dissolved Aluminum (Al)	mg/L	0.00361	0.298	0.00199	0.00527	0.00050	8108066
Dissolved Antimony (Sb)	mg/L	0.000135	0.000064	<0.000020	0.000227	0.000020	8108066
Dissolved Arsenic (As)	mg/L	0.00496	0.00109	0.000144	0.00611	0.000020	8108066
Dissolved Barium (Ba)	mg/L	0.0463	0.415	0.0982	0.0666	0.000020	8108066
Dissolved Beryllium (Be)	mg/L	<0.000010	0.00105	<0.000010	<0.000010	0.000010	8108066
Dissolved Bismuth (Bi)	mg/L	<0.0000050	0.0000120	<0.0000050	0.0000220	0.0000050	8108066
Dissolved Boron (B)	mg/L	<0.010	0.011	<0.010	<0.010	0.010	8108066
Dissolved Cadmium (Cd)	mg/L	0.0000320	0.000172	0.0000060	0.0000220	0.0000050	8108066
Dissolved Chromium (Cr)	mg/L	<0.00010	0.00155	<0.00010	<0.00010	0.00010	8108066
Dissolved Cobalt (Co)	mg/L	0.000709	0.000833	0.0000150	0.000153	0.0000050	8108066
Dissolved Copper (Cu)	mg/L	0.000087	0.000993	0.000360	0.000253	0.000050	8108066
Dissolved Iron (Fe)	mg/L	0.563	30.0	0.0042	0.310	0.0010	8108066
Dissolved Lead (Pb)	mg/L	0.0000190	0.00123	0.0000110	0.0000280	0.0000050	8108066
Dissolved Lithium (Li)	mg/L	0.0282	0.237	0.00111	0.00948	0.00050	8108066
Dissolved Manganese (Mn)	mg/L	0.191	5.09	0.00483	0.113	0.000050	8108066
Dissolved Molybdenum (Mo)	mg/L	0.00664	0.000450	0.00120	0.00135	0.000050	8108066
Dissolved Nickel (Ni)	mg/L	0.00327	0.00145	0.00108	0.000408	0.000020	8108066
Dissolved Phosphorus (P)	mg/L	0.0037	0.0039	0.0045	0.0041	0.0020	8108066
Dissolved Selenium (Se)	mg/L	0.000272	0.000043	0.00614	<0.000040	0.000040	8108066
Dissolved Silicon (Si)	mg/L	9.90	41.8	3.52	6.49	0.050	8108066
Dissolved Silver (Ag)	mg/L	<0.0000050	0.0000120	<0.0000050	0.0000140	0.0000050	8108066
Dissolved Strontium (Sr)	mg/L	0.317	2.80	0.260	0.213	0.000050	8108066
Dissolved Thallium (Tl)	mg/L	0.0000020	0.0000030	<0.0000020	0.0000030	0.0000020	8108066
Dissolved Tin (Sn)	mg/L	<0.00020	0.00023	<0.00020	<0.00020	0.00020	8108066
Dissolved Titanium (Ti)	mg/L	<0.00050	0.00076	<0.00050	<0.00050	0.00050	8108066
Dissolved Uranium (U)	mg/L	0.00143	0.000562	0.00475	0.0112	0.0000020	8108066
Dissolved Vanadium (V)	mg/L	<0.00020	0.00064	<0.00020	<0.00020	0.00020	8108066
Dissolved Zinc (Zn)	mg/L	0.00309	0.0217	0.00182	0.00663	0.00010	8108066
Dissolved Zirconium (Zr)	mg/L	<0.00010	0.00209	<0.00010	0.00016	0.00010	8108066
Dissolved Calcium (Ca)	mg/L	76.5	673	87.2	61.2	0.050	8105886
RDL = Reportable Detection Limit							

Maxxam Job #: B599724  
Report Date: 2015/11/13

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		NP1435	NP1436	NP1437	NP1438		
Sampling Date		2015/11/03 16:30	2015/11/04 15:00	2015/11/03 10:45	2015/11/04 20:00		
COC Number		08413393	08413393	08413393	08413393		
	UNITS	MW15-08D	MW15-10D	BNH95G-33D	BH95-129	RDL	QC Batch
Dissolved Magnesium (Mg)	mg/L	18.9	83.4	9.17	14.2	0.050	8105886
Dissolved Potassium (K)	mg/L	3.91	9.83	1.05	2.44	0.050	8105886
Dissolved Sodium (Na)	mg/L	11.8	23.6	0.812	3.07	0.050	8105886
Dissolved Sulphur (S)	mg/L	15.9	4.0	23.0	14.7	3.0	8105886
RDL = Reportable Detection Limit							

Maxxam Job #: B599724  
Report Date: 2015/11/13

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		NP1435	NP1436	NP1437	NP1438		
Sampling Date		2015/11/03 16:30	2015/11/04 15:00	2015/11/03 10:45	2015/11/04 20:00		
COC Number		08413393	08413393	08413393	08413393		
	UNITS	MW15-08D	MW15-10D	BNH95G-33D	BH95-129	RDL	QC Batch
<b>Calculated Parameters</b>							
Total Hardness (CaCO3)	mg/L	361	2120	335	234	0.50	8105763
<b>Elements</b>							
Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000020	8110045
<b>Total Metals by ICPMS</b>							
Total Aluminum (Al)	mg/L	7.17	4.13	15.0	0.258	0.0030	8108439
Total Antimony (Sb)	mg/L	0.000178	0.000083	0.000284	0.000622	0.000050	8108439
Total Arsenic (As)	mg/L	0.0124	0.00302	0.0316	0.0100	0.000020	8108439
Total Barium (Ba)	mg/L	0.0758	0.469	0.372	0.0819	0.00010	8108439
Total Beryllium (Be)	mg/L	0.000269	0.00125	0.000927	<0.000010	0.000010	8108439
Total Bismuth (Bi)	mg/L	0.000105	0.000741	0.000322	0.000041	0.000020	8108439
Total Boron (B)	mg/L	<0.050	<0.050	<0.050	<0.050	0.050	8108439
Total Cadmium (Cd)	mg/L	0.000212	0.00131	0.000380	0.000129	0.0000050	8108439
Total Chromium (Cr)	mg/L	0.0305	0.0168	0.0242	0.00103	0.00050	8108439
Total Cobalt (Co)	mg/L	0.00580	0.00488	0.0396	0.000442	0.000010	8108439
Total Copper (Cu)	mg/L	0.00620	0.0145	0.114	0.0110	0.00020	8108439
Total Iron (Fe)	mg/L	11.0	39.2	50.5	1.44	0.0050	8108439
Total Lead (Pb)	mg/L	0.00657	0.0338	0.0213	0.00551	0.000050	8108439
Total Lithium (Li)	mg/L	0.0421	0.266	0.0139	0.0120	0.00050	8108439
Total Manganese (Mn)	mg/L	0.430	5.38	3.09	0.137	0.00010	8108439
Total Molybdenum (Mo)	mg/L	0.00546	0.00348	0.00241	0.00142	0.000050	8108439
Total Nickel (Ni)	mg/L	0.0195	0.00777	0.165	0.00143	0.00010	8108439
Total Phosphorus (P)	mg/L	0.157	0.233	0.862	0.049	0.010	8108439
Total Selenium (Se)	mg/L	0.000421	0.000367	0.00569	<0.000040	0.000040	8108439
Total Silicon (Si)	mg/L	23.4	49.2	28.8	7.89	0.10	8108439
Total Silver (Ag)	mg/L	0.000543	0.000677	0.000434	0.0000750	0.0000050	8108439
Total Strontium (Sr)	mg/L	0.411	2.81	0.317	0.226	0.000050	8108439
Total Thallium (Tl)	mg/L	0.0000350	0.0000340	0.000158	0.0000090	0.0000020	8108439
Total Tin (Sn)	mg/L	0.00052	<0.00020	0.00080	0.00152	0.00020	8108439
Total Titanium (Ti)	mg/L	0.198	0.214	0.297	0.0121	0.0050	8108439
Total Uranium (U)	mg/L	0.00301	0.000682	0.00880	0.0126	0.0000050	8108439
Total Vanadium (V)	mg/L	0.0305	0.0127	0.0531	<0.00050	0.00050	8108439
Total Zinc (Zn)	mg/L	0.0231	0.0335	0.251	0.0321	0.0010	8108439
Total Zirconium (Zr)	mg/L	0.00223	0.00278	0.00601	0.00043	0.00010	8108439
Total Calcium (Ca)	mg/L	97.3	699	103	68.4	0.25	8105887
RDL = Reportable Detection Limit							

Maxxam Job #: B599724  
Report Date: 2015/11/13

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		NP1435	NP1436	NP1437	NP1438		
Sampling Date		2015/11/03 16:30	2015/11/04 15:00	2015/11/03 10:45	2015/11/04 20:00		
COC Number		08413393	08413393	08413393	08413393		
	UNITS	MW15-08D	MW15-10D	BNH95G-33D	BH95-129	RDL	QC Batch
Total Magnesium (Mg)	mg/L	28.6	90.7	19.0	15.4	0.25	8105887
Total Potassium (K)	mg/L	4.99	10.9	3.49	2.68	0.25	8105887
Total Sodium (Na)	mg/L	10.7	24.2	1.14	3.43	0.25	8105887
Total Sulphur (S)	mg/L	17	<15	25	15	15	8105887
RDL = Reportable Detection Limit							

Maxxam Job #: B599724  
Report Date: 2015/11/13

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

### GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	5.0°C
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Sample NP1435-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample NP1436-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample NP1437-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample NP1438-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

**Results relate only to the items tested.**

Maxxam Job #: B599724  
Report Date: 2015/11/13

**QUALITY ASSURANCE REPORT**

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8106063	Turbidity	2015/11/07			98	80 - 120	<0.10	NTU	NC	20
8107363	Acidity (pH 4.5)	2015/11/09					<0.50	mg/L	NC	20
8107363	Acidity (pH 8.3)	2015/11/09			96	80 - 120	<0.50	mg/L	0.81	20
8107366	Acidity (pH 4.5)	2015/11/09					<0.50	mg/L	NC	20
8107366	Acidity (pH 8.3)	2015/11/09			97	80 - 120	<0.50	mg/L	8.2	20
8107594	Dissolved Chloride (Cl)	2015/11/09	NC	80 - 120	97	80 - 120	<0.50	mg/L	0.24	20
8107596	Dissolved Sulphate (SO4)	2015/11/09			93	80 - 120	<0.50	mg/L		
8107598	Dissolved Chloride (Cl)	2015/11/09	93	80 - 120	107	80 - 120	0.52, RDL=0.50	mg/L	NC	20
8107604	Dissolved Sulphate (SO4)	2015/11/09			95	80 - 120	<0.50	mg/L		
8107607	Orthophosphate (P)	2015/11/09	103	80 - 120	102	80 - 120	<0.0010	mg/L	NC	20
8107611	Dissolved Phosphorus (P)	2015/11/09	91	80 - 120	92	80 - 120	<0.0020	mg/L	NC	20
8107613	Total Phosphorus (P)	2015/11/09	NC	80 - 120	92	80 - 120	<0.0020	mg/L	3.1	20
8107635	Turbidity	2015/11/09			101	80 - 120	<0.10	NTU	5.3	20
8108066	Dissolved Aluminum (Al)	2015/11/10	100	80 - 120	102	80 - 120	<0.00050	mg/L		
8108066	Dissolved Antimony (Sb)	2015/11/10	98	80 - 120	99	80 - 120	<0.000020	mg/L		
8108066	Dissolved Arsenic (As)	2015/11/10	93	80 - 120	98	80 - 120	<0.000020	mg/L		
8108066	Dissolved Barium (Ba)	2015/11/10	104	80 - 120	103	80 - 120	<0.000020	mg/L		
8108066	Dissolved Beryllium (Be)	2015/11/10	92	80 - 120	96	80 - 120	<0.000010	mg/L		
8108066	Dissolved Bismuth (Bi)	2015/11/10	94	80 - 120	99	80 - 120	<0.0000050	mg/L		
8108066	Dissolved Boron (B)	2015/11/10					<0.010	mg/L		
8108066	Dissolved Cadmium (Cd)	2015/11/10	92	80 - 120	96	80 - 120	<0.0000050	mg/L		
8108066	Dissolved Chromium (Cr)	2015/11/10	95	80 - 120	100	80 - 120	<0.00010	mg/L		
8108066	Dissolved Cobalt (Co)	2015/11/10	96	80 - 120	101	80 - 120	<0.0000050	mg/L		
8108066	Dissolved Copper (Cu)	2015/11/10	97	80 - 120	102	80 - 120	<0.000050	mg/L	3.6	20
8108066	Dissolved Iron (Fe)	2015/11/10	97	80 - 120	102	80 - 120	<0.0010	mg/L		
8108066	Dissolved Lead (Pb)	2015/11/10	97	80 - 120	99	80 - 120	<0.0000050	mg/L		
8108066	Dissolved Lithium (Li)	2015/11/10	96	80 - 120	96	80 - 120	<0.00050	mg/L		
8108066	Dissolved Manganese (Mn)	2015/11/10	96	80 - 120	99	80 - 120	<0.000050	mg/L		
8108066	Dissolved Molybdenum (Mo)	2015/11/10	94	80 - 120	95	80 - 120	<0.000050	mg/L		
8108066	Dissolved Nickel (Ni)	2015/11/10	95	80 - 120	99	80 - 120	<0.000020	mg/L		
8108066	Dissolved Phosphorus (P)	2015/11/10					<0.0020	mg/L	NC	20



Maxxam Job #: B599724  
Report Date: 2015/11/13

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8108066	Dissolved Selenium (Se)	2015/11/10	90	80 - 120	95	80 - 120	<0.000040	mg/L		
8108066	Dissolved Silicon (Si)	2015/11/10					<0.050	mg/L		
8108066	Dissolved Silver (Ag)	2015/11/10	96	80 - 120	93	80 - 120	<0.0000050	mg/L		
8108066	Dissolved Strontium (Sr)	2015/11/10	95	80 - 120	95	80 - 120	<0.000050	mg/L		
8108066	Dissolved Thallium (Tl)	2015/11/10	95	80 - 120	96	80 - 120	<0.0000020	mg/L		
8108066	Dissolved Tin (Sn)	2015/11/10	92	80 - 120	94	80 - 120	<0.00020	mg/L		
8108066	Dissolved Titanium (Ti)	2015/11/10	88	80 - 120	96	80 - 120	<0.00050	mg/L		
8108066	Dissolved Uranium (U)	2015/11/10	102	80 - 120	104	80 - 120	<0.0000020	mg/L		
8108066	Dissolved Vanadium (V)	2015/11/10	94	80 - 120	97	80 - 120	<0.00020	mg/L		
8108066	Dissolved Zinc (Zn)	2015/11/10	97	80 - 120	105	80 - 120	<0.00010	mg/L	NC	20
8108066	Dissolved Zirconium (Zr)	2015/11/10					<0.00010	mg/L		
8108283	Alkalinity (PP as CaCO3)	2015/11/09					<0.50	mg/L	NC	20
8108283	Alkalinity (Total as CaCO3)	2015/11/09	98	80 - 120	98	80 - 120	0.61, RDL=0.50	mg/L	NC	20
8108283	Bicarbonate (HCO3)	2015/11/09					0.74, RDL=0.50	mg/L	NC	20
8108283	Carbonate (CO3)	2015/11/09					<0.50	mg/L	NC	20
8108283	Hydroxide (OH)	2015/11/09					<0.50	mg/L	NC	20
8108286	Conductivity	2015/11/09			101	80 - 120	<1.0	uS/cm		
8108287	pH	2015/11/09			102	97 - 103				
8108289	Total Suspended Solids	2015/11/10			102	80 - 120	<1.0	mg/L		
8108292	Total Suspended Solids	2015/11/10			104	80 - 120	<1.0	mg/L		
8108439	Total Aluminum (Al)	2015/11/10	NC	80 - 120	103	80 - 120	<0.0030	mg/L	1.9	20
8108439	Total Antimony (Sb)	2015/11/10	95	80 - 120	99	80 - 120	<0.000050	mg/L	NC	20
8108439	Total Arsenic (As)	2015/11/10	NC	80 - 120	96	80 - 120	<0.000020	mg/L	0.94	20
8108439	Total Barium (Ba)	2015/11/10	NC	80 - 120	105	80 - 120	<0.00010	mg/L	4.9	20
8108439	Total Beryllium (Be)	2015/11/10	99	80 - 120	94	80 - 120	<0.000010	mg/L	0.43	20
8108439	Total Bismuth (Bi)	2015/11/10	106	80 - 120	99	80 - 120	<0.000020	mg/L	1.9	20
8108439	Total Boron (B)	2015/11/10					<0.050	mg/L	NC	20
8108439	Total Cadmium (Cd)	2015/11/10	97	80 - 120	96	80 - 120	<0.0000050	mg/L	6.4	20
8108439	Total Chromium (Cr)	2015/11/10	NC	80 - 120	98	80 - 120	<0.00050	mg/L	0.65	20
8108439	Total Cobalt (Co)	2015/11/10	NC	80 - 120	99	80 - 120	<0.000010	mg/L	0.36	20
8108439	Total Copper (Cu)	2015/11/10	NC	80 - 120	101	80 - 120	<0.00020	mg/L	0.64	20

Maxxam Job #: B599724  
Report Date: 2015/11/13

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8108439	Total Iron (Fe)	2015/11/10	NC	80 - 120	102	80 - 120	<0.0050	mg/L	0.53	20
8108439	Total Lead (Pb)	2015/11/10	NC	80 - 120	100	80 - 120	<0.000050	mg/L	1.9	20
8108439	Total Lithium (Li)	2015/11/10	NC	80 - 120	90	80 - 120	<0.00050	mg/L	0.56	20
8108439	Total Manganese (Mn)	2015/11/10	NC	80 - 120	98	80 - 120	<0.00010	mg/L	0.53	20
8108439	Total Molybdenum (Mo)	2015/11/10	NC	80 - 120	94	80 - 120	<0.000050	mg/L	0.74	20
8108439	Total Nickel (Ni)	2015/11/10	NC	80 - 120	100	80 - 120	<0.00010	mg/L	0.81	20
8108439	Total Phosphorus (P)	2015/11/10					<0.010	mg/L	0.52	20
8108439	Total Selenium (Se)	2015/11/10	84	80 - 120	93	80 - 120	<0.000040	mg/L	NC	20
8108439	Total Silicon (Si)	2015/11/10					<0.10	mg/L	7.3	20
8108439	Total Silver (Ag)	2015/11/10	117	80 - 120	98	80 - 120	<0.0000050	mg/L	13	20
8108439	Total Strontium (Sr)	2015/11/10	NC	80 - 120	96	80 - 120	<0.000050	mg/L	0.94	20
8108439	Total Thallium (Tl)	2015/11/10	105	80 - 120	98	80 - 120	<0.0000020	mg/L	4.3	20
8108439	Total Tin (Sn)	2015/11/10	100	80 - 120	98	80 - 120	<0.00020	mg/L	NC	20
8108439	Total Titanium (Ti)	2015/11/10	NC	80 - 120	94	80 - 120	<0.0050	mg/L	9.0	20
8108439	Total Uranium (U)	2015/11/10	118	80 - 120	105	80 - 120	<0.0000050	mg/L	1.1	20
8108439	Total Vanadium (V)	2015/11/10	NC	80 - 120	97	80 - 120	<0.00050	mg/L	1.3	20
8108439	Total Zinc (Zn)	2015/11/10	NC	80 - 120	108	80 - 120	<0.0010	mg/L	0.35	20
8108439	Total Zirconium (Zr)	2015/11/10					<0.00010	mg/L	11	20
8108879	Total Organic Carbon (C)	2015/11/10	NC	80 - 120	108	80 - 120	<0.50	mg/L	7.9	20
8108883	Nitrate plus Nitrite (N)	2015/11/10	105	80 - 120	103	80 - 120	<0.0020	mg/L	NC	25
8108887	Nitrite (N)	2015/11/10	101	80 - 120	100	80 - 120	<0.0020	mg/L	NC	25
8108976	Total Ammonia (N)	2015/11/10			96	80 - 120	<0.0050	mg/L		
8108983	Fluoride (F)	2015/11/10			102	80 - 120	0.011, RDL=0.010	mg/L		
8109005	Dissolved Mercury (Hg)	2015/11/11	99	80 - 120	106	80 - 120	<0.0000020	mg/L	NC	20
8109038	Dissolved Chloride (Cl)	2015/11/10			104	80 - 120	<0.50	mg/L		
8109205	Total Dissolved Solids	2015/11/13	103	80 - 120	94	80 - 120	<1.0	mg/L	2.4	20
8110045	Total Mercury (Hg)	2015/11/11	100	80 - 120	101	80 - 120	<0.0000020	mg/L	NC	20

Maxxam Job #: B599724  
Report Date: 2015/11/13

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8110996	Total Nitrogen (N)	2015/11/12	87	80 - 120	94	80 - 120	<0.020	mg/L	7.9	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

Maxxam Job #: B599724  
Report Date: 2015/11/13

TETRATECH EBA  
Client Project #: ENVMINO3071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



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Rob Reinert, Data Validation Coordinator

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Invoice Information		Report Information (if differs from invoice)				Project Information (where applicable)				Turnaround Time (TAT) Required			
Company Name: #11954 BMC Mineral (NO. 1) LTD.		Company Name: #31161 Tetra Tech EBA				Quotation #: B50743				<input checked="" type="checkbox"/> Regular TAT 5 days (Most analyses)			
Contact Name: ACCOUNTS PAYABLE		Contact Name: Kristen Range / Eliane Roy				P.O. #/ AFE#:				PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS			
Address: 530-1130 West Pender Street, Vancouver BC PC: V6E 4A4		Address: 61 Wasson Place Whitehorse, YT PC: V1A 0H7				Project #: ENVMINO3071-01				Rush TAT (Surcharges will be applied)			
Phone:		Phone: 867-668-6225				Site Location: Kudz Ze Kayah				<input type="checkbox"/> Same Day <input type="checkbox"/> 2 Days			
Email: kdbergh@gmail.com		Email: kristen.range / eliane.roy@tetratech.com				Site #:				<input type="checkbox"/> 1 Day <input type="checkbox"/> 3 Days			
Date Required:		Sampled By: Eliane Roy											
Regulatory Criteria		Special Instructions				Analysis Requested				Rush Confirmation #:			
<input type="checkbox"/> BC CSR Soil <input type="checkbox"/> BC CSR Water <input checked="" type="checkbox"/> CCME (Specify) <input checked="" type="checkbox"/> Other (Specify) <u>AW</u> <u>MMER</u> <input type="checkbox"/> Drinking Water <input type="checkbox"/> BC Water Quality		<input type="checkbox"/> Return Cooler <input type="checkbox"/> Ship Sample Bottles (Please Specify)				ROUTINE (incl. TDS) MAJOR IONS NUTRIENTS (INCLUDING NO3, NO2, TOTAL P) Low Level Dissolved Metals with CV Hg Low Level Total Metals with CV Hg Phosphorus (L Tot, dissolved) SE/FP				LABORATORY USE ONLY CUSTODY SEAL Y / N / N/A Present Intact N/A N/A 6, 5, 4 COOLING MEDIA PRESENT Y / N COMMENTS <u>N2</u>			
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM													
Sample Identification	Lab Identification	Date Sampled (YYYY/MM/DD)	Time Sampled (HH:MM)	Matrix	ROUTINE (incl. TDS)	MAJOR IONS	NUTRIENTS (INCLUDING NO3, NO2, TOTAL P)	Low Level Dissolved Metals with CV Hg	Low Level Total Metals with CV Hg	Phosphorus (L Tot, dissolved) SE/FP	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	COMMENTS
1	MWIS-10D	NOV 3	4:30pm	GW	x	x	x	x	x	x	13		Dissolved metals and phosphorus were field filtered and preserved.
2	MWIS-10D	NOV 4	3pm	GW	x	x	x	x	x	x	13		Total metals were field preserved.
3	BN95G-33D	NOV 3	10:45am	GW	α	α	α	α	α	α	13		
4	BN95-129	NOV 4	8pm	GW	α	α	α	α	α	α	13		
5													
6													
7													
8													
9													
10													
11													
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #					
<u>Flime</u>		NOV 5 2015	8:30AM	<u>KEVIN CHONG</u>		2015/11/06	13:35	B599724					

Your Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH

**Attention:ELIANE ROY**

TETRATECH EBA  
61 WASSON PLACE  
WHITEHORSE, YT  
Canada Y1A 0H7

Your C.O.C. #: 488720-01-01, 488720-02-01, 488720-03-01

**Report Date: 2016/03/31**  
Report #: R2150866  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B621096**

**Received: 2016/03/21, 11:40**

Sample Matrix: Water  
# Samples Received: 18

<b>Analyses</b>	<b>Quantity</b>	<b>Date Extracted</b>	<b>Date Analyzed</b>	<b>Laboratory Method</b>	<b>Analytical Method</b>
Acidity pH 4.5 & pH 8.3 (as CaCO <sub>3</sub> )	18	N/A	2016/03/23	BBY6SOP-00037	SM 22 2310 B m
Alkalinity - Water	18	2016/03/23	2016/03/23	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry	17	N/A	2016/03/23	BBY6SOP-00011	SM 22 4500-Cl- G m
Chloride by Automated Colourimetry	1	N/A	2016/03/24	BBY6SOP-00011	SM 22 4500-Cl- G m
Carbon (DOC) - field filtered/preserved (1)	16	N/A	2016/03/23	BBY6SOP-00003	SM 22 5310 C m
Carbon (DOC) - unfiltered/unpreserved (1)	2	N/A	2016/03/23	BBY6SOP-00003	SM 22 5310 C m
Conductance - water	18	N/A	2016/03/23	BBY6SOP-00026	SM 22 2510 B m
Fluoride	17	N/A	2016/03/22	BBY6SOP-00048	SM 22 4500-F C m
Fluoride	1	N/A	2016/03/23	BBY6SOP-00048	SM 22 4500-F C m
Hardness Total (calculated as CaCO <sub>3</sub> )	18	N/A	2016/03/29	BBY7SOP-00002	EPA 6020a R1 m
Hardness (calculated as CaCO <sub>3</sub> )	18	N/A	2016/03/29	BBY7SOP-00002	EPA 6020a R1 m
Mercury (Dissolved-LowLevel) by CVAf	18	N/A	2016/03/28	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total-LowLevel) by CVAf	18	2016/03/28	2016/03/28	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Ion Balance	18	N/A	2016/03/29	BBY WI-00033	SM 22 1030E
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	18	N/A	2016/03/29	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Low Level (dissolved)	5	N/A	2016/03/23	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Low Level (dissolved)	8	N/A	2016/03/24	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Low Level (dissolved)	5	N/A	2016/03/25	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Digested LL (total)	15	2016/03/22	2016/03/25	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Digested LL (total)	1	2016/03/22	2016/03/28	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Digested LL (total)	1	2016/03/24	2016/03/28	BBY7SOP-00002	EPA 6020A R1 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	18	N/A	2016/03/29	BBY7SOP-00002	EPA 6020A R1 m
Elements by ICPMS Low Level (total)	1	N/A	2016/03/24	BBY7SOP-00002	EPA 6020A R1 m
Nitrogen (Total)	17	2016/03/23	2016/03/24	BBY6SOP-00016	SM 22 4500-N C m
Nitrogen (Total)	1	2016/03/30	2016/03/31	BBY6SOP-00016	SM 22 4500-N C m
Ammonia-N (Unpreserved)	1	N/A	2016/03/23	BBY6SOP-00009	SM 22 4500-NH3- G m
Ammonia-N (Preserved)	16	N/A	2016/03/23	BBY6SOP-00009	SM 22 4500-NH3- G m
Ammonia-N (Preserved)	1	N/A	2016/03/30	BBY6SOP-00009	SM 22 4500-NH3- G m

Your Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH

**Attention:ELIANE ROY**

TETRATECH EBA  
61 WASSON PLACE  
WHITEHORSE, YT  
Canada Y1A 0H7

Your C.O.C. #: 488720-01-01, 488720-02-01, 488720-03-01

**Report Date: 2016/03/31**  
Report #: R2150866  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B621096**

**Received: 2016/03/21, 11:40**

Sample Matrix: Water  
# Samples Received: 18

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Nitrate+Nitrite (N) (low level)	17	N/A	2016/03/22	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrate+Nitrite (N) (low level)	1	N/A	2016/03/23	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) (low level)	17	N/A	2016/03/22	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrite (N) (low level)	1	N/A	2016/03/23	BBY6SOP-00010	SM 22 4500-NO3- I m
Nitrogen - Nitrate (as N)	18	N/A	2016/03/29	BBY6SOP-00010	SM 22 4500-NO3- I m
Filter and HNO3 Preserve for Metals	1	N/A	2016/03/24	BBY7 WI-00004	BCMOE Reqs 08/14
Filter and HNO3 Preserve for Metals	17	N/A	2016/03/29	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (2)	18	N/A	2016/03/23	BBY6SOP-00026	SM 22 4500-H+ B m
Orthophosphate by Konelab (low level)	16	N/A	2016/03/22	BBY6SOP-00013	SM 22 4500-P E m
Orthophosphate by Konelab (low level)	1	N/A	2016/03/24	BBY6SOP-00013	SM 22 4500-P E m
Orthophosphate by Konelab (low level)	1	N/A	2016/03/30	BBY6SOP-00013	SM 22 4500-P E m
Sulphate by Automated Colourimetry	16	N/A	2016/03/23	BBY6SOP-00017	SM 22 4500-SO42- E m
Sulphate by Automated Colourimetry	2	N/A	2016/03/24	BBY6SOP-00017	SM 22 4500-SO42- E m
Total Dissolved Solids - Low Level	18	N/A	2016/03/24	BBY6SOP-00033	SM 22 2540 C m
TKN (Calc. TN, N/N) total	18	N/A	2016/03/29	BBY WI-00033	Calculation
Total Phosphorus	17	N/A	2016/03/24	BBY6SOP-00013	SM 22 4500-P E m
Total Phosphorus - unpreserved	1	N/A	2016/03/29	BBY6SOP-00013	SM 22 4500-P E m
Total Suspended Solids-Low Level	4	2016/03/22	2016/03/23	BBY6SOP-00034	SM 22 2540 D
Total Suspended Solids-Low Level	14	2016/03/23	2016/03/24	BBY6SOP-00034	SM 22 2540 D

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) DOC present in the sample should be considered as non-purgeable DOC.

(2) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Your Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH

**Attention:ELIANE ROY**

TETRATECH EBA  
61 WASSON PLACE  
WHITEHORSE, YT  
Canada Y1A 0H7

Your C.O.C. #: 488720-01-01, 488720-02-01, 488720-03-01

**Report Date: 2016/03/31**  
Report #: R2150866  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B621096**  
**Received: 2016/03/21, 11:40**

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.  
Morgan Melnychuk, Burnaby Project Manager  
Email: MMelnychuk@maxxam.ca  
Phone# (604)638-8034 Ext:8034

=====  
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Maxxam Job #: B621096  
Report Date: 2016/03/31

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		OH9401			OH9402	OH9403	OH9403		
<b>Sampling Date</b>		2016/03/14 12:15			2016/03/15 09:40	2016/03/15 14:55	2016/03/15 14:55		
<b>COC Number</b>		488720-01-01			488720-01-01	488720-01-01	488720-01-01		
	<b>UNITS</b>	<b>BH95G-22</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH95G-32</b>	<b>BH95G-33D</b>	<b>BH95G-33D Lab-Dup</b>	<b>RDL</b>	<b>QC Batch</b>

**Calculated Parameters**

Filter and HNO3 Preservation	N/A	FIELD	N/A	ONSITE	FIELD	FIELD		N/A	ONSITE
Ion Balance	N/A	0.95	0.010	8222369	0.31	0.98		0.010	8222369
Nitrate (N)	mg/L	0.156	0.0020	8221913	0.0515	0.205		0.0020	8221913

**Misc. Inorganics**

Fluoride (F)	mg/L	0.047	0.010	8223359	0.032	0.045		0.010	8223352
Dissolved Organic Carbon (C)	mg/L	3.06	0.50	8223654	1.90	3.08		0.50	8223654
Acidity (pH 4.5)	mg/L	<0.50	0.50	8224219	<0.50	<0.50	<0.50	0.50	8224219
Alkalinity (Total as CaCO3)	mg/L	141	0.50	8224181	589	176		0.50	8224181
Acidity (pH 8.3)	mg/L	1.01	0.50	8224219	1.93	<0.50	<0.50	0.50	8224219
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8224181	<0.50	<0.50		0.50	8224181
Bicarbonate (HCO3)	mg/L	172	0.50	8224181	718	215		0.50	8224181
Carbonate (CO3)	mg/L	<0.50	0.50	8224181	<0.50	<0.50		0.50	8224181
Hydroxide (OH)	mg/L	<0.50	0.50	8224181	<0.50	<0.50		0.50	8224181

**Anions**

Orthophosphate (P)	mg/L	0.017 (1)	0.0010	8223471	0.019 (1)	0.011 (2)	0.011	0.0010	8223471
Dissolved Sulphate (SO4)	mg/L	45.1	0.50	8224488	34.3	62.3		0.50	8224488
Dissolved Chloride (Cl)	mg/L	<0.50	0.50	8224484	<0.50	<0.50		0.50	8224484

**Nutrients**

Total Ammonia (N)	mg/L	0.049	0.0050	8224477	0.058	0.044		0.0050	8224477
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.099	0.020	8221914	0.109	0.075		0.020	8221914
Nitrate plus Nitrite (N)	mg/L	0.163 (1)	0.0020	8224133	0.0573 (1)	0.209 (1)		0.0020	8224133
Nitrite (N)	mg/L	0.0071 (1)	0.0020	8224136	0.0058 (1)	0.0031 (1)		0.0020	8224136
Total Nitrogen (N)	mg/L	0.261	0.020	8224630	0.166	0.284		0.020	8224630
Total Phosphorus (P)	mg/L	0.305	0.0020	8226034	0.860	2.67		0.020	8226034

**Physical Properties**

Conductivity	uS/cm	354	1.0	8224184	402	447		1.0	8224184
pH	pH	7.87		8224185	7.28	8.02			8224185

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

N/A = Not Applicable

(1) Sample arrived to laboratory past recommended hold time.

(2) Matrix spike exceeds acceptance limits due to matrix interference. Re-analysis yields similar results. Sample arrived to laboratory past recommended hold time.

Maxxam Job #: B621096  
Report Date: 2016/03/31

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		OH9401			OH9402	OH9403	OH9403		
<b>Sampling Date</b>		2016/03/14 12:15			2016/03/15 09:40	2016/03/15 14:55	2016/03/15 14:55		
<b>COC Number</b>		488720-01-01			488720-01-01	488720-01-01	488720-01-01		
	<b>UNITS</b>	<b>BH95G-22</b>	<b>RDL</b>	<b>QC Batch</b>	<b>BH95G-32</b>	<b>BH95G-33D</b>	<b>BH95G-33D Lab-Dup</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Physical Properties</b>									
Total Suspended Solids	mg/L	1030 (1)	20	8223850	574 (2)	954 (2)		20	8222836
Total Dissolved Solids	mg/L	216 (3)	1.0	8222875	274	300		1.0	8222875

RDL = Reportable Detection Limit  
Lab-Dup = Laboratory Initiated Duplicate

(1) RDL raised due to high concentration of solids in the sample. Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis.

(2) RDL raised due to high concentration of solids in the sample.

(3) Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis.

Maxxam Job #: B621096  
Report Date: 2016/03/31

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		OH9404			OH9405			OH9406		
<b>Sampling Date</b>		2016/03/14 16:15			2016/03/15 14:10			2016/03/13 13:15		
<b>COC Number</b>		488720-01-01			488720-01-01			488720-01-01		
	<b>UNITS</b>	<b>BH95-131</b>	<b>RDL</b>	<b>QC Batch</b>	<b>MW15-01</b>	<b>RDL</b>	<b>QC Batch</b>	<b>MW15-03S</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Calculated Parameters</b>										
Filter and HNO3 Preservation	N/A	FIELD	N/A	ONSITE	FIELD	N/A	ONSITE	FIELD	N/A	ONSITE
Ion Balance	N/A	0.98	0.010	8222369	1.0	0.010	8222369	1.1	0.010	8222369
Nitrate (N)	mg/L	<0.0020	0.0020	8221913	0.231	0.0020	8221913	0.0580	0.0020	8221913
<b>Misc. Inorganics</b>										
Fluoride (F)	mg/L	0.075	0.010	8223352	0.094	0.010	8223352	0.099	0.010	8223359
Dissolved Organic Carbon (C)	mg/L	2.12	0.50	8223654	1.45	0.50	8223654	3.07	0.50	8223654
Acidity (pH 4.5)	mg/L	<0.50	0.50	8224219	<0.50	0.50	8224219	<0.50	0.50	8224219
Alkalinity (Total as CaCO3)	mg/L	431	0.50	8224181	156	0.50	8224181	125	0.50	8224181
Acidity (pH 8.3)	mg/L	5.36	0.50	8224219	<0.50	0.50	8224219	<0.50	0.50	8224219
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8224181	<0.50	0.50	8224181	<0.50	0.50	8224181
Bicarbonate (HCO3)	mg/L	525	0.50	8224181	191	0.50	8224181	152	0.50	8224181
Carbonate (CO3)	mg/L	<0.50	0.50	8224181	<0.50	0.50	8224181	<0.50	0.50	8224181
Hydroxide (OH)	mg/L	<0.50	0.50	8224181	<0.50	0.50	8224181	<0.50	0.50	8224181
<b>Anions</b>										
Orthophosphate (P)	mg/L	0.0070 (1)	0.0010	8223471	0.0083 (1)	0.0010	8223471	0.0086 (1)	0.0010	8223471
Dissolved Sulphate (SO4)	mg/L	215 (2)	5.0	8224488	138	0.50	8224488	14.6	0.50	8224488
Dissolved Chloride (Cl)	mg/L	0.76	0.50	8224484	<0.50	0.50	8224484	0.59	0.50	8224484
<b>Nutrients</b>										
Total Ammonia (N)	mg/L	0.046	0.0050	8224477	0.044	0.0050	8224477	0.048	0.0050	8224478
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.099	0.020	8221914	0.083	0.020	8221914	0.316	0.020	8221914
Nitrate plus Nitrite (N)	mg/L	<0.0020 (1)	0.0020	8224133	0.231 (1)	0.0020	8224133	0.0673 (1)	0.0020	8224133
Nitrite (N)	mg/L	<0.0020 (1)	0.0020	8224136	<0.0020 (1)	0.0020	8224136	0.0093 (1)	0.0020	8224136
Total Nitrogen (N)	mg/L	0.099	0.020	8224630	0.313	0.020	8224630	0.384	0.020	8224630
Total Phosphorus (P)	mg/L	0.0299	0.0020	8226034	0.219	0.0020	8226034	3.71	0.020	8226034
<b>Physical Properties</b>										
Conductivity	uS/cm	1100	1.0	8224184	551	1.0	8224184	265	1.0	8224184
pH	pH	8.04		8224185	8.07		8224185	8.03		8224185
RDL = Reportable Detection Limit N/A = Not Applicable (1) Sample arrived to laboratory past recommended hold time. (2) Detection limits raised due to dilution to bring analyte within the calibrated range.										

Maxxam Job #: B621096  
Report Date: 2016/03/31

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		OH9404			OH9405			OH9406		
<b>Sampling Date</b>		2016/03/14 16:15			2016/03/15 14:10			2016/03/13 13:15		
<b>COC Number</b>		488720-01-01			488720-01-01			488720-01-01		
	<b>UNITS</b>	<b>BH95-131</b>	<b>RDL</b>	<b>QC Batch</b>	<b>MW15-01</b>	<b>RDL</b>	<b>QC Batch</b>	<b>MW15-03S</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Physical Properties</b>										
Total Suspended Solids	mg/L	36.3 (1)	2.0	8223850	179 (2)	5.0	8222836	2340 (3)	20	8223850
Total Dissolved Solids	mg/L	728 (4)	1.0	8222875	370	1.0	8222875	168 (5)	1.0	8222875

RDL = Reportable Detection Limit

- (1) RDL raised due to sample matrix interference. Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis.
- (2) RDL raised due to high concentration of solids in the sample.
- (3) RDL raised due to high concentration of solids in the sample. Sample arrived to laboratory past recommended hold time.
- (4) Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis.
- (5) Sample arrived to laboratory past recommended hold time.

Maxxam Job #: B621096  
Report Date: 2016/03/31

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		OH9407	OH9407			OH9409	OH9409		
Sampling Date		2016/03/13 13:50	2016/03/13 13:50			2016/03/13 16:30	2016/03/13 16:30		
COC Number		488720-01-01	488720-01-01			488720-02-01	488720-02-01		
	UNITS	MW15-03D	MW15-03D Lab-Dup	RDL	QC Batch	MW15-04S	MW15-04S Lab-Dup	RDL	QC Batch
<b>Calculated Parameters</b>									
Filter and HNO3 Preservation	N/A	FIELD		N/A	ONSITE	FIELD		N/A	ONSITE
Ion Balance	N/A	0.98		0.010	8222369	0.98		0.010	8222369
Nitrate (N)	mg/L	<0.0020		0.0020	8221913	0.202		0.0020	8221913
<b>Misc. Inorganics</b>									
Fluoride (F)	mg/L	0.150		0.010	8223352	0.078	0.076	0.010	8223352
Dissolved Organic Carbon (C)	mg/L	1.96		0.50	8223654	1.50	1.39	0.50	8223654
Acidity (pH 4.5)	mg/L	<0.50		0.50	8224219	<0.50		0.50	8224219
Alkalinity (Total as CaCO3)	mg/L	194		0.50	8224181	117		0.50	8224181
Acidity (pH 8.3)	mg/L	<0.50		0.50	8224219	<0.50		0.50	8224219
Alkalinity (PP as CaCO3)	mg/L	<0.50		0.50	8224181	<0.50		0.50	8224181
Bicarbonate (HCO3)	mg/L	237		0.50	8224181	143		0.50	8224181
Carbonate (CO3)	mg/L	<0.50		0.50	8224181	<0.50		0.50	8224181
Hydroxide (OH)	mg/L	<0.50		0.50	8224181	<0.50		0.50	8224181
<b>Anions</b>									
Orthophosphate (P)	mg/L	0.0049 (1)		0.0010	8223471	0.013 (1)		0.0010	8223471
Dissolved Sulphate (SO4)	mg/L	21.3		0.50	8224488	10.0	9.90	0.50	8224488
Dissolved Chloride (Cl)	mg/L	<0.50		0.50	8224484	<0.50	<0.50	0.50	8224484
<b>Nutrients</b>									
Total Ammonia (N)	mg/L	0.088	0.090	0.0050	8224478	0.090		0.0050	8224477
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.150		0.020	8221914	0.275		0.020	8221914
Nitrate plus Nitrite (N)	mg/L	<0.0020 (1)		0.0020	8224133	0.209 (1)	0.209	0.0020	8224133
Nitrite (N)	mg/L	<0.0020 (1)		0.0020	8224136	0.0072 (1)	0.0045	0.0020	8224136
Total Nitrogen (N)	mg/L	0.150		0.020	8224630	0.484		0.020	8224630
Total Phosphorus (P)	mg/L	0.0123		0.0020	8226034	2.66		0.020	8226034
<b>Physical Properties</b>									
Conductivity	uS/cm	394		1.0	8224184	239		1.0	8224184
pH	pH	8.02			8224185	7.99			8224185
<b>Physical Properties</b>									
Total Suspended Solids	mg/L	61.7 (1)		1.0	8223850	3500 (2)		20	8223850
Total Dissolved Solids	mg/L	230 (1)		1.0	8222875	160 (1)		1.0	8222875
RDL = Reportable Detection Limit									
Lab-Dup = Laboratory Initiated Duplicate									
(1) Sample arrived to laboratory past recommended hold time.									
(2) RDL raised due to high concentration of solids in the sample. Sample arrived to laboratory past recommended hold time.									

Maxxam Job #: B621096  
Report Date: 2016/03/31

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		OH9410			OH9411			OH9412		
Sampling Date		2016/03/13 15:50			2016/03/13 18:40			2016/03/15 19:00		
COC Number		488720-02-01			488720-02-01			488720-02-01		
	UNITS	MW15-04D	RDL	QC Batch	MW15-05D	RDL	QC Batch	MW15-07S	RDL	QC Batch

Calculated Parameters										
Filter and HNO3 Preservation	N/A	FIELD	N/A	ONSITE	FIELD	N/A	ONSITE	FIELD	N/A	ONSITE
Ion Balance	N/A	0.96	0.010	8222369	0.93	0.010	8222369	0.96	0.010	8222369
Nitrate (N)	mg/L	0.0061	0.0020	8221913	0.217	0.0020	8221913	<0.0020	0.0020	8221913
Misc. Inorganics										
Fluoride (F)	mg/L	0.200	0.010	8223359	0.110	0.010	8223352	0.280	0.010	8223352
Dissolved Organic Carbon (C)	mg/L	<0.50 (1)	0.50	8223987	3.13	0.50	8223654	2.45	0.50	8223654
Acidity (pH 4.5)	mg/L	<0.50	0.50	8224236	<0.50	0.50	8224219	<0.50	0.50	8224219
Alkalinity (Total as CaCO3)	mg/L	137	0.50	8224199	185	0.50	8224181	177	0.50	8224181
Acidity (pH 8.3)	mg/L	<0.50	0.50	8224236	<0.50	0.50	8224219	<0.50	0.50	8224219
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8224199	<0.50	0.50	8224181	<0.50	0.50	8224181
Bicarbonate (HCO3)	mg/L	167	0.50	8224199	225	0.50	8224181	216	0.50	8224181
Carbonate (CO3)	mg/L	<0.50	0.50	8224199	<0.50	0.50	8224181	<0.50	0.50	8224181
Hydroxide (OH)	mg/L	<0.50	0.50	8224199	<0.50	0.50	8224181	<0.50	0.50	8224181
Anions										
Orthophosphate (P)	mg/L	0.0047	0.0010	8223471	0.0037 (1)	0.0010	8223471	0.014 (1)	0.0010	8223471
Dissolved Sulphate (SO4)	mg/L	18.8	0.50	8224503	29.2	0.50	8224488	32.5	0.50	8224488
Dissolved Chloride (Cl)	mg/L	<0.50	0.50	8224493	<0.50	0.50	8224484	<0.50	0.50	8224484
Nutrients										
Total Ammonia (N)	mg/L	0.048	0.0050	8224477	0.026	0.0050	8224477	0.066	0.0050	8224477
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.046	0.020	8221914	0.088	0.020	8221914	0.126	0.020	8221914
Nitrate plus Nitrite (N)	mg/L	0.0061 (1)	0.0020	8224133	0.219 (1)	0.0020	8224133	<0.0020 (1)	0.0020	8224133
Nitrite (N)	mg/L	<0.0020 (1)	0.0020	8224136	0.0020 (1)	0.0020	8224136	<0.0020 (1)	0.0020	8224136
Total Nitrogen (N)	mg/L	0.053	0.020	8224630	0.307	0.020	8224630	0.126	0.020	8224630
Total Phosphorus (P)	mg/L	0.162	0.0020	8226034	0.139	0.0020	8226034	1.97	0.020	8226034
Physical Properties										
Conductivity	uS/cm	292	1.0	8224198	384	1.0	8224184	389	1.0	8224184
pH	pH	8.05		8224192	7.55		8224185	8.01		8224185
Physical Properties										
Total Suspended Solids	mg/L	253 (2)	3.0	8223850	497 (2)	10	8223850	2940 (3)	20	8222836
Total Dissolved Solids	mg/L	182 (1)	1.0	8222875	222 (1)	1.0	8222875	226	1.0	8222875
RDL = Reportable Detection Limit										
N/A = Not Applicable										
(1) Sample arrived to laboratory past recommended hold time.										
(2) RDL raised due to high concentration of solids in the sample. Sample arrived to laboratory past recommended hold time.										
(3) RDL raised due to high concentration of solids in the sample.										

Maxxam Job #: B621096  
Report Date: 2016/03/31

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		OH9413			OH9414			OH9414	
Sampling Date		2016/03/17 16:40			2016/03/13 13:50			2016/03/13 13:50	
COC Number		488720-02-01			488720-02-01			488720-02-01	
	UNITS	MW15-10D	RDL	QC Batch	DUP01	DUP01 Lab-Dup	RDL	QC Batch	
<b>Calculated Parameters</b>									
Filter and HNO3 Preservation	N/A	FIELD	N/A	ONSITE	FIELD		N/A	ONSITE	
Ion Balance	N/A	6.1	0.010	8222369	0.96		0.010	8222369	
Nitrate (N)	mg/L	0.0020	0.0020	8221913	<0.0020		0.0020	8221913	
<b>Misc. Inorganics</b>									
Fluoride (F)	mg/L	1.30	0.010	8223352	0.150		0.010	8223352	
Dissolved Organic Carbon (C)	mg/L	2.12	0.50	8223654	2.54		0.50	8223654	
Acidity (pH 4.5)	mg/L	<0.50	0.50	8224219	<0.50		0.50	8224219	
Alkalinity (Total as CaCO3)	mg/L	323	0.50	8224181	195		0.50	8224181	
Acidity (pH 8.3)	mg/L	352	0.50	8224219	<0.50		0.50	8224219	
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8224181	<0.50		0.50	8224181	
Bicarbonate (HCO3)	mg/L	394	0.50	8224181	238		0.50	8224181	
Carbonate (CO3)	mg/L	<0.50	0.50	8224181	<0.50		0.50	8224181	
Hydroxide (OH)	mg/L	<0.50	0.50	8224181	<0.50		0.50	8224181	
<b>Anions</b>									
Orthophosphate (P)	mg/L	0.0029 (1)	0.0010	8229427	0.0042 (1)		0.0010	8223471	
Dissolved Sulphate (SO4)	mg/L	5.19	0.50	8224488	21.3		0.50	8224488	
Dissolved Chloride (Cl)	mg/L	2.8	0.50	8224484	0.58		0.50	8224484	
<b>Nutrients</b>									
Total Ammonia (N)	mg/L	0.28	0.0050	8224477	0.11		0.0050	8229327	
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.274	0.020	8221914	0.138		0.020	8221914	
Nitrate plus Nitrite (N)	mg/L	0.0020 (1)	0.0020	8224133	<0.0020 (1)		0.0020	8224133	
Nitrite (N)	mg/L	<0.0020 (1)	0.0020	8224136	<0.0020 (1)		0.0020	8224136	
Total Nitrogen (N)	mg/L	0.276	0.020	8224630	0.138		0.020	8229370	
Total Phosphorus (P)	mg/L	0.252	0.0020	8226034	0.0164		0.0020	8226034	
<b>Physical Properties</b>									
Conductivity	uS/cm	2970	1.0	8224184	391		1.0	8224184	
pH	pH	5.00		8224185	8.19			8224185	
<b>Physical Properties</b>									
Total Suspended Solids	mg/L	428 (2)	7.0	8223850	15.2 (3)		2.0	8223850	
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable (1) Sample arrived to laboratory past recommended hold time. (2) RDL raised due to high concentration of solids in the sample. (3) RDL raised due to sample matrix interference. Sample arrived to laboratory past recommended hold time.									

Maxxam Job #: B621096  
Report Date: 2016/03/31

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		OH9413			OH9414	OH9414		
Sampling Date		2016/03/17 16:40			2016/03/13 13:50	2016/03/13 13:50		
COC Number		488720-02-01			488720-02-01	488720-02-01		
	UNITS	MW15-10D	RDL	QC Batch	DUP01	DUP01 Lab-Dup	RDL	QC Batch
Total Dissolved Solids	mg/L	1960	1.0	8222875	246 (1)	232	1.0	8222875
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate (1) Sample arrived to laboratory past recommended hold time.								



Maxxam Job #: B621096  
Report Date: 2016/03/31

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		OH9415	OH9415			OH9417	OH9417		
<b>Sampling Date</b>		2016/03/14 16:15	2016/03/14 16:15						
<b>COC Number</b>		488720-02-01	488720-02-01			488720-03-01	488720-03-01		
	<b>UNITS</b>	<b>DUP02</b>	<b>DUP02 Lab-Dup</b>	<b>RDL</b>	<b>QC Batch</b>	<b>TRIP BLANK</b>	<b>TRIP BLANK Lab-Dup</b>	<b>RDL</b>	<b>QC Batch</b>

**Calculated Parameters**

Filter and HNO3 Preservation	N/A	FIELD		N/A	ONSITE	FIELD		N/A	ONSITE
Ion Balance	N/A	0.98		0.010	8222369	0.10		0.010	8222369
Nitrate (N)	mg/L	<0.0020		0.0020	8221913	<0.0020		0.0020	8221913

**Misc. Inorganics**

Fluoride (F)	mg/L	0.075		0.010	8223359	<0.010		0.010	8223359
Dissolved Organic Carbon (C)	mg/L	2.44		0.50	8223654	<0.50		0.50	8223987
Acidity (pH 4.5)	mg/L	<0.50		0.50	8224219	<0.50		0.50	8224219
Alkalinity (Total as CaCO3)	mg/L	441		0.50	8224181	0.83		0.50	8224181
Acidity (pH 8.3)	mg/L	4.55		0.50	8224219	<0.50		0.50	8224219
Alkalinity (PP as CaCO3)	mg/L	<0.50		0.50	8224181	<0.50		0.50	8224181
Bicarbonate (HCO3)	mg/L	538		0.50	8224181	1.01		0.50	8224181
Carbonate (CO3)	mg/L	<0.50		0.50	8224181	<0.50		0.50	8224181
Hydroxide (OH)	mg/L	<0.50		0.50	8224181	<0.50		0.50	8224181

**Anions**

Orthophosphate (P)	mg/L	0.0034 (1)		0.0010	8223471	0.0015		0.0010	8223471
Dissolved Sulphate (SO4)	mg/L	217 (2)		5.0	8224488	<0.50		0.50	8226530
Dissolved Chloride (Cl)	mg/L	0.87		0.50	8224484	<0.50		0.50	8224493

**Nutrients**

Total Ammonia (N)	mg/L	0.059		0.0050	8224478			0.0050	
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.097		0.020	8221914	<0.020		0.020	8221914
Total Ammonia (N)	mg/L					<0.0050	<0.0050	0.0050	8224479
Nitrate plus Nitrite (N)	mg/L	<0.0020 (1)		0.0020	8224133	<0.0020		0.0020	8224133
Nitrite (N)	mg/L	<0.0020 (1)		0.0020	8224136	<0.0020		0.0020	8224136
Total Nitrogen (N)	mg/L	0.097	0.089	0.020	8224630	<0.020		0.020	8224629
Total Phosphorus (P)	mg/L	0.0323		0.0020	8226034	<0.0020		0.0020	8228373

**Physical Properties**

Conductivity	uS/cm	1110		1.0	8224184	1.4		1.0	8224184
pH	pH	8.03			8224185	5.77			8224185

**Physical Properties**

Total Suspended Solids	mg/L	36.0 (3)		2.0	8223850	<1.0		1.0	8223850
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RDL = Reportable Detection Limit  
Lab-Dup = Laboratory Initiated Duplicate  
(1) Sample arrived to laboratory past recommended hold time.  
(2) Detection limits raised due to dilution to bring analyte within the calibrated range.  
(3) RDL raised due to sample matrix interference. Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis.

Maxxam Job #: B621096  
Report Date: 2016/03/31

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		OH9415	OH9415			OH9417	OH9417		
Sampling Date		2016/03/14 16:15	2016/03/14 16:15						
COC Number		488720-02-01	488720-02-01			488720-03-01	488720-03-01		
	UNITS	DUP02	DUP02 Lab-Dup	RDL	QC Batch	TRIP BLANK	TRIP BLANK Lab-Dup	RDL	QC Batch
Total Dissolved Solids	mg/L	790 (1)		1.0	8222875	<1.0		1.0	8223390

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

(1) Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis.

Maxxam Job #: B621096  
Report Date: 2016/03/31

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**RESULTS OF CHEMICAL ANALYSES OF WATER**

Maxxam ID		OH9418	OH9418			OH9419		
Sampling Date		2016/03/17 14:20	2016/03/17 14:20			2016/03/19 10:40		
COC Number		488720-03-01	488720-03-01			488720-03-01		
	UNITS	BH95-129	BH95-129 Lab-Dup	RDL	QC Batch	MW15-115	RDL	QC Batch
<b>Calculated Parameters</b>								
Filter and HNO3 Preservation	N/A	FIELD		N/A	ONSITE	FIELD	N/A	ONSITE
Ion Balance	N/A	1.0		0.010	8222369	0.97	0.010	8222369
Nitrate (N)	mg/L	<0.0020		0.0020	8221913	0.0106	0.0020	8221913
<b>Misc. Inorganics</b>								
Fluoride (F)	mg/L	0.220		0.010	8223352	0.160	0.010	8223359
Dissolved Organic Carbon (C)	mg/L	3.67		0.50	8223654	4.44	0.50	8223654
Acidity (pH 4.5)	mg/L	<0.50		0.50	8224219	<0.50	0.50	8224219
Alkalinity (Total as CaCO3)	mg/L	150		0.50	8224181	268	0.50	8224181
Acidity (pH 8.3)	mg/L	<0.50		0.50	8224219	0.89	0.50	8224219
Alkalinity (PP as CaCO3)	mg/L	<0.50		0.50	8224181	<0.50	0.50	8224181
Bicarbonate (HCO3)	mg/L	183		0.50	8224181	327	0.50	8224181
Carbonate (CO3)	mg/L	<0.50		0.50	8224181	<0.50	0.50	8224181
Hydroxide (OH)	mg/L	<0.50		0.50	8224181	<0.50	0.50	8224181
<b>Anions</b>								
Orthophosphate (P)	mg/L	0.0037 (1)		0.0010	8223471	0.0048 (1)	0.0010	8223471
Dissolved Sulphate (SO4)	mg/L	42.2		0.50	8224488	138	0.50	8226530
Dissolved Chloride (Cl)	mg/L	<0.50		0.50	8224484	0.93	0.50	8224484
<b>Nutrients</b>								
Total Ammonia (N)	mg/L	0.041		0.0050	8224477	0.054	0.0050	8224477
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.072		0.020	8221914	0.268	0.020	8221914
Nitrate plus Nitrite (N)	mg/L	<0.0020 (1)		0.0020	8224133	0.0206	0.0020	8224133
Nitrite (N)	mg/L	<0.0020 (1)		0.0020	8224136	0.0100	0.0020	8224136
Total Nitrogen (N)	mg/L	0.072		0.020	8224630	0.289	0.020	8224630
Total Phosphorus (P)	mg/L	0.0156		0.0020	8226034	0.350	0.0020	8226034
<b>Physical Properties</b>								
Conductivity	uS/cm	363		1.0	8224184	701	1.0	8224184
pH	pH	7.96			8224185	8.03		8224185
<b>Physical Properties</b>								
Total Suspended Solids	mg/L	6.2		1.0	8223850	464 (2)	3.0	8223850
Total Dissolved Solids	mg/L	222	228	1.0	8223390	434	1.0	8223390
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable (1) Sample arrived to laboratory past recommended hold time. (2) RDL raised due to high concentration of solids in the sample.								

Maxxam Job #: B621096  
Report Date: 2016/03/31

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**RESULTS OF CHEMICAL ANALYSES OF WATER**

<b>Maxxam ID</b>		OH9500		
<b>Sampling Date</b>		2016/03/16		
<b>COC Number</b>		488720-03-01		
	<b>UNITS</b>	<b>BH95G-2</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>				
Filter and HNO3 Preservation	N/A	FIELD	N/A	ONSITE
Ion Balance	N/A	0.95	0.010	8223418
Nitrate (N)	mg/L	0.441	0.0020	8223420
<b>Misc. Inorganics</b>				
Fluoride (F)	mg/L	0.047	0.010	8224468
Dissolved Organic Carbon (C)	mg/L	1.77	0.50	8223654
Acidity (pH 4.5)	mg/L	<0.50	0.50	8224236
Alkalinity (Total as CaCO3)	mg/L	258	0.50	8224232
Acidity (pH 8.3)	mg/L	<0.50	0.50	8224236
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	8224232
Bicarbonate (HCO3)	mg/L	315	0.50	8224232
Carbonate (CO3)	mg/L	<0.50	0.50	8224232
Hydroxide (OH)	mg/L	<0.50	0.50	8224232
<b>Anions</b>				
Orthophosphate (P)	mg/L	0.034 (1)	0.0010	8225199
Dissolved Sulphate (SO4)	mg/L	52.1	0.50	8224503
Dissolved Chloride (Cl)	mg/L	0.63	0.50	8226524
<b>Nutrients</b>				
Total Ammonia (N)	mg/L	0.043	0.0050	8224478
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.198	0.020	8223422
Nitrate plus Nitrite (N)	mg/L	0.444 (1)	0.0020	8224619
Nitrite (N)	mg/L	0.0034 (1)	0.0020	8224620
Total Nitrogen (N)	mg/L	0.643	0.020	8224630
Total Phosphorus (P)	mg/L	1.22	0.020	8226034
<b>Physical Properties</b>				
Conductivity	uS/cm	554	1.0	8224231
pH	pH	8.18		8224222
<b>Physical Properties</b>				
Total Suspended Solids	mg/L	1230 (2)	20	8223850
Total Dissolved Solids	mg/L	358	1.0	8223390
RDL = Reportable Detection Limit N/A = Not Applicable (1) Sample arrived to laboratory past recommended hold time. (2) RDL raised due to high concentration of solids in the sample.				

Maxxam Job #: B621096  
Report Date: 2016/03/31

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		OH9401	OH9402	OH9403	OH9404	OH9405		
Sampling Date		2016/03/14 12:15	2016/03/15 09:40	2016/03/15 14:55	2016/03/14 16:15	2016/03/15 14:10		
COC Number		488720-01-01	488720-01-01	488720-01-01	488720-01-01	488720-01-01		
	<b>UNITS</b>	<b>BH95G-22</b>	<b>BH95G-32</b>	<b>BH95G-33D</b>	<b>BH95-131</b>	<b>MW15-01</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO3)	mg/L	176	189	235	627	296	0.50	8222227
<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000020	8226589
<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	0.00332	0.00436	0.00506	0.00352	0.00293	0.00050	8222919
Dissolved Antimony (Sb)	mg/L	0.000070	0.000045	0.000025	0.000635	0.000029	0.000020	8222919
Dissolved Arsenic (As)	mg/L	0.000055	0.000228	0.000138	0.00710	0.000098	0.000020	8222919
Dissolved Barium (Ba)	mg/L	0.101	0.186	0.0923	0.0201	0.0388	0.000020	8222919
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000010	8222919
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8222919
Dissolved Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	8222919
Dissolved Cadmium (Cd)	mg/L	0.000104	0.0000610	0.0000100	0.0000390	0.0000170	0.0000050	8222919
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	0.00018	0.00019	<0.00010	0.00010	8222919
Dissolved Cobalt (Co)	mg/L	0.0000170	0.000221	0.0000150	0.0000690	0.0000690	0.0000050	8222919
Dissolved Copper (Cu)	mg/L	0.000718	0.000593	0.000226	0.000423	0.000417	0.000050	8222919
Dissolved Iron (Fe)	mg/L	0.0102	0.103	0.0014	2.15	0.108	0.0010	8222919
Dissolved Lead (Pb)	mg/L	0.0000570	0.000137	0.0000160	0.00190	0.0000150	0.0000050	8222919
Dissolved Lithium (Li)	mg/L	0.00168	0.00159	0.00133	0.0162	0.00229	0.00050	8222919
Dissolved Manganese (Mn)	mg/L	0.00302	0.0655	0.00670	0.176	0.0112	0.000050	8222919
Dissolved Molybdenum (Mo)	mg/L	0.000194	0.000762	0.00126	0.000066	0.000605	0.000050	8222919
Dissolved Nickel (Ni)	mg/L	0.000211	0.000950	0.000906	0.000348	0.000414	0.000020	8222919
Dissolved Phosphorus (P)	mg/L	0.0038	0.0030	0.0023	0.0056	0.0055	0.0020	8222919
Dissolved Selenium (Se)	mg/L	0.000698	0.000615	0.00407	<0.000040	0.000788	0.000040	8222919
Dissolved Silicon (Si)	mg/L	2.82	2.49	3.16	13.0	2.37	0.050	8222919
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	<0.0000050	0.0000360	<0.0000050	0.0000050	8222919
Dissolved Strontium (Sr)	mg/L	0.176	0.288	0.243	0.783	0.303	0.000050	8222919
Dissolved Thallium (Tl)	mg/L	0.0000020	0.0000050	<0.0000020	0.0000030	<0.0000020	0.0000020	8222919
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	0.00043	<0.00020	<0.00020	0.00020	8222919
Dissolved Titanium (Ti)	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	8222919
Dissolved Uranium (U)	mg/L	0.00215	0.00108	0.00428	0.0160	0.00370	0.0000020	8222919
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8222919
Dissolved Zinc (Zn)	mg/L	0.00707	0.00333	0.00123	0.00811	0.00503	0.00010	8222919
Dissolved Zirconium (Zr)	mg/L	<0.00010	<0.00010	<0.00010	0.0148	<0.00010	0.00010	8222919

RDL = Reportable Detection Limit

Maxxam Job #: B621096  
Report Date: 2016/03/31

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		OH9401	OH9402	OH9403	OH9404	OH9405		
Sampling Date		2016/03/14 12:15	2016/03/15 09:40	2016/03/15 14:55	2016/03/14 16:15	2016/03/15 14:10		
COC Number		488720-01-01	488720-01-01	488720-01-01	488720-01-01	488720-01-01		
	UNITS	BH95G-22	BH95G-32	BH95G-33D	BH95-131	MW15-01	RDL	QC Batch
Dissolved Calcium (Ca)	mg/L	56.0	68.7	79.8	155	101	0.050	8221633
Dissolved Magnesium (Mg)	mg/L	8.81	4.10	8.69	58.6	10.6	0.050	8221633
Dissolved Potassium (K)	mg/L	1.43	4.33	1.02	4.07	0.841	0.050	8221633
Dissolved Sodium (Na)	mg/L	0.963	0.693	0.769	1.61	1.47	0.050	8221633
Dissolved Sulphur (S)	mg/L	15.7	10.8	22.0	74.8	48.3	3.0	8221633
RDL = Reportable Detection Limit								

Maxxam Job #: B621096  
Report Date: 2016/03/31

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		OH9406	OH9407	OH9409	OH9410	OH9411		
Sampling Date		2016/03/13 13:15	2016/03/13 13:50	2016/03/13 16:30	2016/03/13 15:50	2016/03/13 18:40		
COC Number		488720-01-01	488720-01-01	488720-02-01	488720-02-01	488720-02-01		
	<b>UNITS</b>	<b>MW15-03S</b>	<b>MW15-03D</b>	<b>MW15-04S</b>	<b>MW15-04D</b>	<b>MW15-05D</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Misc. Inorganics</b>								
Dissolved Hardness (CaCO3)	mg/L	145	201	119	143	193	0.50	8222227
<b>Elements</b>								
Dissolved Mercury (Hg)	mg/L	<0.0000020	<0.0000020	0.0000028	<0.0000020	<0.0000020	0.0000020	8226589
<b>Dissolved Metals by ICPMS</b>								
Dissolved Aluminum (Al)	mg/L	0.0114	0.00276	0.00365	0.00369	0.00211	0.00050	8222919
Dissolved Antimony (Sb)	mg/L	0.000050	0.000228	<0.000020	<0.000020	<0.000020	0.000020	8222919
Dissolved Arsenic (As)	mg/L	0.000255	0.00182	0.000206	0.00163	0.000065	0.000020	8222919
Dissolved Barium (Ba)	mg/L	0.0524	0.0471	0.0768	0.0535	0.0434	0.000020	8222919
Dissolved Beryllium (Be)	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000010	8222919
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8222919
Dissolved Boron (B)	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	8222919
Dissolved Cadmium (Cd)	mg/L	0.0000220	<0.0000050	0.0000110	<0.0000050	0.0000650	0.0000050	8222919
Dissolved Chromium (Cr)	mg/L	<0.00010	<0.00010	0.00020	<0.00010	<0.00010	0.00010	8222919
Dissolved Cobalt (Co)	mg/L	0.000370	0.0000900	0.0000320	0.000193	0.0000810	0.0000050	8222919
Dissolved Copper (Cu)	mg/L	0.00202	<0.000050	0.000500	<0.000050	0.000154	0.000050	8222919
Dissolved Iron (Fe)	mg/L	0.0472	0.911	0.0062	0.258	0.0067	0.0010	8222919
Dissolved Lead (Pb)	mg/L	0.0000550	<0.0000050	0.0000050	0.0000090	0.0000970	0.0000050	8222919
Dissolved Lithium (Li)	mg/L	0.00122	0.00654	0.00070	0.00111	0.00169	0.00050	8222919
Dissolved Manganese (Mn)	mg/L	0.107	0.0662	0.00902	0.212	0.0135	0.000050	8222919
Dissolved Molybdenum (Mo)	mg/L	0.00889	0.00396	0.00155	0.00245	0.000912	0.000050	8222919
Dissolved Nickel (Ni)	mg/L	0.00166	0.000248	0.000456	0.000180	0.000215	0.000020	8222919
Dissolved Phosphorus (P)	mg/L	0.0072	0.0076	0.0043	0.0101	0.0049	0.0020	8222919
Dissolved Selenium (Se)	mg/L	0.000297	<0.000040	0.000755	<0.000040	0.00149	0.000040	8222919
Dissolved Silicon (Si)	mg/L	2.51	4.91	3.27	2.90	2.62	0.050	8222919
Dissolved Silver (Ag)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8222919
Dissolved Strontium (Sr)	mg/L	0.163	0.269	0.165	0.208	0.298	0.000050	8222919
Dissolved Thallium (Tl)	mg/L	0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000020	8222919
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8222919
Dissolved Titanium (Ti)	mg/L	0.00057	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	8222919
Dissolved Uranium (U)	mg/L	0.000854	0.00184	0.000591	0.000749	0.00186	0.0000020	8222919
Dissolved Vanadium (V)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8222919
Dissolved Zinc (Zn)	mg/L	0.0106	0.00084	0.00163	0.00089	0.00404	0.00010	8222919
Dissolved Zirconium (Zr)	mg/L	<0.00010	0.00101	<0.00010	<0.00010	<0.00010	0.00010	8222919

RDL = Reportable Detection Limit

Maxxam Job #: B621096  
Report Date: 2016/03/31

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		OH9406	OH9407	OH9409	OH9410	OH9411		
Sampling Date		2016/03/13 13:15	2016/03/13 13:50	2016/03/13 16:30	2016/03/13 15:50	2016/03/13 18:40		
COC Number		488720-01-01	488720-01-01	488720-02-01	488720-02-01	488720-02-01		
	UNITS	MW15-03S	MW15-03D	MW15-04S	MW15-04D	MW15-05D	RDL	QC Batch
Dissolved Calcium (Ca)	mg/L	49.9	54.8	42.1	49.1	66.4	0.050	8221633
Dissolved Magnesium (Mg)	mg/L	4.85	15.6	3.50	5.01	6.63	0.050	8221633
Dissolved Potassium (K)	mg/L	1.41	2.64	1.39	2.40	1.65	0.050	8221633
Dissolved Sodium (Na)	mg/L	2.23	2.72	2.16	1.62	2.90	0.050	8221633
Dissolved Sulphur (S)	mg/L	4.9	7.9	4.0	6.8	9.9	3.0	8221633
RDL = Reportable Detection Limit								



Maxxam Job #: B621096  
Report Date: 2016/03/31

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		OH9412	OH9413	OH9414	OH9415		
Sampling Date		2016/03/15 19:00	2016/03/17 16:40	2016/03/13 13:50	2016/03/14 16:15		
COC Number		488720-02-01	488720-02-01	488720-02-01	488720-02-01		
	UNITS	MW15-07S	MW15-10D	DUP01	DUP02	RDL	QC Batch
<b>Misc. Inorganics</b>							
Dissolved Hardness (CaCO <sub>3</sub> )	mg/L	192	1910	198	644	0.50	8222227
<b>Elements</b>							
Dissolved Mercury (Hg)	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	0.000020	8226589
<b>Dissolved Metals by ICPMS</b>							
Dissolved Aluminum (Al)	mg/L	0.00194	0.243	0.00250	0.00161	0.00050	8222919
Dissolved Antimony (Sb)	mg/L	<0.000020	0.000042	0.000221	0.000605	0.000020	8222919
Dissolved Arsenic (As)	mg/L	0.00250	0.000782	0.00183	0.00661	0.000020	8222919
Dissolved Barium (Ba)	mg/L	0.0330	0.415	0.0480	0.0200	0.000020	8222919
Dissolved Beryllium (Be)	mg/L	<0.000010	0.00103	<0.000010	<0.000010	0.000010	8222919
Dissolved Bismuth (Bi)	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000050	8222919
Dissolved Boron (B)	mg/L	<0.010	0.015	<0.010	<0.010	0.010	8222919
Dissolved Cadmium (Cd)	mg/L	<0.0000050	0.000135	<0.0000050	0.0000380	0.0000050	8222919
Dissolved Chromium (Cr)	mg/L	<0.00010	0.00113	<0.00010	0.00019	0.00010	8222919
Dissolved Cobalt (Co)	mg/L	0.000177	0.000503	0.0000890	0.0000610	0.0000050	8222919
Dissolved Copper (Cu)	mg/L	0.000093	0.000151	0.000052	0.000200	0.000050	8222919
Dissolved Iron (Fe)	mg/L	0.592	26.5	0.934	2.21	0.0010	8222919
Dissolved Lead (Pb)	mg/L	0.0000100	0.000346	<0.0000050	0.00184	0.0000050	8222919
Dissolved Lithium (Li)	mg/L	0.00720	0.235	0.00610	0.0164	0.00050	8222919
Dissolved Manganese (Mn)	mg/L	0.161	4.69	0.0667	0.171	0.000050	8222919
Dissolved Molybdenum (Mo)	mg/L	0.000339	0.000488	0.00392	0.000061	0.000050	8222919
Dissolved Nickel (Ni)	mg/L	0.000631	0.000994	0.000255	0.000204	0.000020	8222919
Dissolved Phosphorus (P)	mg/L	0.0031	0.0120	0.0057	0.0107	0.0020	8222919
Dissolved Selenium (Se)	mg/L	<0.000040	<0.000040	<0.000040	<0.000040	0.000040	8222919
Dissolved Silicon (Si)	mg/L	6.89	36.5	4.83	13.2	0.050	8222919
Dissolved Silver (Ag)	mg/L	<0.0000050	0.0000100	<0.0000050	0.0000350	0.0000050	8222919
Dissolved Strontium (Sr)	mg/L	0.277	2.74	0.266	0.794	0.000050	8222919
Dissolved Thallium (Tl)	mg/L	<0.0000020	0.0000030	<0.0000020	0.0000020	0.0000020	8222919
Dissolved Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	8222919
Dissolved Titanium (Ti)	mg/L	<0.00050	0.00111	<0.00050	<0.00050	0.00050	8222919
Dissolved Uranium (U)	mg/L	0.00149	0.000984	0.00183	0.0151	0.0000020	8222919
Dissolved Vanadium (V)	mg/L	<0.00020	0.00155	<0.00020	<0.00020	0.00020	8222919
Dissolved Zinc (Zn)	mg/L	0.00128	0.00957	0.00057	0.00703	0.00010	8222919
Dissolved Zirconium (Zr)	mg/L	<0.00010	0.00155	0.00095	0.0151	0.00010	8222919
RDL = Reportable Detection Limit							

Maxxam Job #: B621096  
Report Date: 2016/03/31

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		OH9412	OH9413	OH9414	OH9415		
Sampling Date		2016/03/15 19:00	2016/03/17 16:40	2016/03/13 13:50	2016/03/14 16:15		
COC Number		488720-02-01	488720-02-01	488720-02-01	488720-02-01		
	UNITS	MW15-07S	MW15-10D	DUP01	DUP02	RDL	QC Batch
Dissolved Calcium (Ca)	mg/L	60.7	641	53.4	163	0.050	8221633
Dissolved Magnesium (Mg)	mg/L	9.87	75.8	15.8	57.9	0.050	8221633
Dissolved Potassium (K)	mg/L	1.46	8.71	2.70	3.86	0.050	8221633
Dissolved Sodium (Na)	mg/L	3.41	25.1	2.74	1.61	0.050	8221633
Dissolved Sulphur (S)	mg/L	11.1	4.6	7.7	80.3	3.0	8221633
RDL = Reportable Detection Limit							

Maxxam Job #: B621096  
Report Date: 2016/03/31

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		OH9417	OH9417	OH9418	OH9419		
Sampling Date				2016/03/17 14:20	2016/03/19 10:40		
COC Number		488720-03-01	488720-03-01	488720-03-01	488720-03-01		
	UNITS	TRIP BLANK	TRIP BLANK Lab-Dup	BH95-129	MW15-11S	RDL	QC Batch
<b>Misc. Inorganics</b>							
Dissolved Hardness (CaCO3)	mg/L	<0.50		187	368	0.50	8222227
<b>Elements</b>							
Dissolved Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000020	8226589
<b>Dissolved Metals by ICPMS</b>							
Dissolved Aluminum (Al)	mg/L	<0.00050		0.00250	0.00302	0.00050	8224347
Dissolved Antimony (Sb)	mg/L	<0.000020		0.000233	0.000412	0.000020	8224347
Dissolved Arsenic (As)	mg/L	<0.000020		0.00678	0.00284	0.000020	8224347
Dissolved Barium (Ba)	mg/L	<0.000020		0.0447	0.143	0.000020	8224347
Dissolved Beryllium (Be)	mg/L	<0.000010		<0.000010	<0.000010	0.000010	8224347
Dissolved Bismuth (Bi)	mg/L	<0.0000050		<0.0000050	<0.0000050	0.0000050	8224347
Dissolved Boron (B)	mg/L	<0.010		<0.010	<0.010	0.010	8224347
Dissolved Cadmium (Cd)	mg/L	<0.0000050		0.0000510	0.0000450	0.0000050	8224347
Dissolved Chromium (Cr)	mg/L	<0.00010		<0.00010	<0.00010	0.00010	8224347
Dissolved Cobalt (Co)	mg/L	<0.0000050		0.000105	0.00123	0.0000050	8224347
Dissolved Copper (Cu)	mg/L	<0.000050		0.000202	0.000684	0.000050	8224347
Dissolved Iron (Fe)	mg/L	<0.0010		0.475	3.24	0.0010	8224347
Dissolved Lead (Pb)	mg/L	<0.0000050		0.0000440	0.0000210	0.0000050	8224347
Dissolved Lithium (Li)	mg/L	<0.00050		0.00689	0.00965	0.00050	8224347
Dissolved Manganese (Mn)	mg/L	<0.000050		0.117	3.85	0.000050	8224347
Dissolved Molybdenum (Mo)	mg/L	<0.000050		0.00112	0.00661	0.000050	8224347
Dissolved Nickel (Ni)	mg/L	<0.000020		0.000285	0.00422	0.000020	8224347
Dissolved Phosphorus (P)	mg/L	<0.0020		0.0083	0.0142	0.0020	8224347
Dissolved Selenium (Se)	mg/L	<0.000040		<0.000040	0.000045	0.000040	8224347
Dissolved Silicon (Si)	mg/L	<0.050		4.59	4.34	0.050	8224347
Dissolved Silver (Ag)	mg/L	<0.0000050		<0.0000050	<0.0000050	0.0000050	8224347
Dissolved Strontium (Sr)	mg/L	<0.000050		0.195	0.534	0.000050	8224347
Dissolved Thallium (Tl)	mg/L	<0.0000020		<0.0000020	<0.0000020	0.0000020	8224347
Dissolved Tin (Sn)	mg/L	<0.00020		<0.00020	<0.00020	0.00020	8224347
Dissolved Titanium (Ti)	mg/L	<0.00050		<0.00050	<0.00050	0.00050	8224347
Dissolved Uranium (U)	mg/L	<0.0000020		0.00993	0.00832	0.0000020	8224347
Dissolved Vanadium (V)	mg/L	<0.00020		<0.00020	<0.00020	0.00020	8224347
Dissolved Zinc (Zn)	mg/L	<0.00010		0.00528	0.0135	0.00010	8224347
RDL = Reportable Detection Limit							
Lab-Dup = Laboratory Initiated Duplicate							

Maxxam Job #: B621096  
Report Date: 2016/03/31

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

Maxxam ID		OH9417	OH9417	OH9418	OH9419		
Sampling Date				2016/03/17 14:20	2016/03/19 10:40		
COC Number		488720-03-01	488720-03-01	488720-03-01	488720-03-01		
	UNITS	TRIP BLANK	TRIP BLANK Lab-Dup	BH95-129	MW15-11S	RDL	QC Batch
Dissolved Zirconium (Zr)	mg/L	<0.00010		0.00024	0.00040	0.00010	8224347
Dissolved Calcium (Ca)	mg/L	<0.050		56.4	100	0.050	8221633
Dissolved Magnesium (Mg)	mg/L	<0.050		11.1	28.5	0.050	8221633
Dissolved Potassium (K)	mg/L	<0.050		2.18	4.86	0.050	8221633
Dissolved Sodium (Na)	mg/L	<0.050		1.57	5.89	0.050	8221633
Dissolved Sulphur (S)	mg/L	<3.0		16.5	43.4	3.0	8221633
RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate							

Maxxam Job #: B621096  
Report Date: 2016/03/31

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		OH9500		
<b>Sampling Date</b>		2016/03/16		
<b>COC Number</b>		488720-03-01		
	<b>UNITS</b>	<b>BH95G-2</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Misc. Inorganics</b>				
Dissolved Hardness (CaCO3)	mg/L	297	0.50	8222638
<b>Elements</b>				
Dissolved Mercury (Hg)	mg/L	<0.0000020	0.0000020	8226589
<b>Dissolved Metals by ICPMS</b>				
Dissolved Aluminum (Al)	mg/L	0.00149	0.00050	8224347
Dissolved Antimony (Sb)	mg/L	<0.000020	0.000020	8224347
Dissolved Arsenic (As)	mg/L	0.000066	0.000020	8224347
Dissolved Barium (Ba)	mg/L	0.0283	0.000020	8224347
Dissolved Beryllium (Be)	mg/L	<0.000010	0.000010	8224347
Dissolved Bismuth (Bi)	mg/L	<0.0000050	0.0000050	8224347
Dissolved Boron (B)	mg/L	<0.010	0.010	8224347
Dissolved Cadmium (Cd)	mg/L	0.00156	0.0000050	8224347
Dissolved Chromium (Cr)	mg/L	<0.00010	0.00010	8224347
Dissolved Cobalt (Co)	mg/L	0.0000080	0.0000050	8224347
Dissolved Copper (Cu)	mg/L	0.000567	0.000050	8224347
Dissolved Iron (Fe)	mg/L	0.0244	0.0010	8224347
Dissolved Lead (Pb)	mg/L	0.0000340	0.0000050	8224347
Dissolved Lithium (Li)	mg/L	0.00155	0.00050	8224347
Dissolved Manganese (Mn)	mg/L	0.000475	0.000050	8224347
Dissolved Molybdenum (Mo)	mg/L	0.00189	0.000050	8224347
Dissolved Nickel (Ni)	mg/L	0.000491	0.000020	8224347
Dissolved Phosphorus (P)	mg/L	0.0070	0.0020	8224347
Dissolved Selenium (Se)	mg/L	0.00485	0.000040	8224347
Dissolved Silicon (Si)	mg/L	2.21	0.050	8224347
Dissolved Silver (Ag)	mg/L	<0.0000050	0.0000050	8224347
Dissolved Strontium (Sr)	mg/L	0.239	0.000050	8224347
Dissolved Thallium (Tl)	mg/L	<0.0000020	0.0000020	8224347
Dissolved Tin (Sn)	mg/L	<0.00020	0.00020	8224347
Dissolved Titanium (Ti)	mg/L	<0.00050	0.00050	8224347
Dissolved Uranium (U)	mg/L	0.00293	0.0000020	8224347
Dissolved Vanadium (V)	mg/L	<0.00020	0.00020	8224347
Dissolved Zinc (Zn)	mg/L	0.0249	0.00010	8224347
Dissolved Zirconium (Zr)	mg/L	<0.00010	0.00010	8224347
RDL = Reportable Detection Limit				

Maxxam Job #: B621096  
Report Date: 2016/03/31

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LOW LEVEL DISSOLVED METALS WITH CV HG (WATER)**

<b>Maxxam ID</b>		OH9500		
<b>Sampling Date</b>		2016/03/16		
<b>COC Number</b>		488720-03-01		
	<b>UNITS</b>	<b>BH95G-2</b>	<b>RDL</b>	<b>QC Batch</b>
Dissolved Calcium (Ca)	mg/L	70.5	0.050	8222632
Dissolved Magnesium (Mg)	mg/L	29.3	0.050	8222632
Dissolved Potassium (K)	mg/L	0.445	0.050	8222632
Dissolved Sodium (Na)	mg/L	0.738	0.050	8222632
Dissolved Sulphur (S)	mg/L	17.6	3.0	8222632
RDL = Reportable Detection Limit				

Maxxam Job #: B621096  
Report Date: 2016/03/31

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		OH9417	OH9417		
Sampling Date					
COC Number		488720-03-01	488720-03-01		
	UNITS	TRIP BLANK	TRIP BLANK Lab-Dup	RDL	QC Batch
<b>Calculated Parameters</b>					
Total Hardness (CaCO3)	mg/L	<0.50		0.50	8221587
<b>Elements</b>					
Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	0.0000020	8226945
<b>Total Metals by ICPMS</b>					
Total Aluminum (Al)	mg/L	<0.00050		0.00050	8224358
Total Antimony (Sb)	mg/L	<0.000020		0.000020	8224358
Total Arsenic (As)	mg/L	<0.000020		0.000020	8224358
Total Barium (Ba)	mg/L	<0.000020		0.000020	8224358
Total Beryllium (Be)	mg/L	<0.000010		0.000010	8224358
Total Bismuth (Bi)	mg/L	<0.0000050		0.0000050	8224358
Total Boron (B)	mg/L	<0.010		0.010	8224358
Total Cadmium (Cd)	mg/L	<0.0000050		0.0000050	8224358
Total Chromium (Cr)	mg/L	<0.00010		0.00010	8224358
Total Cobalt (Co)	mg/L	<0.0000050		0.0000050	8224358
Total Copper (Cu)	mg/L	<0.000050		0.000050	8224358
Total Iron (Fe)	mg/L	<0.0010		0.0010	8224358
Total Lead (Pb)	mg/L	<0.0000050		0.0000050	8224358
Total Lithium (Li)	mg/L	<0.00050		0.00050	8224358
Total Manganese (Mn)	mg/L	0.000054		0.000050	8224358
Total Molybdenum (Mo)	mg/L	<0.000050		0.000050	8224358
Total Nickel (Ni)	mg/L	<0.000020		0.000020	8224358
Total Phosphorus (P)	mg/L	<0.0020		0.0020	8224358
Total Selenium (Se)	mg/L	<0.000040		0.000040	8224358
Total Silicon (Si)	mg/L	<0.050		0.050	8224358
Total Silver (Ag)	mg/L	<0.0000050		0.0000050	8224358
Total Strontium (Sr)	mg/L	<0.000050		0.000050	8224358
Total Thallium (Tl)	mg/L	<0.0000020		0.0000020	8224358
Total Tin (Sn)	mg/L	<0.00020		0.00020	8224358
Total Titanium (Ti)	mg/L	<0.00050		0.00050	8224358
Total Uranium (U)	mg/L	<0.0000020		0.0000020	8224358
Total Vanadium (V)	mg/L	<0.00020		0.00020	8224358
Total Zinc (Zn)	mg/L	<0.00010		0.00010	8224358
Total Zirconium (Zr)	mg/L	<0.00010		0.00010	8224358
RDL = Reportable Detection Limit					
Lab-Dup = Laboratory Initiated Duplicate					

Maxxam Job #: B621096  
Report Date: 2016/03/31

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LOW LEVEL TOTAL METALS WITH CV HG (WATER)**

Maxxam ID		OH9417	OH9417		
Sampling Date					
COC Number		488720-03-01	488720-03-01		
	UNITS	TRIP BLANK	TRIP BLANK Lab-Dup	RDL	QC Batch
Total Calcium (Ca)	mg/L	<0.050		0.050	8221634
Total Magnesium (Mg)	mg/L	<0.050		0.050	8221634
Total Potassium (K)	mg/L	<0.050		0.050	8221634
Total Sodium (Na)	mg/L	<0.050		0.050	8221634
Total Sulphur (S)	mg/L	<3.0		3.0	8221634
RDL = Reportable Detection Limit					
Lab-Dup = Laboratory Initiated Duplicate					



Maxxam Job #: B621096  
Report Date: 2016/03/31

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		OH9401	OH9402	OH9403	OH9404	OH9405		
Sampling Date		2016/03/14 12:15	2016/03/15 09:40	2016/03/15 14:55	2016/03/14 16:15	2016/03/15 14:10		
COC Number		488720-01-01	488720-01-01	488720-01-01	488720-01-01	488720-01-01		
	<b>UNITS</b>	<b>BH95G-22</b>	<b>BH95G-32</b>	<b>BH95G-33D</b>	<b>BH95-131</b>	<b>MW15-01</b>	<b>RDL</b>	<b>QC Batch</b>
<b>Calculated Parameters</b>								
Total Hardness (CaCO3)	mg/L	183	265	275	654	323	0.50	8221587
<b>Elements</b>								
Total Mercury (Hg)	mg/L	0.0000057	<0.0000020	0.0000026	<0.0000020	<0.0000020	0.0000020	8226945
<b>Total Metals by ICPMS</b>								
Total Aluminum (Al)	mg/L	4.63	15.5	9.44	0.309	2.27	0.0030	8223164
Total Antimony (Sb)	mg/L	0.00104	0.000562	0.000215	0.0106	0.000280	0.000050	8223164
Total Arsenic (As)	mg/L	0.0299	0.0133	0.0257	0.0319	0.00363	0.000020	8223164
Total Barium (Ba)	mg/L	0.246	0.869	0.256	0.0293	0.106	0.00010	8223164
Total Beryllium (Be)	mg/L	0.000242	0.00108	0.000467	0.000044	0.000140	0.000010	8223164
Total Bismuth (Bi)	mg/L	0.000545	0.000666	0.000170	0.000055	0.000051	0.000020	8223164
Total Boron (B)	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	8223164
Total Cadmium (Cd)	mg/L	0.00236	0.00166	0.000208	0.000320	0.000265	0.000050	8223164
Total Chromium (Cr)	mg/L	0.00916	0.0434	0.0158	0.00076	0.00990	0.00050	8223164
Total Cobalt (Co)	mg/L	0.0110	0.0206	0.0280	0.000236	0.00454	0.000010	8223164
Total Copper (Cu)	mg/L	0.107	0.0759	0.0665	0.00256	0.0175	0.00020	8223164
Total Iron (Fe)	mg/L	25.5	40.5	30.4	5.27	13.0	0.0050	8223164
Total Lead (Pb)	mg/L	0.0676	0.0776	0.0148	0.136	0.00621	0.000050	8223164
Total Lithium (Li)	mg/L	0.00566	0.00890	0.00755	0.0157	0.00366	0.00050	8223164
Total Manganese (Mn)	mg/L	0.824	1.10	1.55	0.181	0.161	0.00010	8223164
Total Molybdenum (Mo)	mg/L	0.00113	0.00146	0.00295	0.000109	0.00245	0.000050	8223164
Total Nickel (Ni)	mg/L	0.0186	0.0311	0.0899	0.00065	0.0122	0.00010	8223164
Total Phosphorus (P)	mg/L	0.252	0.781	1.97	0.029	0.234	0.010	8223164
Total Selenium (Se)	mg/L	0.000810	0.00298	0.00391	0.000078	0.00139	0.000040	8223164
Total Silicon (Si)	mg/L	10.2	24.5	15.4	13.7	5.59	0.10	8223164
Total Silver (Ag)	mg/L	0.00165	0.000445	0.000376	0.000258	0.00114	0.000050	8223164
Total Strontium (Sr)	mg/L	0.175	0.367	0.278	0.735	0.336	0.000050	8223164
Total Thallium (Tl)	mg/L	0.0000870	0.000173	0.000104	0.0000260	0.0000370	0.0000020	8223164
Total Tin (Sn)	mg/L	0.00128	0.00078	0.00055	0.00043	0.00028	0.00020	8223164
Total Titanium (Ti)	mg/L	0.182	1.79	0.228	0.0160	0.139	0.0050	8223164
Total Uranium (U)	mg/L	0.00356	0.00344	0.00620	0.0173	0.00485	0.000050	8223164
Total Vanadium (V)	mg/L	0.0142	0.110	0.0365	0.00094	0.0130	0.00050	8223164
Total Zinc (Zn)	mg/L	0.327	0.175	0.137	0.0526	0.0835	0.0010	8223164
Total Zirconium (Zr)	mg/L	0.00189	0.00476	0.00574	0.0410	0.00546	0.00010	8223164
Total Calcium (Ca)	mg/L	55.7	86.7	88.2	166	108	0.25	8221634
RDL = Reportable Detection Limit								

Maxxam Job #: B621096  
Report Date: 2016/03/31

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		OH9401	OH9402	OH9403	OH9404	OH9405		
Sampling Date		2016/03/14 12:15	2016/03/15 09:40	2016/03/15 14:55	2016/03/14 16:15	2016/03/15 14:10		
COC Number		488720-01-01	488720-01-01	488720-01-01	488720-01-01	488720-01-01		
	UNITS	BH95G-22	BH95G-32	BH95G-33D	BH95-131	MW15-01	RDL	QC Batch
Total Magnesium (Mg)	mg/L	10.6	11.7	13.4	58.2	12.8	0.25	8221634
Total Potassium (K)	mg/L	2.48	7.44	2.11	4.00	1.44	0.25	8221634
Total Sodium (Na)	mg/L	0.99	1.19	0.96	1.63	1.73	0.25	8221634
Total Sulphur (S)	mg/L	<15	<15	21	79	54	15	8221634
RDL = Reportable Detection Limit								

Maxxam Job #: B621096  
Report Date: 2016/03/31

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		OH9406	OH9407	OH9409	OH9410	OH9411		
Sampling Date		2016/03/13 13:15	2016/03/13 13:50	2016/03/13 16:30	2016/03/13 15:50	2016/03/13 18:40		
COC Number		488720-01-01	488720-01-01	488720-02-01	488720-02-01	488720-02-01		
	UNITS	MW15-03S	MW15-03D	MW15-04S	MW15-04D	MW15-05D	RDL	QC Batch
<b>Calculated Parameters</b>								
Total Hardness (CaCO3)	mg/L	378	199	308	147	222	0.50	8221587
<b>Elements</b>								
Total Mercury (Hg)	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000020	8226945
<b>Total Metals by ICPMS</b>								
Total Aluminum (Al)	mg/L	42.4	0.0285	43.5	0.938	3.27	0.0030	8223164
Total Antimony (Sb)	mg/L	0.000752	0.000265	0.000310	<0.000050	0.000054	0.000050	8223164
Total Arsenic (As)	mg/L	0.0553	0.00181	0.0315	0.00589	0.00143	0.000020	8223164
Total Barium (Ba)	mg/L	0.597	0.0479	0.800	0.0877	0.112	0.00010	8223164
Total Beryllium (Be)	mg/L	0.00168	0.000011	0.00173	0.000094	0.000858	0.000010	8223164
Total Bismuth (Bi)	mg/L	0.000936	<0.000020	0.00110	0.000030	0.000213	0.000020	8223164
Total Boron (B)	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	8223164
Total Cadmium (Cd)	mg/L	0.00250	0.000090	0.00194	0.0000740	0.000594	0.0000050	8223164
Total Chromium (Cr)	mg/L	0.254	0.00156	0.128	0.00449	0.00259	0.00050	8223164
Total Cobalt (Co)	mg/L	0.0655	0.000165	0.0603	0.00316	0.00335	0.000010	8223164
Total Copper (Cu)	mg/L	0.353	0.00070	0.343	0.00602	0.0139	0.00020	8223164
Total Iron (Fe)	mg/L	134	1.14	94.9	2.79	3.55	0.0050	8223164
Total Lead (Pb)	mg/L	0.125	0.000229	0.0923	0.00202	0.0428	0.000050	8223164
Total Lithium (Li)	mg/L	0.0426	0.00591	0.0300	0.00143	0.00313	0.00050	8223164
Total Manganese (Mn)	mg/L	2.27	0.0678	2.16	0.245	0.264	0.00010	8223164
Total Molybdenum (Mo)	mg/L	0.0210	0.00412	0.00397	0.00242	0.000320	0.000050	8223164
Total Nickel (Ni)	mg/L	0.184	0.00053	0.134	0.00609	0.00322	0.00010	8223164
Total Phosphorus (P)	mg/L	4.08	0.016	2.00	0.093	0.100	0.010	8223164
Total Selenium (Se)	mg/L	0.000697	<0.000040	0.000972	0.000117	0.00141	0.000040	8223164
Total Silicon (Si)	mg/L	58.4	4.51	59.3	4.06	7.12	0.10	8223164
Total Silver (Ag)	mg/L	0.0235	0.0000380	0.00643	0.000161	0.000796	0.0000050	8223164
Total Strontium (Sr)	mg/L	0.311	0.235	0.336	0.205	0.319	0.000050	8223164
Total Thallium (Tl)	mg/L	0.000584	0.0000080	0.000730	0.0000180	0.0000450	0.0000020	8223164
Total Tin (Sn)	mg/L	0.00265	<0.00020	0.00176	0.00021	<0.00020	0.00020	8223164
Total Titanium (Ti)	mg/L	1.58	<0.0050	1.18	0.0194	<0.0050	0.0050	8223164
Total Uranium (U)	mg/L	0.00557	0.00193	0.00418	0.00109	0.00344	0.0000050	8223164
Total Vanadium (V)	mg/L	0.152	<0.00050	0.147	0.00143	0.00329	0.00050	8223164
Total Zinc (Zn)	mg/L	0.464	0.0013	0.414	0.0084	0.0464	0.0010	8223164
Total Zirconium (Zr)	mg/L	0.00901	0.00094	0.00411	0.00114	0.00018	0.00010	8223164
Total Calcium (Ca)	mg/L	91.2	54.4	75.6	50.1	75.6	0.25	8221634
RDL = Reportable Detection Limit								

Maxxam Job #: B621096  
Report Date: 2016/03/31

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		OH9406	OH9407	OH9409	OH9410	OH9411		
Sampling Date		2016/03/13 13:15	2016/03/13 13:50	2016/03/13 16:30	2016/03/13 15:50	2016/03/13 18:40		
COC Number		488720-01-01	488720-01-01	488720-02-01	488720-02-01	488720-02-01		
	UNITS	MW15-03S	MW15-03D	MW15-04S	MW15-04D	MW15-05D	RDL	QC Batch
Total Magnesium (Mg)	mg/L	36.5	15.4	28.9	5.24	8.14	0.25	8221634
Total Potassium (K)	mg/L	9.16	2.44	10.5	2.41	2.10	0.25	8221634
Total Sodium (Na)	mg/L	3.42	2.43	2.73	1.62	3.11	0.25	8221634
Total Sulphur (S)	mg/L	<15	<15	<15	<15	<15	15	8221634
RDL = Reportable Detection Limit								

Maxxam Job #: B621096  
Report Date: 2016/03/31

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		OH9412	OH9413	OH9414	OH9415	OH9418		
Sampling Date		2016/03/15 19:00	2016/03/17 16:40	2016/03/13 13:50	2016/03/14 16:15	2016/03/17 14:20		
COC Number		488720-02-01	488720-02-01	488720-02-01	488720-02-01	488720-03-01		
	UNITS	MW15-07S	MW15-10D	DUP01	DUP02	BH95-129	RDL	QC Batch
<b>Calculated Parameters</b>								
Total Hardness (CaCO3)	mg/L	419	1760	199	643	182	0.50	8221587
<b>Elements</b>								
Total Mercury (Hg)	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000020	8226945
<b>Total Metals by ICPMS</b>								
Total Aluminum (Al)	mg/L	10.8	3.01	0.0285	0.252	0.0186	0.0030	8223164
Total Antimony (Sb)	mg/L	<0.000050	0.000058	0.000267	0.0101	0.000404	0.000050	8223164
Total Arsenic (As)	mg/L	0.0121	0.00248	0.00183	0.0307	0.00736	0.000020	8223164
Total Barium (Ba)	mg/L	0.264	0.423	0.0490	0.0282	0.0463	0.00010	8223164
Total Beryllium (Be)	mg/L	0.000733	0.00111	<0.000010	0.000040	<0.000010	0.000010	8223164
Total Bismuth (Bi)	mg/L	0.000035	0.000220	<0.000020	0.000050	0.000028	0.000020	8223164
Total Boron (B)	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	8223164
Total Cadmium (Cd)	mg/L	0.000486	0.00430	0.000060	0.000298	0.000245	0.000050	8223164
Total Chromium (Cr)	mg/L	0.0528	0.0134	<0.00050	0.00064	<0.00050	0.00050	8223164
Total Cobalt (Co)	mg/L	0.0274	0.00412	0.000145	0.000210	0.000173	0.000010	8223164
Total Copper (Cu)	mg/L	0.139	0.0171	0.00112	0.00222	0.00149	0.00020	8223164
Total Iron (Fe)	mg/L	30.9	28.2	1.04	4.87	0.661	0.0050	8223164
Total Lead (Pb)	mg/L	0.0191	0.0296	0.000303	0.128	0.00660	0.000050	8223164
Total Lithium (Li)	mg/L	0.0166	0.216	0.00642	0.0157	0.00709	0.00050	8223164
Total Manganese (Mn)	mg/L	1.33	4.32	0.0677	0.179	0.107	0.00010	8223164
Total Molybdenum (Mo)	mg/L	0.000396	0.00257	0.00384	0.000094	0.00108	0.000050	8223164
Total Nickel (Ni)	mg/L	0.0630	0.00569	0.00045	0.00058	0.00041	0.00010	8223164
Total Phosphorus (P)	mg/L	2.20	0.241	0.011	0.028	<0.010	0.010	8223164
Total Selenium (Se)	mg/L	0.000432	0.000218	<0.000040	0.000051	<0.000040	0.000040	8223164
Total Silicon (Si)	mg/L	20.5	36.8	4.75	13.7	4.80	0.10	8223164
Total Silver (Ag)	mg/L	0.000771	0.000657	0.0000310	0.000167	0.0000200	0.000050	8223164
Total Strontium (Sr)	mg/L	0.433	2.50	0.254	0.744	0.177	0.000050	8223164
Total Thallium (Tl)	mg/L	0.0000980	0.0000360	0.0000060	0.0000150	0.0000030	0.000020	8223164
Total Tin (Sn)	mg/L	<0.00020	<0.00020	<0.00020	0.00037	<0.00020	0.00020	8223164
Total Titanium (Ti)	mg/L	0.0600	0.119	<0.0050	0.0132	<0.0050	0.0050	8223164
Total Uranium (U)	mg/L	0.00595	0.00180	0.00187	0.0155	0.00994	0.000050	8223164
Total Vanadium (V)	mg/L	0.0425	0.00950	<0.00050	0.00061	<0.00050	0.00050	8223164
Total Zinc (Zn)	mg/L	0.116	0.0192	0.0031	0.0483	0.0271	0.0010	8223164
Total Zirconium (Zr)	mg/L	0.00070	0.00073	0.00089	0.0319	0.00055	0.00010	8223164
Total Calcium (Ca)	mg/L	133	587	54.3	161	56.4	0.25	8221634
RDL = Reportable Detection Limit								

Maxxam Job #: B621096  
Report Date: 2016/03/31

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		OH9412	OH9413	OH9414	OH9415	OH9418		
Sampling Date		2016/03/15 19:00	2016/03/17 16:40	2016/03/13 13:50	2016/03/14 16:15	2016/03/17 14:20		
COC Number		488720-02-01	488720-02-01	488720-02-01	488720-02-01	488720-03-01		
	UNITS	MW15-07S	MW15-10D	DUP01	DUP02	BH95-129	RDL	QC Batch
Total Magnesium (Mg)	mg/L	21.1	70.4	15.4	58.4	9.95	0.25	8221634
Total Potassium (K)	mg/L	3.42	8.43	2.53	4.11	2.08	0.25	8221634
Total Sodium (Na)	mg/L	3.96	24.0	2.42	1.61	1.45	0.25	8221634
Total Sulphur (S)	mg/L	<15	<15	<15	80	<15	15	8221634
RDL = Reportable Detection Limit								

Maxxam Job #: B621096  
Report Date: 2016/03/31

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LL TOTAL METALS (DIGESTED) WITH CV HG**

Maxxam ID		OH9419		OH9500		
Sampling Date		2016/03/19 10:40		2016/03/16		
COC Number		488720-03-01		488720-03-01		
	UNITS	MW15-11S	QC Batch	BH95G-2	RDL	QC Batch
<b>Calculated Parameters</b>						
Total Hardness (CaCO3)	mg/L	364	8221587	381	0.50	8222667
<b>Elements</b>						
Total Mercury (Hg)	mg/L	<0.0000020	8226945	0.0000025	0.0000020	8226945
<b>Total Metals by ICPMS</b>						
Total Aluminum (Al)	mg/L	1.05	8223164	3.93	0.0030	8225141
Total Antimony (Sb)	mg/L	0.000495	8223164	0.000502	0.000050	8225141
Total Arsenic (As)	mg/L	0.00422	8223164	0.0125	0.000020	8225141
Total Barium (Ba)	mg/L	0.213	8223164	0.100	0.00010	8225141
Total Beryllium (Be)	mg/L	0.000086	8223164	0.000263	0.000010	8225141
Total Bismuth (Bi)	mg/L	0.000036	8223164	0.000110	0.000020	8225141
Total Boron (B)	mg/L	<0.050	8223164	<0.050	0.050	8225141
Total Cadmium (Cd)	mg/L	0.000998	8223164	0.0113	0.0000050	8225141
Total Chromium (Cr)	mg/L	0.00423	8223164	0.0124	0.00050	8225141
Total Cobalt (Co)	mg/L	0.00318	8223164	0.0117	0.000010	8225141
Total Copper (Cu)	mg/L	0.0143	8223164	0.120	0.00020	8225141
Total Iron (Fe)	mg/L	7.45	8223164	18.5	0.0050	8225141
Total Lead (Pb)	mg/L	0.00696	8223164	0.0588	0.000050	8225141
Total Lithium (Li)	mg/L	0.00980	8223164	0.00569	0.00050	8225141
Total Manganese (Mn)	mg/L	4.03	8223164	0.251	0.00010	8225141
Total Molybdenum (Mo)	mg/L	0.00835	8223164	0.00550	0.000050	8225141
Total Nickel (Ni)	mg/L	0.00799	8223164	0.0686	0.00010	8225141
Total Phosphorus (P)	mg/L	0.286	8223164	1.42	0.010	8225141
Total Selenium (Se)	mg/L	0.000061	8223164	0.00595	0.000040	8225141
Total Silicon (Si)	mg/L	5.67	8223164	8.20	0.10	8225141
Total Silver (Ag)	mg/L	0.00345	8223164	0.000521	0.0000050	8225141
Total Strontium (Sr)	mg/L	0.529	8223164	0.269	0.000050	8225141
Total Thallium (Tl)	mg/L	0.0000450	8223164	0.0000810	0.0000020	8225141
Total Tin (Sn)	mg/L	<0.00020	8223164	0.00158	0.00020	8225141
Total Titanium (Ti)	mg/L	0.0552	8223164	0.0866	0.0050	8225141
Total Uranium (U)	mg/L	0.00946	8223164	0.00438	0.0000050	8225141
Total Vanadium (V)	mg/L	0.00361	8223164	0.0215	0.00050	8225141
Total Zinc (Zn)	mg/L	0.0282	8223164	1.09	0.0010	8225141
Total Zirconium (Zr)	mg/L	0.00161	8223164	0.00489	0.00010	8225141
Total Calcium (Ca)	mg/L	99.5	8221634	87.0	0.25	8222633
RDL = Reportable Detection Limit						

Maxxam Job #: B621096  
Report Date: 2016/03/31

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

**LL TOTAL METALS (DIGESTED) WITH CV HG**

<b>Maxxam ID</b>		OH9419		OH9500		
<b>Sampling Date</b>		2016/03/19 10:40		2016/03/16		
<b>COC Number</b>		488720-03-01		488720-03-01		
	<b>UNITS</b>	<b>MW15-11S</b>	<b>QC Batch</b>	<b>BH95G-2</b>	<b>RDL</b>	<b>QC Batch</b>
Total Magnesium (Mg)	mg/L	28.2	8221634	39.7	0.25	8222633
Total Potassium (K)	mg/L	5.27	8221634	1.43	0.25	8222633
Total Sodium (Na)	mg/L	5.62	8221634	0.87	0.25	8222633
Total Sulphur (S)	mg/L	43	8221634	22	15	8222633
RDL = Reportable Detection Limit						



Maxxam Job #: B621096  
Report Date: 2016/03/31

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

### GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	4.7°C
Package 2	4.3°C
Package 3	5.7°C

Sample OH9401-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OH9402-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OH9403-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OH9404-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OH9405-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OH9406-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OH9407-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OH9409-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OH9410-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OH9411-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OH9412-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OH9413-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OH9414-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OH9415-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OH9418-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Sample OH9419-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

Maxxam Job #: B621096  
Report Date: 2016/03/31

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

### GENERAL COMMENTS

Sample OH9500-01 : Sample analyzed for digested low level metals due to sediment in sample. This results in an increased reportable detection limit for Al B Ba Bi Cr Co Cu Fe Mn Ni P Pb Sb Si Ti U V and Zn.

**Results relate only to the items tested.**

Maxxam Job #: B621096  
Report Date: 2016/03/31

**QUALITY ASSURANCE REPORT**

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8222836	Total Suspended Solids	2016/03/23			100	80 - 120	<1.0	mg/L		
8222875	Total Dissolved Solids	2016/03/24	NC	80 - 120	92	80 - 120	1.2, RDL=1.0	mg/L	5.9	20
8222919	Dissolved Aluminum (Al)	2016/03/23	NC	80 - 120	103	80 - 120	<0.00050	mg/L	1.4	20
8222919	Dissolved Antimony (Sb)	2016/03/23	93	80 - 120	101	80 - 120	<0.000020	mg/L	NC	20
8222919	Dissolved Arsenic (As)	2016/03/23	93	80 - 120	97	80 - 120	<0.000020	mg/L	NC	20
8222919	Dissolved Barium (Ba)	2016/03/23	96	80 - 120	103	80 - 120	<0.000020	mg/L	0.54	20
8222919	Dissolved Beryllium (Be)	2016/03/23	89	80 - 120	99	80 - 120	<0.000010	mg/L	NC	20
8222919	Dissolved Bismuth (Bi)	2016/03/23	89	80 - 120	98	80 - 120	<0.0000050	mg/L	NC	20
8222919	Dissolved Boron (B)	2016/03/23	91	80 - 120	103	80 - 120	<0.010	mg/L	NC	20
8222919	Dissolved Cadmium (Cd)	2016/03/23	98	80 - 120	97	80 - 120	<0.0000050	mg/L	0	20
8222919	Dissolved Chromium (Cr)	2016/03/23	94	80 - 120	101	80 - 120	<0.00010	mg/L	NC	20
8222919	Dissolved Cobalt (Co)	2016/03/23	93	80 - 120	102	80 - 120	<0.0000050	mg/L	1.8	20
8222919	Dissolved Copper (Cu)	2016/03/23	NC	80 - 120	101	80 - 120	<0.000050	mg/L	0.32	20
8222919	Dissolved Iron (Fe)	2016/03/23	NC	80 - 120	101	80 - 120	<0.0010	mg/L	4.0	20
8222919	Dissolved Lead (Pb)	2016/03/23	92	80 - 120	101	80 - 120	<0.0000050	mg/L	1.6	20
8222919	Dissolved Lithium (Li)	2016/03/23	92	80 - 120	102	80 - 120	<0.00050	mg/L	NC	20
8222919	Dissolved Manganese (Mn)	2016/03/23	NC	80 - 120	100	80 - 120	<0.000050	mg/L	1.1	20
8222919	Dissolved Molybdenum (Mo)	2016/03/23	88	80 - 120	97	80 - 120	<0.000050	mg/L	NC	20
8222919	Dissolved Nickel (Ni)	2016/03/23	93	80 - 120	101	80 - 120	<0.000020	mg/L	2.0	20
8222919	Dissolved Phosphorus (P)	2016/03/23					<0.0020	mg/L	NC	20
8222919	Dissolved Selenium (Se)	2016/03/23	90	80 - 120	94	80 - 120	<0.000040	mg/L	NC	20
8222919	Dissolved Silicon (Si)	2016/03/23					<0.050	mg/L	1.2	20
8222919	Dissolved Silver (Ag)	2016/03/23	75 (1)	80 - 120	92	80 - 120	<0.0000050	mg/L	NC	20
8222919	Dissolved Strontium (Sr)	2016/03/23	NC	80 - 120	94	80 - 120	<0.000050	mg/L	0.56	20
8222919	Dissolved Thallium (Tl)	2016/03/23	91	80 - 120	98	80 - 120	<0.0000020	mg/L	NC	20
8222919	Dissolved Tin (Sn)	2016/03/23	95	80 - 120	102	80 - 120	<0.00020	mg/L	NC	20
8222919	Dissolved Titanium (Ti)	2016/03/23	91	80 - 120	99	80 - 120	<0.00050	mg/L	NC	20
8222919	Dissolved Uranium (U)	2016/03/23	90	80 - 120	101	80 - 120	<0.0000020	mg/L	NC	20
8222919	Dissolved Vanadium (V)	2016/03/23	97	80 - 120	99	80 - 120	<0.00020	mg/L	NC	20
8222919	Dissolved Zinc (Zn)	2016/03/23	95	80 - 120	101	80 - 120	<0.00010	mg/L	1.8	20
8222919	Dissolved Zirconium (Zr)	2016/03/23					<0.00010	mg/L	NC	20

Maxxam Job #: B621096  
Report Date: 2016/03/31

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8223164	Total Aluminum (Al)	2016/03/25	98	80 - 120	107	80 - 120	<0.0030	mg/L	2.4	20
8223164	Total Antimony (Sb)	2016/03/25	99	80 - 120	101	80 - 120	<0.000050	mg/L	NC	20
8223164	Total Arsenic (As)	2016/03/25	94	80 - 120	97	80 - 120	<0.000020	mg/L	1.4	20
8223164	Total Barium (Ba)	2016/03/25	NC	80 - 120	105	80 - 120	<0.00010	mg/L	0.88	20
8223164	Total Beryllium (Be)	2016/03/25	99	80 - 120	98	80 - 120	<0.000010	mg/L	NC	20
8223164	Total Bismuth (Bi)	2016/03/25	94	80 - 120	102	80 - 120	<0.000020	mg/L	NC	20
8223164	Total Boron (B)	2016/03/25	108	80 - 120	99	80 - 120	<0.050	mg/L	NC	20
8223164	Total Cadmium (Cd)	2016/03/25	92	80 - 120	97	80 - 120	<0.0000050	mg/L	NC	20
8223164	Total Chromium (Cr)	2016/03/25	98	80 - 120	99	80 - 120	<0.00050	mg/L	NC	20
8223164	Total Cobalt (Co)	2016/03/25	94	80 - 120	100	80 - 120	<0.000010	mg/L	0.10	20
8223164	Total Copper (Cu)	2016/03/25	90	80 - 120	100	80 - 120	<0.00020	mg/L	NC	20
8223164	Total Iron (Fe)	2016/03/25	NC	80 - 120	107	80 - 120	<0.0050	mg/L	0.098	20
8223164	Total Lead (Pb)	2016/03/25	101	80 - 120	105	80 - 120	<0.000050	mg/L	NC	20
8223164	Total Lithium (Li)	2016/03/25	93	80 - 120	99	80 - 120	<0.00050	mg/L	0.16	20
8223164	Total Manganese (Mn)	2016/03/25	NC	80 - 120	97	80 - 120	<0.00010	mg/L	1.6	20
8223164	Total Molybdenum (Mo)	2016/03/25	102	80 - 120	96	80 - 120	<0.000050	mg/L	NC	20
8223164	Total Nickel (Ni)	2016/03/25	91	80 - 120	97	80 - 120	<0.00010	mg/L	NC	20
8223164	Total Phosphorus (P)	2016/03/25					<0.010	mg/L		
8223164	Total Selenium (Se)	2016/03/25	88	80 - 120	92	80 - 120	<0.000040	mg/L	NC	20
8223164	Total Silicon (Si)	2016/03/25					<0.10	mg/L	0.24	20
8223164	Total Silver (Ag)	2016/03/25	106	80 - 120	93	80 - 120	<0.0000050	mg/L	NC	20
8223164	Total Strontium (Sr)	2016/03/25	NC	80 - 120	100	80 - 120	<0.000050	mg/L	0.62	20
8223164	Total Thallium (Tl)	2016/03/25	100	80 - 120	85	80 - 120	<0.0000020	mg/L	NC	20
8223164	Total Tin (Sn)	2016/03/25	99	80 - 120	103	80 - 120	<0.00020	mg/L	NC	20
8223164	Total Titanium (Ti)	2016/03/25	92	80 - 120	97	80 - 120	<0.0050	mg/L	NC	20
8223164	Total Uranium (U)	2016/03/25	103	80 - 120	103	80 - 120	<0.0000050	mg/L	2.2	20
8223164	Total Vanadium (V)	2016/03/25	103	80 - 120	96	80 - 120	<0.00050	mg/L	NC	20
8223164	Total Zinc (Zn)	2016/03/25	NC	80 - 120	98	80 - 120	<0.0010	mg/L	3.3	20
8223164	Total Zirconium (Zr)	2016/03/25					<0.00010	mg/L	NC	20
8223352	Fluoride (F)	2016/03/22	99	80 - 120	102	80 - 120	0.012, RDL=0.010	mg/L	2.6	20

Maxxam Job #: B621096  
Report Date: 2016/03/31

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8223359	Fluoride (F)	2016/03/22	NC	80 - 120	102	80 - 120	0.011, RDL=0.010	mg/L	0	20
8223390	Total Dissolved Solids	2016/03/24	106	80 - 120	82	80 - 120	<1.0	mg/L	2.7	20
8223471	Orthophosphate (P)	2016/03/22	151 (1)	80 - 120	107	80 - 120	0.0019, RDL=0.0010	mg/L	6.7	20
8223654	Dissolved Organic Carbon (C)	2016/03/23	102	80 - 120	105	80 - 120	<0.50	mg/L	NC	20
8223850	Total Suspended Solids	2016/03/24			98	80 - 120	<1.0	mg/L		
8223987	Dissolved Organic Carbon (C)	2016/03/23	98	80 - 120	98	80 - 120	<0.50	mg/L	NC	20
8224133	Nitrate plus Nitrite (N)	2016/03/22	NC	80 - 120	97	80 - 120	<0.0020	mg/L	0.048	25
8224136	Nitrite (N)	2016/03/22	100	80 - 120	96	80 - 120	<0.0020	mg/L	NC	25
8224181	Alkalinity (PP as CaCO3)	2016/03/23					<0.50	mg/L	NC	20
8224181	Alkalinity (Total as CaCO3)	2016/03/23	NC	80 - 120	97	80 - 120	<0.50	mg/L	0.36	20
8224181	Bicarbonate (HCO3)	2016/03/23					<0.50	mg/L	0.36	20
8224181	Carbonate (CO3)	2016/03/23					<0.50	mg/L	NC	20
8224181	Hydroxide (OH)	2016/03/23					<0.50	mg/L	NC	20
8224184	Conductivity	2016/03/23			98	80 - 120	<1.0	uS/cm		
8224185	pH	2016/03/23			101	97 - 103				
8224192	pH	2016/03/23			101	97 - 103				
8224198	Conductivity	2016/03/23			100	80 - 120	<1.0	uS/cm		
8224199	Alkalinity (PP as CaCO3)	2016/03/23					<0.50	mg/L		
8224199	Alkalinity (Total as CaCO3)	2016/03/23	96	80 - 120	96	80 - 120	<0.50	mg/L		
8224199	Bicarbonate (HCO3)	2016/03/23					<0.50	mg/L		
8224199	Carbonate (CO3)	2016/03/23					<0.50	mg/L		
8224199	Hydroxide (OH)	2016/03/23					<0.50	mg/L		
8224219	Acidity (pH 4.5)	2016/03/23					<0.50	mg/L	NC	20
8224219	Acidity (pH 8.3)	2016/03/23			99	80 - 120	<0.50	mg/L	NC	20
8224222	pH	2016/03/23			101	97 - 103			0.26	N/A
8224231	Conductivity	2016/03/23			100	80 - 120	1.1, RDL=1.0	uS/cm		
8224232	Alkalinity (PP as CaCO3)	2016/03/24					<0.50	mg/L	NC	20
8224232	Alkalinity (Total as CaCO3)	2016/03/24	96	80 - 120	99	80 - 120	<0.50	mg/L	NC	20
8224232	Bicarbonate (HCO3)	2016/03/24					<0.50	mg/L	NC	20

Maxxam Job #: B621096  
Report Date: 2016/03/31

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8224232	Carbonate (CO3)	2016/03/24					<0.50	mg/L	NC	20
8224232	Hydroxide (OH)	2016/03/24					<0.50	mg/L	NC	20
8224236	Acidity (pH 4.5)	2016/03/23					<0.50	mg/L	NC	20
8224236	Acidity (pH 8.3)	2016/03/23			96	80 - 120	<0.50	mg/L	2.4	20
8224347	Dissolved Aluminum (Al)	2016/03/25	99	80 - 120	103	80 - 120	<0.00050	mg/L	NC	20
8224347	Dissolved Antimony (Sb)	2016/03/25	100	80 - 120	104	80 - 120	<0.000020	mg/L	NC	20
8224347	Dissolved Arsenic (As)	2016/03/25	101	80 - 120	100	80 - 120	<0.000020	mg/L	NC	20
8224347	Dissolved Barium (Ba)	2016/03/25	100	80 - 120	103	80 - 120	<0.000020	mg/L	NC	20
8224347	Dissolved Beryllium (Be)	2016/03/25	100	80 - 120	100	80 - 120	<0.000010	mg/L	NC	20
8224347	Dissolved Bismuth (Bi)	2016/03/25	97	80 - 120	101	80 - 120	<0.0000050	mg/L	NC	20
8224347	Dissolved Boron (B)	2016/03/25	108	80 - 120	102	80 - 120	<0.010	mg/L	NC	20
8224347	Dissolved Cadmium (Cd)	2016/03/25	98	80 - 120	99	80 - 120	<0.0000050	mg/L	NC	20
8224347	Dissolved Chromium (Cr)	2016/03/25	100	80 - 120	103	80 - 120	<0.00010	mg/L	NC	20
8224347	Dissolved Cobalt (Co)	2016/03/25	101	80 - 120	104	80 - 120	<0.0000050	mg/L	NC	20
8224347	Dissolved Copper (Cu)	2016/03/25	101	80 - 120	102	80 - 120	<0.000050	mg/L	NC	20
8224347	Dissolved Iron (Fe)	2016/03/25	98	80 - 120	105	80 - 120	<0.0010	mg/L	NC	20
8224347	Dissolved Lead (Pb)	2016/03/25	98	80 - 120	104	80 - 120	<0.0000050	mg/L	NC	20
8224347	Dissolved Lithium (Li)	2016/03/25	94	80 - 120	101	80 - 120	<0.00050	mg/L	NC	20
8224347	Dissolved Manganese (Mn)	2016/03/25	99	80 - 120	101	80 - 120	<0.000050	mg/L	NC	20
8224347	Dissolved Molybdenum (Mo)	2016/03/25	96	80 - 120	101	80 - 120	<0.000050	mg/L	NC	20
8224347	Dissolved Nickel (Ni)	2016/03/25	99	80 - 120	102	80 - 120	<0.000020	mg/L	NC	20
8224347	Dissolved Phosphorus (P)	2016/03/25					<0.0020	mg/L		
8224347	Dissolved Selenium (Se)	2016/03/25	98	80 - 120	97	80 - 120	<0.000040	mg/L	NC	20
8224347	Dissolved Silicon (Si)	2016/03/25					<0.050	mg/L	NC	20
8224347	Dissolved Silver (Ag)	2016/03/25	96	80 - 120	89	80 - 120	<0.0000050	mg/L	NC	20
8224347	Dissolved Strontium (Sr)	2016/03/25	98	80 - 120	102	80 - 120	<0.000050	mg/L	NC	20
8224347	Dissolved Thallium (Tl)	2016/03/25	101	80 - 120	92	80 - 120	<0.0000020	mg/L	NC	20
8224347	Dissolved Tin (Sn)	2016/03/25	98	80 - 120	101	80 - 120	<0.00020	mg/L	NC	20
8224347	Dissolved Titanium (Ti)	2016/03/25	101	80 - 120	99	80 - 120	<0.00050	mg/L	NC	20
8224347	Dissolved Uranium (U)	2016/03/25	96	80 - 120	102	80 - 120	<0.0000020	mg/L	NC	20
8224347	Dissolved Vanadium (V)	2016/03/25	101	80 - 120	102	80 - 120	<0.00020	mg/L	NC	20

Maxxam Job #: B621096  
Report Date: 2016/03/31

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8224347	Dissolved Zinc (Zn)	2016/03/25	106	80 - 120	100	80 - 120	<0.00010	mg/L	NC	20
8224347	Dissolved Zirconium (Zr)	2016/03/25					<0.00010	mg/L	NC	20
8224358	Total Aluminum (Al)	2016/03/24	92	80 - 120	103	80 - 120	<0.00050	mg/L	NC	20
8224358	Total Antimony (Sb)	2016/03/24	92	80 - 120	105	80 - 120	<0.000020	mg/L	NC	20
8224358	Total Arsenic (As)	2016/03/24	93	80 - 120	94	80 - 120	<0.000020	mg/L	NC	20
8224358	Total Barium (Ba)	2016/03/24	95	80 - 120	103	80 - 120	<0.000020	mg/L	NC	20
8224358	Total Beryllium (Be)	2016/03/24	91	80 - 120	100	80 - 120	<0.000010	mg/L	NC	20
8224358	Total Bismuth (Bi)	2016/03/24	92	80 - 120	102	80 - 120	<0.0000050	mg/L	NC	20
8224358	Total Boron (B)	2016/03/24	93	80 - 120	101	80 - 120	<0.010	mg/L	NC	20
8224358	Total Cadmium (Cd)	2016/03/24	93	80 - 120	101	80 - 120	<0.0000050	mg/L	NC	20
8224358	Total Chromium (Cr)	2016/03/24	94	80 - 120	95	80 - 120	<0.00010	mg/L	NC	20
8224358	Total Cobalt (Co)	2016/03/24	95	80 - 120	96	80 - 120	<0.0000050	mg/L	NC	20
8224358	Total Copper (Cu)	2016/03/24	94	80 - 120	95	80 - 120	<0.000050	mg/L	NC	20
8224358	Total Iron (Fe)	2016/03/24	93	80 - 120	107	80 - 120	<0.0010	mg/L	NC	20
8224358	Total Lead (Pb)	2016/03/24	95	80 - 120	105	80 - 120	<0.0000050	mg/L	NC	20
8224358	Total Lithium (Li)	2016/03/24	84	80 - 120	100	80 - 120	<0.00050	mg/L	NC	20
8224358	Total Manganese (Mn)	2016/03/24	94	80 - 120	96	80 - 120	0.000063, RDL=0.000050	mg/L	NC	20
8224358	Total Molybdenum (Mo)	2016/03/24	92	80 - 120	101	80 - 120	<0.000050	mg/L	NC	20
8224358	Total Nickel (Ni)	2016/03/24	94	80 - 120	95	80 - 120	<0.000020	mg/L	NC	20
8224358	Total Phosphorus (P)	2016/03/24					<0.0020	mg/L		
8224358	Total Selenium (Se)	2016/03/24	87	80 - 120	93	80 - 120	<0.000040	mg/L	NC	20
8224358	Total Silicon (Si)	2016/03/24					<0.050	mg/L	NC	20
8224358	Total Silver (Ag)	2016/03/24	89	80 - 120	90	80 - 120	<0.0000050	mg/L	NC	20
8224358	Total Strontium (Sr)	2016/03/24	95	80 - 120	96	80 - 120	<0.000050	mg/L	NC	20
8224358	Total Thallium (Tl)	2016/03/24	98	80 - 120	99	80 - 120	<0.0000020	mg/L	NC	20
8224358	Total Tin (Sn)	2016/03/24	93	80 - 120	102	80 - 120	<0.00020	mg/L	NC	20
8224358	Total Titanium (Ti)	2016/03/24	90	80 - 120	91	80 - 120	<0.00050	mg/L	NC	20
8224358	Total Uranium (U)	2016/03/24	93	80 - 120	102	80 - 120	<0.0000020	mg/L	NC	20
8224358	Total Vanadium (V)	2016/03/24	93	80 - 120	93	80 - 120	<0.00020	mg/L	NC	20
8224358	Total Zinc (Zn)	2016/03/24	97	80 - 120	96	80 - 120	<0.00010	mg/L	NC	20

Maxxam Job #: B621096  
Report Date: 2016/03/31

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8224358	Total Zirconium (Zr)	2016/03/24					<0.00010	mg/L	NC	20
8224468	Fluoride (F)	2016/03/23	NC	80 - 120	100	80 - 120	<0.010	mg/L	2.5	20
8224477	Total Ammonia (N)	2016/03/23	NC	80 - 120	102	80 - 120	<0.0050	mg/L	1.9	20
8224478	Total Ammonia (N)	2016/03/23	NC	80 - 120	104	80 - 120	<0.0050	mg/L	2.4	20
8224479	Total Ammonia (N)	2016/03/23	112	80 - 120	105	80 - 120	<0.0050	mg/L	NC	20
8224484	Dissolved Chloride (Cl)	2016/03/23	104	80 - 120	104	80 - 120	<0.50	mg/L	NC	20
8224488	Dissolved Sulphate (SO4)	2016/03/23	NC	80 - 120	96	80 - 120	<0.50	mg/L	1.2	20
8224493	Dissolved Chloride (Cl)	2016/03/23	108	80 - 120	96	80 - 120	<0.50	mg/L	NC	20
8224503	Dissolved Sulphate (SO4)	2016/03/23	102	80 - 120	92	80 - 120	0.97, RDL=0.50	mg/L	NC	20
8224619	Nitrate plus Nitrite (N)	2016/03/23	NC	80 - 120	106	80 - 120	<0.0020	mg/L	0.21	25
8224620	Nitrite (N)	2016/03/23	98	80 - 120	103	80 - 120	<0.0020	mg/L	NC	25
8224629	Total Nitrogen (N)	2016/03/24	NC	80 - 120	94	80 - 120	<0.020	mg/L	0.75	20
8224630	Total Nitrogen (N)	2016/03/24	95	80 - 120	97	80 - 120	<0.020	mg/L	NC	20
8225141	Total Aluminum (Al)	2016/03/24	NC	80 - 120	107	80 - 120	<0.0030	mg/L		
8225141	Total Antimony (Sb)	2016/03/24	107	80 - 120	103	80 - 120	<0.000050	mg/L		
8225141	Total Arsenic (As)	2016/03/24	104	80 - 120	98	80 - 120	<0.000020	mg/L		
8225141	Total Barium (Ba)	2016/03/24	NC	80 - 120	106	80 - 120	<0.00010	mg/L		
8225141	Total Beryllium (Be)	2016/03/24	104	80 - 120	100	80 - 120	<0.000010	mg/L		
8225141	Total Bismuth (Bi)	2016/03/24	104	80 - 120	99	80 - 120	<0.000020	mg/L	NC	20
8225141	Total Boron (B)	2016/03/24	110	80 - 120	106	80 - 120	<0.050	mg/L		
8225141	Total Cadmium (Cd)	2016/03/24	98	80 - 120	98	80 - 120	<0.0000050	mg/L		
8225141	Total Chromium (Cr)	2016/03/24	103	80 - 120	102	80 - 120	<0.00050	mg/L		
8225141	Total Cobalt (Co)	2016/03/24	101	80 - 120	102	80 - 120	<0.000010	mg/L		
8225141	Total Copper (Cu)	2016/03/24	97	80 - 120	104	80 - 120	<0.00020	mg/L		
8225141	Total Iron (Fe)	2016/03/24	NC	80 - 120	102	80 - 120	<0.0050	mg/L		
8225141	Total Lead (Pb)	2016/03/24	110	80 - 120	103	80 - 120	<0.000050	mg/L		
8225141	Total Lithium (Li)	2016/03/24	NC	80 - 120	101	80 - 120	<0.00050	mg/L		
8225141	Total Manganese (Mn)	2016/03/24	NC	80 - 120	101	80 - 120	<0.00010	mg/L		
8225141	Total Molybdenum (Mo)	2016/03/24	NC	80 - 120	96	80 - 120	<0.000050	mg/L		
8225141	Total Nickel (Ni)	2016/03/24	98	80 - 120	99	80 - 120	<0.00010	mg/L		
8225141	Total Phosphorus (P)	2016/03/24					<0.010	mg/L		



Maxxam Job #: B621096  
Report Date: 2016/03/31

**QUALITY ASSURANCE REPORT(CONT'D)**

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8225141	Total Selenium (Se)	2016/03/24	93	80 - 120	96	80 - 120	<0.000040	mg/L		
8225141	Total Silicon (Si)	2016/03/24					<0.10	mg/L		
8225141	Total Silver (Ag)	2016/03/24	109	80 - 120	95	80 - 120	<0.0000050	mg/L		
8225141	Total Strontium (Sr)	2016/03/24	NC	80 - 120	101	80 - 120	<0.000050	mg/L		
8225141	Total Thallium (Tl)	2016/03/24	98	80 - 120	88	80 - 120	<0.0000020	mg/L		
8225141	Total Tin (Sn)	2016/03/24	106	80 - 120	104	80 - 120	<0.00020	mg/L		
8225141	Total Titanium (Ti)	2016/03/24	105	80 - 120	95	80 - 120	<0.0050	mg/L		
8225141	Total Uranium (U)	2016/03/24	108	80 - 120	101	80 - 120	<0.0000050	mg/L		
8225141	Total Vanadium (V)	2016/03/24	107	80 - 120	102	80 - 120	<0.00050	mg/L		
8225141	Total Zinc (Zn)	2016/03/24	98	80 - 120	103	80 - 120	<0.0010	mg/L		
8225141	Total Zirconium (Zr)	2016/03/24					<0.00010	mg/L		
8225199	Orthophosphate (P)	2016/03/24	102	80 - 120	96	80 - 120	<0.0010	mg/L	NC	20
8226034	Total Phosphorus (P)	2016/03/24	95	80 - 120	101	80 - 120	<0.0020	mg/L	NC	20
8226524	Dissolved Chloride (Cl)	2016/03/24			99	80 - 120	<0.50	mg/L		
8226530	Dissolved Sulphate (SO4)	2016/03/24	113	80 - 120	94	80 - 120	<0.50	mg/L		
8226589	Dissolved Mercury (Hg)	2016/03/28	105	80 - 120	99	80 - 120	<0.0000020	mg/L	NC	20
8226945	Total Mercury (Hg)	2016/03/28	104	80 - 120	106	80 - 120	<0.0000020	mg/L	NC	20
8228373	Total Phosphorus (P)	2016/03/29	95	80 - 120	87	80 - 120	<0.0020	mg/L	NC	20
8229327	Total Ammonia (N)	2016/03/30	103	80 - 120	100	80 - 120	<0.0050	mg/L	NC	20
8229370	Total Nitrogen (N)	2016/03/31			97	80 - 120	<0.020	mg/L		
8229427	Orthophosphate (P)	2016/03/30	NC	80 - 120	101	80 - 120	<0.0010	mg/L	2.1	20

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Maxxam Job #: B621096  
Report Date: 2016/03/31

TETRATECH EBA  
Client Project #: ENVMIN03071-01  
Site Location: KUDZ ZE KAYAH  
Sampler Initials: ER

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



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Rob Reinert, Data Validation Coordinator

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

<b>INVOICE TO:</b>		<b>Report Information</b>		<b>Project Information</b>		<b>Laboratory Use Only</b>	
Company Name	#11954 BMC MINERAL (NO. 1) LTD.	Company Name	#31161 TETRATECH EBA	Quotation #	B50743	Maxxam Job #	B621096
Contact Name	ACCOUNTS PAYABLE	Contact Name	<del>MAXXAM</del> ELIANE ROY	P.O. #		Bottle Order #:	488720
Address	530-1130 West Pender Street, Vancouver BC V6E 4A4	Address	61 WASSON PLACE WHITEHORSE YT Y1A 0H7	Project #	ENVMIN03071-01	Chain Of Custody Record	Project Manager
Phone		Phone	(867) 668-9224	Project Name	KUDZ ZE KAYAH		Morgan Melnychuk
Email	kdbergh@gmail.com	Email	kdbergh@tetrattech.com	Site #		CM488720-01-01	
				Sampled By	ELIANE ROY		

Regulatory Criteria: <input checked="" type="checkbox"/> Yukon CSR <input checked="" type="checkbox"/> CCME <input type="checkbox"/> BC Water Quality <input checked="" type="checkbox"/> Other Fed Interim	Special Instructions No turbidity analysis needed.	ANALYSIS REQUESTED (PLEASE BE SPECIFIC) Turnaround Time (TAT) Required: Please provide advance notice for rush projects Regular (Standard) TAT: (will be applied if Rush TAT is not specified): Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details. Job Specific Rush TAT (if applies to entire submission) 1 DAY <input type="checkbox"/> 2 Day <input type="checkbox"/> 3 Day <input type="checkbox"/> Date Required: _____ Rush Confirmation Number: _____ (call lab for #)
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**SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM**

Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Filtered? (Y/N)	ROUTINE (incl. TDS)	MAJOR IONS	NUTRIENTS (incl. NO3, NO2, Total P)	Low Level Dissolved Metals with CV Hg	Low Level Total Metals with CV Hg	Phosphorus-P (LL Tot, dissolved) - FF/FP	DOC	TSS	# of Bottles	Comments
1	BH95G-22	March 14	12h15	GW		X	X	X	X	X	X	α	α	13	
2	<del>BH95G-24</del>					X	X	X	X	X	X				
3	<del>BH95G-25S</del>					X	X	X	X	X	X				
4	BG95G-32	March 15	9h40	GW		X	X	X	X	X	X	α	α	13	
5	BH95G-33D	March 15	14h55	GW		X	X	X	X	X	X	α	α	13	
6	BH95-131	March 14	16h15	GW		X	X	X	X	X	X	α	α	13	
7	<del>BH95-146</del>					X	X	X	X	X	X				
8	MW15-01	March 15	14h10	GW		X	X	X	X	X	X	α	α	13	
9	MW15-03S	March 13	13h15	GW		X	X	X	X	X	X	α	α	13	
10	MW15-03D	March 13	13h50	GW		X	X	X	X	X	X	α	α	13	

* RELINQUISHED BY: (Signature/Print) / ELIANE ROY	Date: (YY/MM/DD) 16/03/18	Time 17h	RECEIVED BY: (Signature/Print) 	Date: (YY/MM/DD) 2016/03/21	Time 11:40	# jars used and not submitted <input type="checkbox"/>	Lab Use Only Time Sensitive <input type="checkbox"/>	Temperature (°C) on Receipt 36.5 / 44.5 / 16.4	Custody Seal Intact on Cooler? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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\* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

<b>INVOICE TO:</b>		<b>Report Information</b>		<b>Project Information</b>		<b>Laboratory Use Only</b>	
Company Name #11954 BMC MINERAL (NO. 1) LTD.		Company Name #31161 TETRATECH EBA		Quotation # B50743		Maxxam Job #	
Contact Name ACCOUNTS PAYABLE		Contact Name <u>ELIANE KOY</u>		P.O. #		Bottle Order #:	
Address 530-1130 West Pender Street, Vancouver BC V6E 4A4		Address 61 WASSON PLACE <u>STEPHAN KLUMP</u> WHITEHORSE YT Y1A 0H7		Project # ENVMIN03071-01		488720	
Phone _____ Fax _____		Phone (867) 668-9275 Fax _____		Project Name <u>KUDZ 75 KARAH</u>		Chain Of Custody Record	
Email kdbergh@gmail.com		Email <u>klump@tetrattech.com</u>		Site #		Project Manager	
				Sampled By <u>ELIANE KOY</u>		C#486720-02-01	

Regulatory Criteria: <input checked="" type="checkbox"/> Xukon <input checked="" type="checkbox"/> CSR <input checked="" type="checkbox"/> CCME <input type="checkbox"/> BC Water Quality <input checked="" type="checkbox"/> Other <u>Fed. Interim</u>		Special Instructions No turbidity analysis required.		ANALYSIS REQUESTED (PLEASE BE SPECIFIC)						Turnaround Time (TAT) Required: Please provide advance notice for rush projects	
				ROUTINE (incl. TDS) <input checked="" type="checkbox"/> MAJOR IONS <input checked="" type="checkbox"/> NUTRIENTS (incl. NO3, NO2, Total P) <input checked="" type="checkbox"/> Low Level Dissolved Metals with CV Hg <input checked="" type="checkbox"/> Low Level Total Metals with CV Hg <input checked="" type="checkbox"/> Phosphorus-P (LL Tot, dissolved) - FF/FP <input checked="" type="checkbox"/> DOC <input checked="" type="checkbox"/> TSS <input checked="" type="checkbox"/>						Regular (Standard) TAT: (will be applied if Rush TAT is not specified): Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.	
										Job Specific Rush TAT (if applies to entire submission) 1 DAY <input type="checkbox"/> 2 Day <input type="checkbox"/> 3 Day <input type="checkbox"/> Date Required: _____ <input type="checkbox"/>	
										Rush Confirmation Number: _____ (call lab for #)	

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Filtered (Y/N)	ROUTINE (incl. TDS)	MAJOR IONS	NUTRIENTS (incl. NO3, NO2, Total P)	Low Level Dissolved Metals with CV Hg	Low Level Total Metals with CV Hg	Phosphorus-P (LL Tot, dissolved) - FF/FP	DOC	TSS	# of Bottles	Comments
1	MW15-04S	March 13	16h30	GW		X	X	X	X	X	X	X	X	13	
2	MW15-04D	March 13	15h50	GW		X	X	X	X	X	X	X	X	13	
3	MW15-05D	March 13	18h40	GW		X	X	X	X	X	X	X	X	13	
4	MW15-07S	March 15	19h00	GW		X	X	X	X	X	X	X	X	13	
5	<del>MW15-88B</del>					X	X	X	X	X	X				
6	<del>MW15-10S</del>					X	X	X	X	X	X				
7	MW15-10D	March 17	16h40	GW		X	X	X	X	X	X	X	X	13	
8	<del>MW15-11S</del>					X	X	X	X	X	X				
9	Dup01	March 13	13h50	GW		X	X	X	X	X	X	X	X	13	
10	Dup02	March 14	16h15	GW		X	X	X	X	X	X	X	X	13	



* * RELINQUISHED BY: (Signature/Print) <u>[Signature]</u>		Date: (YY/MM/DD) <u>16/03/19</u>	Time <u>17h</u>	RECEIVED BY: (Signature/Print) <u>[Signature]</u>		Date: (YY/MM/DD) <u>10/16/03/21</u>	Time <u>11:40</u>	# Jars used and not submitted	Lab Use Only	
								Time Sensitive <input type="checkbox"/>	Temperature (°C) on Receipt <u>36.5/44.5/7.64</u>	Custody Seal Intact on Cooler? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

\* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.



<b>INVOICE TO:</b>		<b>Report Information</b>		<b>Project Information</b>		<b>Laboratory Use Only</b>	
#11954 BMC MINERAL (NO. 1) LTD. ACCOUNTS PAYABLE 530-1130 West Pender Street, Vancouver BC V6E 4A4 kdbergh@gmail.com		Company Name #31161 TETRATECH EBA Contact Name <del>ROBERTA</del> ELIANE ROY Address 61 WASSON PLACE WHITEHORSE YT Y1A 0H7 Phone (867) 668-9224 Email Kator.Derge@tetrattech.com		Quotation # B50743 P.O. # Project # ENVMIN03071-01 Project Name KUDZ ZE KANAH Site # Sampled By ELIANE ROY		Maxxam Job # B621096 Bottle Order #: 488720 Chain Of Custody Record Project Manager Morgan Melnychuk C0488720-03-01	

Criteria: <input checked="" type="checkbox"/> Routine <input checked="" type="checkbox"/> Water Quality <input checked="" type="checkbox"/> Feed Intaim.	Special Instructions	ANALYSIS REQUESTED (PLEASE BE SPECIFIC)						Turnaround Time (TAT) Required:	
	No turbidity analysis required.	ROUTINE (incl. TDS)	MAJOR IONS	NUTRIENTS (incl. NO3, NO2, Total P)	Low Level Dissolved Metals with CV Hg	Low Level Total Metals with CV Hg	Phosphorus-P (LL Tot. dissolved) - FF/FP	Please provide advance notice for rush projects Regular (Standard) TAT: <input checked="" type="checkbox"/> (will be applied if Rush TAT is not specified) Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 6 days - contact your Project Manager for details. Job Specific Rush TAT (if applies to entire submission) 1 DAY <input type="checkbox"/> 2 Day <input type="checkbox"/> 3 Day <input type="checkbox"/> Date Required: _____ Rush Confirmation Number: _____ (call lab for #)	

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM						Metals Field Filtered? (Y/N)	ROUTINE (incl. TDS)	MAJOR IONS	NUTRIENTS (incl. NO3, NO2, Total P)	Low Level Dissolved Metals with CV Hg	Low Level Total Metals with CV Hg	Phosphorus-P (LL Tot. dissolved) - FF/FP	DOC	TSS	# of Bottles	Comments
Site Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix												
	Dup03					X	X	X	X	X	X					
	TRIP BLANK			DI		X	X	X	X	X	X	X	X			Was dust in transit to camp & found a few days later... PROCH
	BH95-129	March 17	14h20	GW		X	X	X	X	X	X	X	X		13	
	MW15-118	March 19	10h40	GW		X	X	X	X	X	X	X	X		13	

RELINQUISHED BY: (Signature/Print) <i>Eliane Roy</i> / ELIANE ROY	Date: (YY/MM/DD) 16/03/18	Time 17h	RECEIVED BY: (Signature/Print) <i>Morgan Melnychuk</i>	Date: (YY/MM/DD) 2016/03/21	Time 15:40	# jars used and not submitted	Lab Use Only
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.						Time Sensitive <input type="checkbox"/>	Temperature (°C) on Receipt: 36.5/44.5/76.4 Custody Seal Intact on Cooler? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

21-Mar-16 13:36  
Morgan Melnychuk  
B621096  
APT SO131





# BMC

MINERALS

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TETRA TECH