Final

Data Summary Report

2012

Environmental Monitoring

Upper Blackfoot Mining Complex

Lewis and Clark County, Montana

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ACRONYMS AND ABBREVIATIONS

BTV	Background Threshold Value
DEQ	Montana Department of Environmental Quality
DO	Dissolved Oxygen
DQO	Data Quality Objective
DSR	Data Summary Report
EPA	US Environmental Protection Agency
famsl	Feet Above Mean Sea Level
mg/l	milligrams per liter
MS	Matrix Spike
MS/MSD	Matrix Spike/Matrix Spike Duplicate
ORP	Oxygen Reduction Potential
Portage	Portage, Inc.
PAET	Probable Apparent Effects Threshold
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
RPD	Relative Percent Difference
RSL	Regional Screening Level
SAP	Sampling and Analysis Plan
SC	Specific Conductance
SEL	Severe Effects Level
SSL	Sediment Screening Level
TEL	Threshold Effects Level
TRL	Target Reporting Limit
TerraGraphics	TerraGraphics Environmental Engineering, Inc.
UBMC	Upper Blackfoot Mining Complex

1. INTRODUCTION

Portage, Inc. (Portage) has prepared this Data Summary Report (DSR) for the Montana Department of Environmental Quality (DEQ) under DEQ Contract Number 407025, Task Order 13. The DSR presents the data associated with field sampling activities within the Upper Blackfoot Mining Complex (UMBC) located in Lewis and Clark County, Montana.

1.1 Site Location and Background

The UMBC is a mining district located approximately 15 miles east of Lincoln, Montana that contains the headwaters of the Blackfoot River. The Blackfoot River, a major tributary river to the Clark Fork and Columbia River watersheds, forms its headwaters at the UMBC. Much of the UMBC is located in a narrow gulch characterized by steep terrain next to the river and heavy tree cover. Elevations range from approximately 7,000 feet at the Continental Divide just east of the UMBC to about 5,000 feet along the Blackfoot River.

Mining activity in the UBMC began with the discovery of silver, lead, and zinc-bearing ores in the late 1800s. Primary ore production occurred in the 1930s and 1940s at the Mike Horse Mine. In 1941, the Mike Horse Mining and Milling Company constructed a tailings impoundment on Beartrap Creek. The American Smelting and Refining Company (ASARCO) purchased the Mike Horse Mine and associated properties from the Mike Horse Mine and Milling Company in 1945 and continued mining operations through 1955. Milling operations for the Mike Horse Mine utilized a flotation process to liberate and recover the metals. The flotation process generally requires grinding the ore into a fine powder. The ground ore is then mixed with water, frothing reagents, and collecting reagents. The waste material (tailings) was placed in the tailings impoundment. On June 19, 1975, the tailings dam breached, releasing an estimated 200,000 cubic yards of tailings into the Beartrap Creek and Upper Blackfoot River drainages.

1.2 2012 Sampling Activities

The purpose of the 2012 sampling effort was to continue monitoring of metals concentrations in groundwater, surface water, and sediments at the UBMC. In addition to the water quality monitoring, surface water quantity and groundwater elevation data were also collected. The 2012 data will build upon historic data to continue the documentation of environmental conditions and trends at the site. The data will be used as baseline environmental data during and after construction activities to determine the impacts of site remediation efforts. This sampling at the UBMC was coordinated with sampling at another portion of the UBMC (Section 35), which was performed under a separate DEQ Task Order to document baseline environmental conditions and the results of Section 35 sampling is detailed in a separate DSR. Figure 1 shows the location of the UBMC, including Section 35. Four quarters of data were collected, the first quarter representing spring/pre-high flow conditions, the second representing high flow conditions, the third representing fall conditions, and the fourth representing winter conditions.

1.3 Report Organization

The contents of this DSR are briefly described below:

- Section 2 presents surface water and groundwater sampling methods.
- Section 3 presents the data quality assessment, including data validation results.
- Section 4 presents analytical results, comparisons of analytical results to applicable standards or screening levels, groundwater elevation data, surface water discharge data, and discussion of results.
- Conclusions are discussed in Section 5 and references are cited in Section 6.
- Appendix A contains the laboratory data reports.
- Appendix B contains copies of the data validation reports.
- Appendix C is copies of the field notes and logs.
- Appendix D contains the site photographs.
- Appendix E contains data logger graphical output.
- Appendix F is copies of calibration certifications.
- Appendix G is a copy of the DEQ Purge Water Disposal Flowchart.
- Appendix H contains an electronic copy of the DSR and data logger electronic files on compact disk.

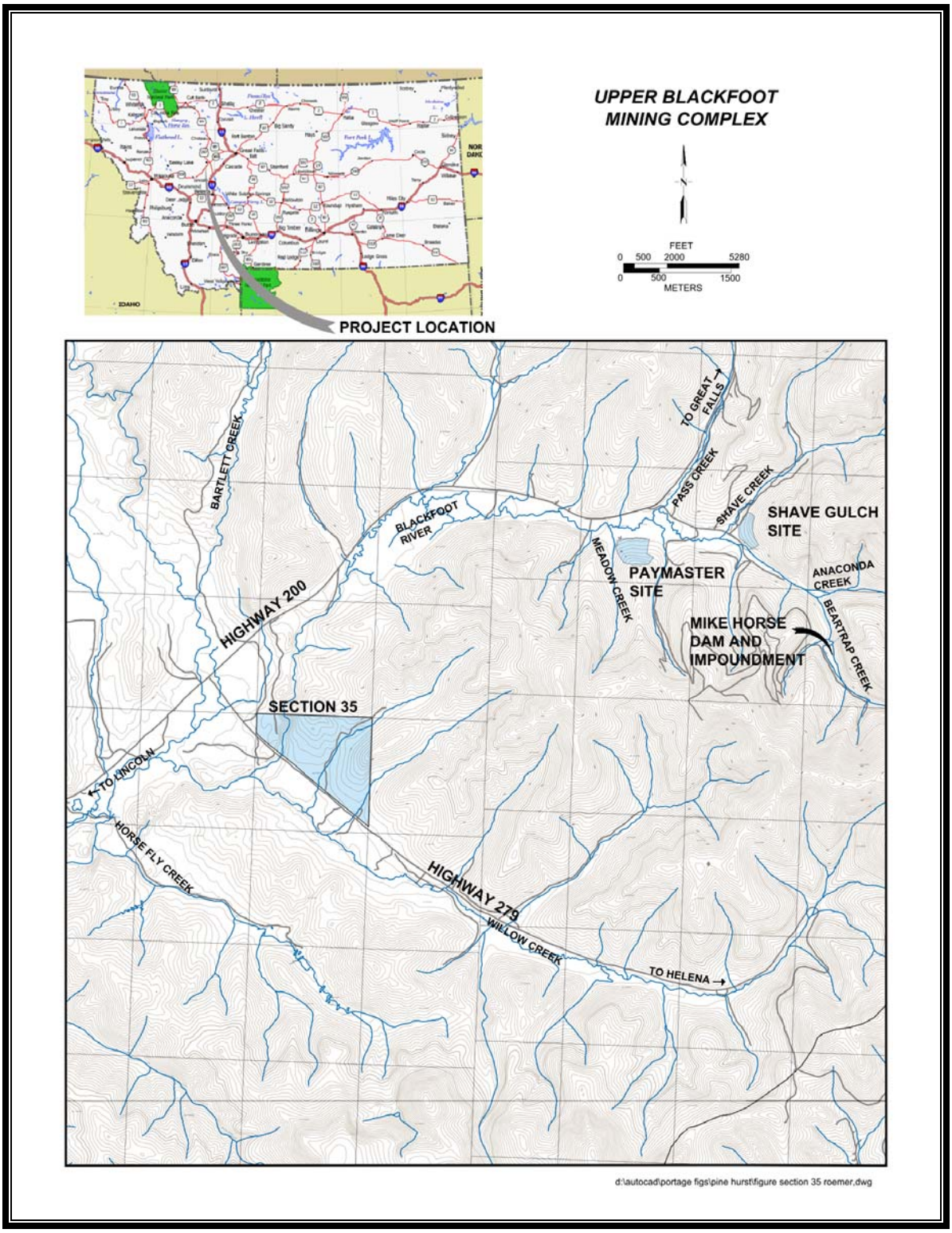

Figure 1. UBMC general location map

2. SAMPLING AND ANALYSIS PROCEDURES

2012 UBMC sampling consisted of groundwater, surface water, and sediment sampling at the locations shown on Figures 2, 3 and 4. Groundwater, surface water, and sediment samples were analyzed at Energy Laboratories, Inc. in Helena, Montana. The analytes for groundwater included dissolved metals, physiochemical properties, common ions, and common cations. The analytes for surface water included total recoverable metals, dissolved metals (aluminum only), physiochemical properties, common ions, and common cations. The analytes for sediment were total recoverable metals only. Analytical results for water were compared to the applicable standards in *Circular DEQ-7, Montana Numeric Water Quality Standards* (DEQ, 2012).

Sediment sample results are screened against the ecological risk based screening values from the *Final Remedial Investigation Report* for the UBMC (TetraTech, 2013). The sediment screening levels (SSL's) include the threshold effects level (TEL), the probable apparent effects threshold (PAET), and the severe effects level (SEL). SSL's represent contaminant levels at which adverse effects to benthic and invertebrate freshwater species may occur. Aluminum, cadmium, copper, and zinc sediment sample results are also screened against United States Environmental Protection Agency (EPA) human health regional screening levels (RSLs) for residential use (EPA, 2012). Arsenic, iron, lead, and manganese sediment sample results are screened against the background threshold values (BTVs) calculated specifically for the UBMC (TetraTech, 2013).

Other sampling activities at the UBMC include measuring groundwater elevation with a hand held electronic water level meter and dedicated continuous data loggers, and measuring surface water flows. All field activities were performed in accordance with the Sampling and Analysis Plan (SAP) for the UBMC, Lewis and Clark County, Montana (Portage, 2012). Section 4 of the SAP provides additional sampling objectives, methods, and procedural detail.

2.1 Groundwater Sampling and Analysis

A network of eight groundwater monitoring wells were monitored at the UBMC in 2012 for the purpose of continued measurement and tracking of groundwater quality at the site. Purging and sampling of the groundwater monitoring wells was performed with a non-dedicated bladder pump suitable for low-flow sampling in accordance with DEQ's low flow sampling guidelines (DEQ, 2005). During purging, the field water quality parameters specific conductance (SC), temperature, pH, dissolved oxygen (DO), and oxidation-reduction potential (ORP) were measured with field instruments. Prior to well purging, the static water level was measured with a water level meter. All field measurements were recorded in field logbooks and on field forms, which are provided in Appendix C.

2.2 Groundwater Elevation Data

Groundwater elevation data was collected from site monitoring wells during each sampling event using a water level meter to record static water levels in the well to the nearest $1/100^{th}$ of a foot. Several piezometers are also installed at the site for the purpose of monitoring groundwater elevation. In some wells and piezometers, electronic down-hole transducers are installed for the purpose of continuously monitoring changes in groundwater elevation. This data was collected during each sampling event and provided to DEQ's project engineer for analysis. Table 1 summarizes the groundwater quality and elevation monitoring stations. The locations of each station are shown on Figures 2, 3, and 4. The

electronic data files for wells and piezometers equipped with continuous data loggers are attached in Appendix H. Appendix E includes a graphical representation of the data.

2.3 Surface Water Sampling and Analysis

Eight surface water stations were monitored at the UBMC in 2012 for the purpose of continued measurement and tracking of surface water quality at the site. Surface water samples were collected using the direct method to collect water samples directly into sample containers. Filtering of samples for dissolved metals analysis was accomplished with a peristaltic pump. The field water quality parameters, SC, pH, temperature, ORP, and DO were measured at each sampling location during each sampling event. Table 1 summarizes the surface water quality sampling stations at the UBMC. The locations of each station are shown on Figures 2, 3 and 4. All field measurements were recorded in field logbooks and on field forms, copies of which are provided in Appendix C.

2.4 Surface Water Flow Measurement

In-stream measurements were collected during surface water sampling events for the purpose of calculating flow at each monitoring station. The area-velocity method using an electronic hand-held velocity meter and wading staff was used to collect in-stream data. Using the 60% of depth method wading technique, velocity profiles were measured at each station with the hand held equipment. Velocity profiles and the measured cross sectional area of the stream were then used to calculate an instantaneous discharge flow rate at the time of sampling.

2.5 Sediment Sampling and Analysis

At each surface water monitoring station (with the exception of seeps and the tailings pond), a sediment sample was collected for metals analysis using grab sample techniques with disposable scoops. The sediment samples were all streambed sediments collected from the 0 to 2 inch depth interval.

2.6 Investigation Derived Waste

Sampling effort investigation derived waste (IDW) included purge water from groundwater well pumping and disposable sampling supplies (filters, scoops, and wipes). Purge water was disposed of according to DEQ's Purge Water Disposal Flowchart (attached as Appendix G). Historically groundwater monitoring wells in the UBMC, including wells within Section 35, have not encountered water with characteristics approaching those of a RCRA hazardous waste (with the exception of wells UMHMW-1S and UMHMW-2S, both of which are located near the Mike Horse Mine and were not part of this sampling effort). Based on this information, development water was land applied in the vicinity of the well in a manner that did not cause a discharge to surface water. Disposable sampling supplies were bagged and disposed of as municipal waste.

2.7 Deviations from the SAP

Deviations from the SAP occurred when conditions in the field prohibited sampling or required a change in sampling procedures. As discussed in Section 3.1.3, Completeness, there were eight instances in which site monitoring wells were dry or did not contain enough water to sample and the scheduled samples could not be collected. During the spring (high flow) sampling event in May 2012 there were no

flowing seeps observed and no seep samples were collected. During the winter sampling event in December 2012 surface water sampling station BRSW-2 was frozen solid and a surface water sample could not be collected. Portage staff measured static water levels at three additional wells in the Paymaster Gulch area and two additional wells in First Gulch at the request of DEQ. Portage staff also installed electronic down-hole transducers to continuously monitor changes in groundwater elevation in piezometers installed in the floodplain in the fall of 2012. There were no other deviations from the SAP during the 2012 sampling.

Table 1. UBMC groundwater and surface water samples and piezometer data collection points

Sample Number	Laboratory Analyses	Sample Location Description
GROUNDWATER (Monitoring Well)		
TDMW-1	Dissolved metals, dissolved cations, acidity, total alkalinity, hardness, chloride, carbonate, bicarbonate, sulfate, pH, conductivity	North side of the dam
TDMW-2D	Same as above	North side of the dam
TDMW-2S	Same as above	North side of the dam
TDMW-3D	Same as above	West side of impoundment
TDMW-3S	Same as above	West side of impoundment
TDMW-4D	Same as above	West side of impoundment
TDMW4S	Same as above	West side of impoundment
TDMW-5	Same as above	West side of impoundment
TDMW-6	Same as above	Duplicate of TDMW4D
TDMW-7	Same as above	Blank
TDMW-8	Same as above	Rinsate of sampling equipment
GROUNDWATER (Piezometers)		
SUMP-S Alluvium	None (transducer data only)	Top of tailings impoundment sump
SUMP-S Bedrock	None (transducer data only)	Top of tailings impoundment sump
SUMP-N	None (transducer data only)	South end of tailings impoundment
PZ-09	None (transducer data only)	South end of tailings impoundment
GW-02A	None (transducer data only)	West bank of tailings impoundment
GW-02	None (static water level only)	West bank of tailings impoundment
PZ-02B-C	None (transducer data only)	Middle of tailings impoundment
PZ-03SA-A	None (static water level only)	Island in tailings impoundment
PZ-03B-B	None (transducer data only)	Island in tailings impoundment
GW-01a	None (transducer data only)	North end of tailings impoundment
GW-01c	None (transducer data only)	North end of tailings impoundment
P-5	None (transducer data only)	Top of dam

Table 1. Continued

Sample Number	Laboratory Analyses	Sample Location Description
SURFACE WATER (Non-seeps)		
BRSW-1	Dissolved aluminum, total metals, conductivity pH, hardness, total dissolved solids, total suspended solids, acidity, total alkalinity, bicarbonate, carbonate, dissolved chloride, dissolved sulfate, dissolved cations	Beartrap Creek above impoundment
BRSW-2	Same as above	Impoundment (north end)
BRSW-3A	Same as above	Seepage channel (downstream)
BRSW-3B	Same as above	Seepage channel (upstream)
BRSW-22	Same as above	Mike Horse Creek (upstream of confluence with Beartrap Creek)
BRSW-23	Same as above	Beartrap Creek (below confluence with Mike Horse creek)
BRSW-38	Same as above	Beartrap Creek (upstream of confluence with Anaconda creek)
BRSW-48	Same as above	Beartrap Creek (below dam)
BRSW-24	Same as above	Duplicate of BRSW22
BRSW-25	Same as above	Blank
BRSW-26	Same as above	Rinsate of sampling equipment
SURFACE WATER (Seeps)		
MHTDS-1	Dissolved aluminum, total metals, conductivity, pH, hardness, total dissolved solids, total suspended solids, acidity, total alkalinity, bicarbonate, carbonate, dissolved chloride, dissolved sulfate, dissolved cations	Above former decant pipe at base of dam
MHTDS-2	Same as above	Above MHTDS-1 on east edge of dam face
MHTDS-3	Same as above	Sheet flow west of MHTDS-1
MHTDS-4	Same as above	Exits from grassy area at dam toe near Mike Horse creek
MHTDS-5	Same as above	Along Mike Horse creek bank west of MHTDS-4
MHTDS-6	Same as above	Exits from beneath rock outcrop along Mike Horse Creek west of MHTDS-5

Table 1. Continued

Sample Number	Laboratory Analyses	Sample Location Description
MHTDS-7	Same as above	Exits immediately west of pond spillway along Mike Horse Creek
MHTDS-8	Same as above	Exits from south bank of Mike Horse Creek downstream from dam spillway
SEDIMENT		
BRSD-1	Total metals	Beartrap Creek above impoundment
BRSD-3A	Same as above	Seepage channel (downstream)
BRSD-3B	Same as above	Seepage channel (upstream)
BRSD-22	Same as above	Mike Horse Creek (upstream of confluence with Beartrap Creek)
BRSD-23	Same as above	Beartrap Creek (below confluence with Mike Horse creek)
BRSD-38	Same as above	Beartrap Creek (upstream of confluence with Anaconda creek)
BRSD-48	Same as above	Beartrap Creek (below dam)
BRSD-24	Same as above	Duplicate of BRSD22

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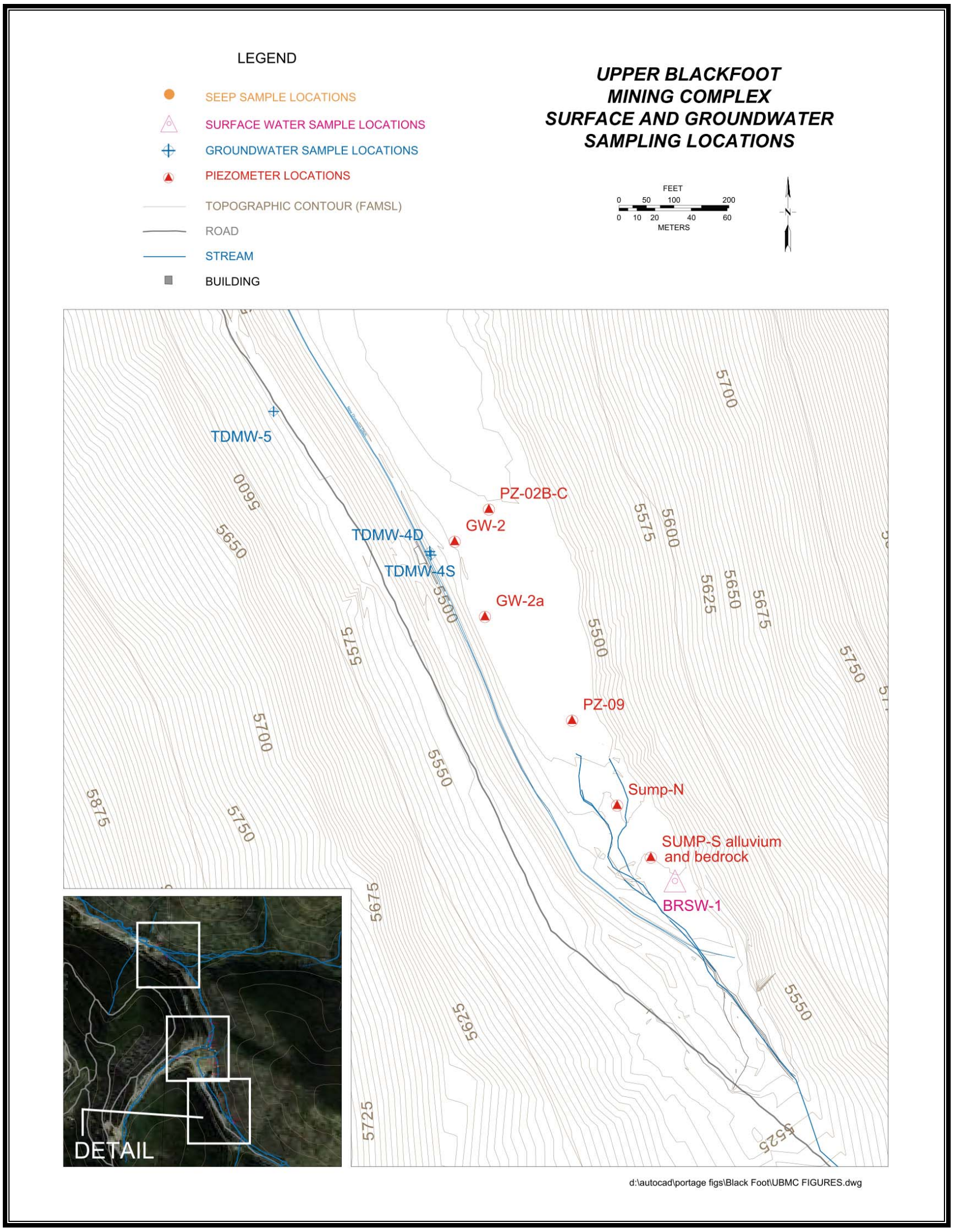

Figure 2. UBMC sampling stations in the Beartrap Creek area

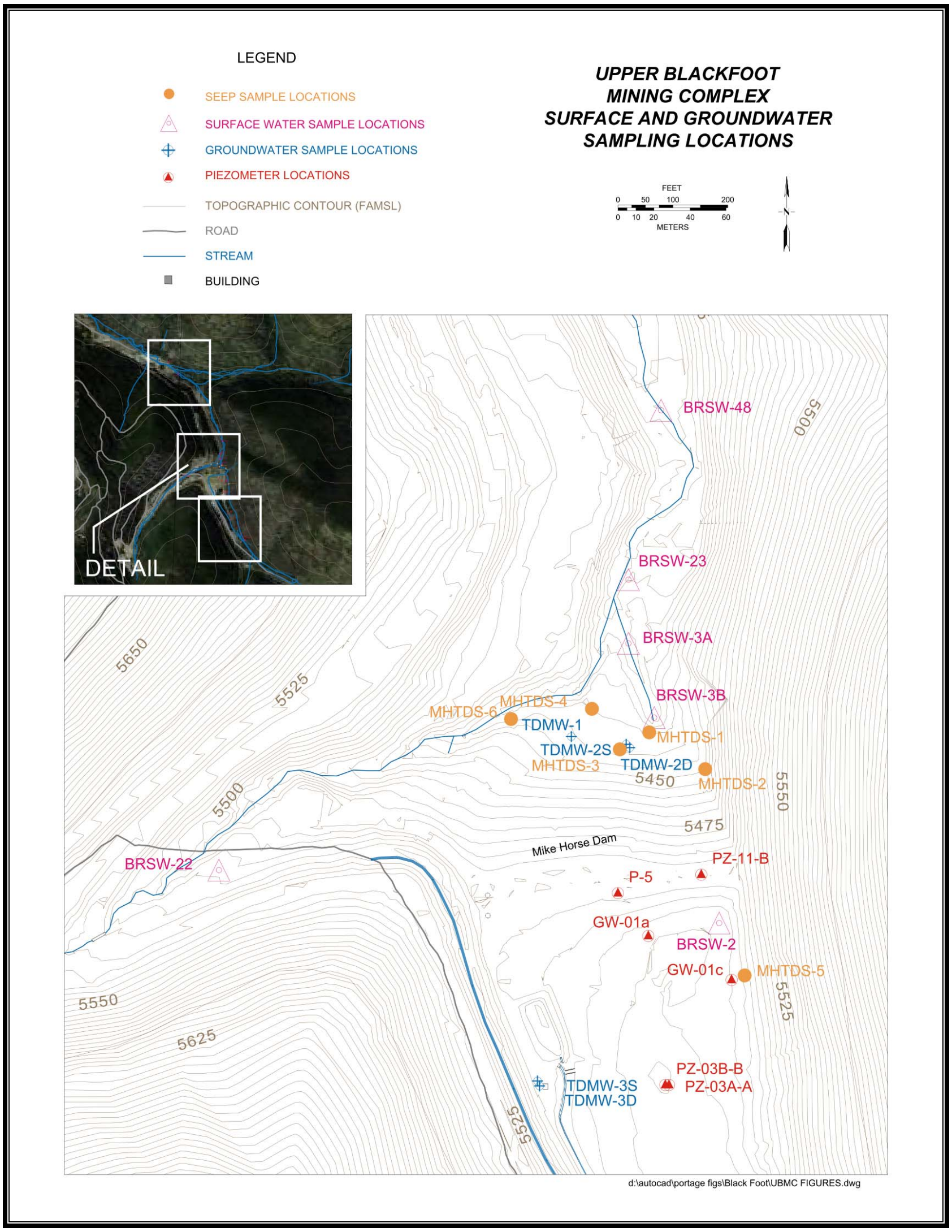

Figure 3. UBMC sampling stations in the Mike Horse Dam area

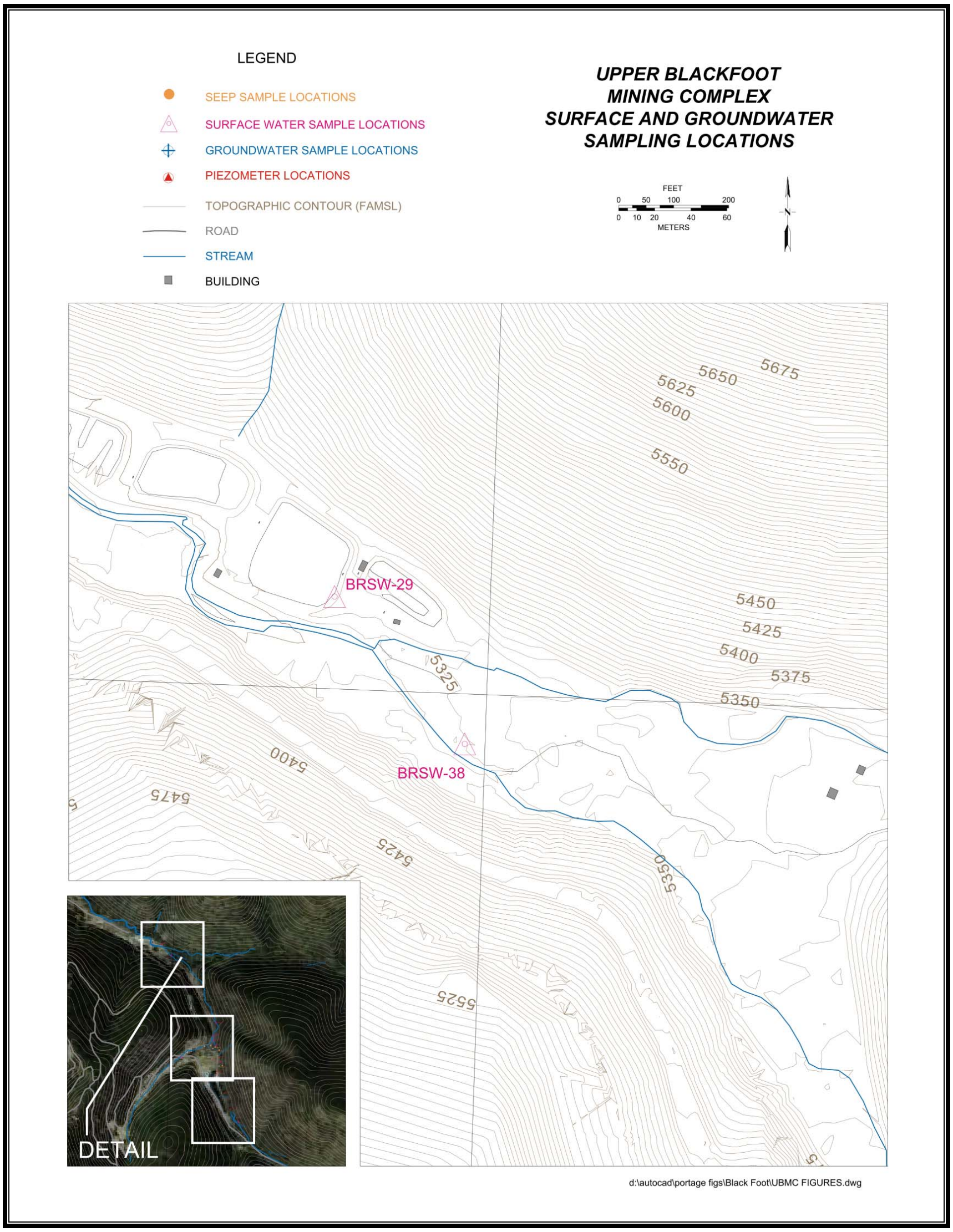

Figure 4. UBMC sampling stations in the Anaconda Creek area

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3. DATA QUALITY ASSESSMENT

Section 4 of the UBMC SAP presents the Quality Assurance Project Plan (QAPP) for 2012 field activities. The QAPP defines the data quality and QA objectives, and requirements for data validation. The data quality objectives (DQOs) are qualitative and quantitative statements that specify the quality of the data required for supporting sampling activities. The DQOs were prepared using EPA guidance for the DQO process (EPA 2006) and are summarized in Table 2. The QAPP also defines quantitative QA objectives that are evaluated against the laboratory data presented in this DSR. Quantitative QA objectives include calculated limits of control for data completeness, accuracy, and precision. Specific target reporting limits (TRLs) must also be achieved by the contract laboratory. The 2012 sampling data has also been subjected to a formal data validation process, including a review of laboratory performance criteria and sample-specific criteria.

Table 2. UBMC summary of data quality objectives

Analysis	Location	Analysis Method	[1]EPA Analytical Support Level	Media	Data Use
Metals	Laboratory	E200.2, E200.7, E200.8	III	GW/SW	SC, EA, ED
Metals	Laboratory	SW3050 B	III	SD	SC, RA, EA, ED
Acidity	Laboratory	A2310B	III	GW/SW	SC, EA, ED
Alkalinity	Laboratory	A2320B	III	GW/SW	SC, EA, ED
Hardness	Laboratory	A2340B	III	GW/SW	SC, EA, ED
Chloride	Laboratory	E300.0	III	GW/SW	SC, EA, ED
Carbonate	Laboratory	A2320B	III	GW/SW	SC, EA, ED
Bicarbonate	Laboratory	A2320B	III	GW/SW	SC, EA, ED
Sulfate	Laboratory	E300.0	III	GW/SW	SC, EA, ED
Total Dissolved Solids	Laboratory	A2540D	III	GW/SW	SC, EA, ED
Total Suspended Solids	Laboratory	A2540C	III	GW/SW	SC, EA, ED
pH	Laboratory	A4500-HB	III	GW/SW	SC, EA, ED
Conductivity	Laboratory	A2510B	III	GW/SW	SC, EA, ED

EA = evaluation of alternatives
ED = engineering design
SC = site characterization
SD = sediment
GW = monitoring well
SW = surface water
[1] Meets DEQ requirements (DEQ, 2010)

3.1 Quality Assurance Objectives

The overall QA objective is to produce well-documented data of known quality. To meet this objective, quantitative goals for data precision, accuracy, and completeness; qualitative goals for representativeness and comparability; and, TRLs for the analytical methods have been established in the project QAPP. The evaluation of quantitative and qualitative QA objectives is presented below. Table 3 summarizes the precision, accuracy, and completeness results.

3.1.1 Precision

Precision and accuracy are indicators of data quality. Generally, precision is a measure of the variability of a group of measurements compared to their mean value. Laboratory analytical precision is estimated by calculating the relative percent difference (RPD) between the analytical results from the laboratory matrix spike (MS) and matrix spike duplicate (MSD) samples and the field duplicate samples. There is no extra sample volume required for the laboratory to perform MS/MSD sample analysis.

The RPD (precision) between the analyte levels measured in the MS and MSD sample (or sample duplicates) is calculated using Equation (1).

$$RPD = \frac{MS - MSD}{0.5(MS - MSD)} \times 100\% \quad (1)$$

where

RPD = relative percent difference

MS = matrix spike

MSD = matrix spike duplicate.

The goal established for precision in the project QAPP is <20% RPD for metals and common anions (chloride and sulfate). For laboratory MS/MSD analysis the overall project RPD is 95.5%, resulting in 95.5% precision.

For field duplicate samples there were 312 duplicate data points analyzed for the four quarters of sampling. Of the 312 field duplicate results, 2 duplicate points (0.6% of the duplicate results) exhibited RPDs outside the prescribed acceptance criteria and 310 (99.4% of the duplicate results) exhibited RPDs with the prescribed acceptance criteria.

3.1.2 Accuracy

Accuracy is a measure of the bias in a measurement system. Analytical accuracy for laboratory data is assessed by evaluating matrix spike sample percent recovery, instrument calibration data, and laboratory control sample results.

$$\%R = \frac{(C_j - C_o)}{C_t} \times 100\% \quad (2)$$

where

%R = percent recovery

C_j = measured concentration in spiked sample aliquot

C_o = measured concentration in unspiked sample aliquot

C_t = actual concentration of spike added.

Accuracy was estimated for site analytical data by calculating the percent recovery of laboratory MS samples using Equation (2). By this metric, the laboratory data is 99.2% accurate.

Accuracy was also calculated for the validated laboratory data which includes data flagged because of missed holding times and poor MS/MSD recoveries. There were 1,468 data points associated with the four quarters of sampling in 2012. Of the 1,468 data points: 144 (9.8% of the total) were qualified either with a "J-," "J+," "J," or "UJ" validation flag due to missed holding times, poor MS/MSD recoveries, and/or poor duplicate precision, and 1324 (90.2% of the total) were assessed and left unqualified giving 90.2% accuracy.

3.1.3 Completeness

Completeness is defined as an assessment of the amount of valid analytical data obtained from a measurement system compared to the amount of analytical data needed to achieve a particular statistical level of confidence. The percent completeness is calculated by dividing the number of samples with acceptable data by the total number of samples planned to be collected, and multiplying the result by 100. Equation (3) is used to determine completeness:

$$\%C = (V/T) \times 100\% \quad (3)$$

where

%C = percent completeness

V = number of measurements judged valid

T = total number of measurements.

For 2012 UBMC monitoring, the QA objective for sample collection and laboratory data degree of completeness was >90%. A total of 88 water samples, 32 sediment samples, 320 field water quality measurements, 28 in-stream flow measurements, and 80 data logger download/static water level measurements were scheduled for 2012 field sampling. Site monitoring wells were dry in eight instances and the Mike Horse Dam pond was frozen in one instance, reducing the total water samples collected to 80. 45 scheduled field parameters were not collected from the dry wells and frozen pond reducing the total number of field parameters collected to 275.

For the combined sampling effort, a total of 548 samples/measurements were scheduled and 415 were collected, resulting in an overall project completeness of 75.7%. It should be noted however that all samples/measurements not collected were not collected because there was no water to sample (dry wells and completely frozen surface water). 100% of the data which could be physically collected was collected (i.e. no data was missed because of instrument/equipment failure, etc.) Because all project analytical data

was deemed useable after data validation, the completeness of the laboratory data is 100%.

Table 3. Precision, accuracy, completeness summary

	Lab MS/MSD RPD	Field duplicates	All lab results	All field sampling/data collection
Precision	95.5%	99.4%	----	----
Accuracy	99.2%	----	90.2%	----
Completeness	----	----	100%	75.7%

3.1.4 Target Reporting Limits

The target reporting limits (TRLs) for water analyses are listed in Table 4. All TRLs for water are DEQ-7 required reporting values (except iron and manganese). All TRLs for sediment and the water TRLs for iron and manganese are Energy Laboratories standard reporting limits for soil/sediment and water analysis. The Energy Laboratories standard reporting limits were selected for project sediment TRLs because they are lower than the minimum required reporting value for analytical method 200.8 (EPA 1994). The Energy Laboratories standard reporting limits were selected for iron and manganese in water TRLs because no DEQ-7 required reporting value exists. The TRL is defined as the lowest concentration that needs to be reported for undiluted samples to obtain project objectives. For UBMC, 2012 sampling, the contract laboratory achieved all project TRLs.

Table 4. UBMC target reporting limits for water and sediment analysis

Analyte	Analytical Method	[1]Reporting Limit Water (mg/L)	Reporting Limit Sediment (mg/kg)
Aluminum	EPA 200.8	0.03	0.1
Arsenic	EPA 200.8	0.003	0.02
Cadmium	EPA 200.8	0.00008	0.1
Copper	EPA 200.8	0.001	0.1
Iron	EPA 200.8	0.05	1.0
Lead	EPA 200.8	0.0005	0.1
Manganese	EPA 200.8	0.005	0.1
Zinc	EPA 200.8	0.01	0.1

[1]DEQ-7 required reporting value except for iron and manganese.

3.1.5 Qualitative QA Objectives

Qualitative QA objectives include sample representativeness and comparability. Representativeness is the degree to which sample data represent the site conditions and comparability expresses the confidence with which one data set can be compared to another. All 2012 UBMC sampling locations were selected to obtain representative water samples and proper sample collection, handling, and analysis procedures were utilized to insure comparability. Field blanks performed in the field were analyzed by the contract laboratory and the results verified that cross contamination from laboratory supplied deionized water, sample containers, and laboratory handling procedures did not impact the analytical results. Rinsate blanks performed in the field were also analyzed by the contract laboratory and the results verified that cross contamination from sampling equipment did not impact the analytical results.

3.2 Data Validation

Data validation was performed according to the *Final EPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (EPA 2004); EPA Publication SW-846, *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (EPA 2008a); and *EPA Guidance on Environmental Data Verification and Data Validation* (EPA 2002a). The data validation reports also conform to DEQ Data Validation Guidelines (DEQ, 2010).

Data validation included verification of the following:

- Compliance with the SAP/QAPP.
- Proper sample collection and handling procedures.
- Holding times.
- Field QC results.
- Instrument calibration verification.
- Laboratory blank analysis.
- Detection limits.
- Laboratory duplicates.
- MS/MSD percent recoveries and relative percent differences.
- Surrogate percent recoveries.
- Data, event, completeness and format.
- Data qualifiers assigned by the laboratory.

In summary, the validation of laboratory data packages did not result in the rejection of any project data, but did result in additional data flags and qualifiers as described below. The complete data validation reports for individual laboratory data packages are attached in Appendix B.

All pH analysis for the project are qualified with a "J-" validation flag to denote the reported results are estimates with a low bias due to exceeded holding times. The pH holding time is 24-hours and was exceeded because of the remoteness of the site in relation to the contract laboratory and the time it takes to transport samples from the field. Field pH measurements were collected at the time of sample collection to supplement the laboratory data.

3.2.1 First Quarter Summary

Two (2) sample delivery groups (SDGs) were analyzed in the March 2012 sampling effort: H12030390 and H12030340. Eight (8) sediment, ten (10) surface water, and nine (9) groundwater samples were collected on 03/26/12, 03/27/12, 03/28/12, and 03/29/12. The surface water and groundwater samples were analyzed for pH, conductivity, TSS, TDS, alkalinity (total alkalinity, bicarbonate, and carbonate), chloride, sulfate, hardness, dissolved metals, and total metals. The sediment samples were analyzed for total metals.

All associated pH sample results have been qualified with a "J-" validation flag to denote the reported results are estimates with a low bias due to exceeded holding times.

All groundwater conductivity samples have been qualified with a "J" validation flag to denote the reported results are estimates due to poor MSD duplicate precision.

The copper, lead, manganese, and zinc sediment sample have been qualified with a "J" validation flag to denote the reported results are estimates due to low MS/MSD recoveries and poor MSD duplicate precision.

The aluminum results for samples TDMW-6 and TDMW-8 and the calcium result in TDMW-8 have been qualified with a "UJ" validation flag to denote the reported concentrations are non-detect, and the reported concentration is an estimate due to low MS/MSD recoveries.

A total of fifty nine (59) sample data points have been qualified during data validation. Of the qualified sample data points: forty one (41) were assessed and qualified with a "J" validation flag, and eighteen (18) were assessed and qualified with a "J-" validation flag. The fifty nine (59) field sample data points that have been qualified with a "J" or "J-" validation flag are considered to be screening quality data. No data was rejected or deemed unusable in this validation effort.

3.2.2 Second Quarter Summary

Three (3) SDGs were analyzed in the May 2012 sampling effort: H12050150, H12050152, and H12050222. Eight (8) sediment, eleven (11) surface water, and nine (9) groundwater samples were collected on 05/07/12 and 05/09/12. The surface water and groundwater samples were analyzed for pH, conductivity, TSS, TDS, alkalinity (total alkalinity, bicarbonate, and carbonate), chloride, sulfate, hardness, dissolved metals, and total metals. The sediment samples were analyzed for total metals.

All associated pH sample results have been qualified with a "J-" validation flag to denote the reported results are estimates with a low bias due to exceeded holding times.

A total of twenty (20) sample data points have been qualified during data validation. Of the qualified sample data points: Twenty (20) were assessed and qualified with a "J-" validation flag. The twenty (20) field sample data points that have been qualified with a "J," "J-," or a "UJ" validation flag are

considered to be screening quality data. No data was rejected or deemed unusable in this validation.

3.2.3 Third Quarter Summary

Two (2) SDGs were analyzed in the October 2012 sampling effort: H12100099 and H12100143. Eight (8) sediment, eleven (11) surface water, and nine (9) groundwater samples were collected 10/03/12 and 10/04/12. The surface water and groundwater samples were analyzed for pH, conductivity, TSS, TDS, alkalinity (total alkalinity, bicarbonate, and carbonate), chloride, sulfate, hardness, dissolved metals, and total metals. The sediment samples were analyzed for total metals.

All associated pH sample results have been qualified with a "J-" validation flag to denote the reported results are estimates with a low bias due to exceeded holding times.

The total arsenic, total lead, total manganese, and total zinc sediment sample results for samples have been qualified with a "J-" validation flag to denote the reported results are estimates with a low bias due to low MS and MSD recoveries and/or poor field duplicate precision.

The dissolved aluminum results for samples TDMW-4D and TDMW-6 have been qualified with a "J" validation flag to denote the reported results are estimates due to poor field duplicate precision. The remaining dissolved aluminum groundwater results have been qualified with a "UJ" validation flag to denote the data is non-detect at the reported level, but the reported level is an estimate due to poor duplicate precision.

A total of sixty two (62) sample data points have been qualified during data validation. Of the qualified sample data points: Two (2) were assessed and qualified with a "J" validation flag, fifty two (52) were assessed and qualified with a "J-" validation flag, and seven (7) were assessed and qualified with a "UJ" validation flag. The sixty two(62) field sample data points that have been qualified with a "J", "J-", or a "UJ" validation flag are considered to be screening quality data. No data was rejected or deemed unusable in this validation

3.2.4 Fourth Quarter Summary

Three (3) SDGs were analyzed in the December 2012 sampling effort: H12120184, H12120241, and H12120185. Eight (8) sediment, ten (10) surface water, and nine (9) groundwater samples were collected 12/10/12. The surface water and groundwater samples were analyzed for pH, conductivity, TSS, TDS, alkalinity (total alkalinity, bicarbonate, and carbonate), chloride, sulfate, hardness, dissolved metals, and total metals. The sediment samples were analyzed for total metals.

All associated pH sample results have been qualified with a "J-" validation flag to denote the reported results are estimates with a low bias due to exceeded holding times.

The total arsenic sediment sample results for samples have been qualified with a "J-" validation flag to denote the reported results are estimates with a low bias due to low MS and MSD recoveries.

The total manganese sediment sample results for samples have been qualified with a "J+" validation flag to denote the reported results are estimates with a high bias due to high MS recovery.

The chloride surface water have been qualified with a "UJ" validation flag to denote the data is non-detect at the reported level, but the reported level is an estimate due to low MS recovery.

A total of forty five (45) sample data points have been qualified during data validation. Of the qualified sample data points: Eight (8) were assessed and qualified with a "J+" validation flag, twenty seven (27) were assessed and qualified with a "J-" validation flag, and ten (10) were assessed and qualified with a "UJ" validation flag. The sixty two(62) field sample data points that have been qualified with a "J+", "J-", or a "UJ" validation flag are considered to be screening quality data. No data was rejected or deemed unusable in this validation.

4. ANALYTICAL RESULTS

Tabular analytical result summaries and summary discussion are provided in the following sections. All groundwater and surface water analytical data were compared to the applicable standards in DEQ-7. Groundwater sample results are compared to the human health standards while surface water sampling results are compared to both human health and aquatic life standards. Sediment data is compared to the ecological risk screening values found in the Final Remedial Investigation Report for the UBMC (Tetra Tech, 2013). The raw analytical data packages are provided in Appendix A.

4.1 Groundwater

The metals analyzed for UBMC monitoring wells are dissolved aluminum, arsenic, cadmium, copper, iron, lead, manganese, zinc. The cations included are: calcium, magnesium, potassium, and sodium. The dissolved metals sample is passed through a filter designed to remove particles greater than 0.45 micrometers (µm) in diameter at the time of sample collection. The UBMC groundwater analysis results for metals are shown in Table 5.

As shown in Table 5, cadmium exceeded the DEQ-7 human health standard in TDMW-1 for the fourth quarter sampling event and in TDMW-2S for all quarterly sampling events. TDMW-1 and TDMW-2S are both located at the toe of the Mike Horse Dam. The cadmium concentration in TDMW-2S has increased during each sampling event in 2012, continuing a trend noted in 2011. Cadmium concentrations in TDMW-1 also increased during each sampling event in 2012. Zinc exceeded the DEQ-7 human health standard in TDMW-1 for the fourth quarter sampling event and in TDMW-2S for all quarterly sampling events. Zinc concentrations in TDMW-1 increased during each sampling event in 2012. Iron, manganese, and copper were also detected in UBMC groundwater monitoring wells, but no other DEQ-7 human health standards were exceeded. The human health standards for iron and manganese were removed from DEQ-7 in its October 2012 revision.

These results appear consistent with historic groundwater monitoring results from 2001 to 2009, (TerraGraphics 2010) and from 2011 (Portage 2012) in which there were also exceedances of the cadmium and zinc standards in TDMW-2S. Manganese concentrations in TDMW-2S were in an uptrend in 2011 and have increased substantially in 2012. The trend of increasing cadmium and zinc concentrations in TDMW-1 is a continuation of the 2011 results. In well TDMW-2S, conductivity and dissolved solids increased, remain elevated, and appear to increase during periods of falling groundwater elevation. Groundwater elevations in wells TDMW-1 and TDMW-2S have been in a downtrend over the monitoring years 2011 – 2012 and increases in dissolved solids may be contributing to the observed increases in metals concentrations. Recent efforts to dewater the Mike Horse tailings may also be impacting these wells by reducing the quantity of groundwater available for contaminant dilution.

Table 6 shows the analytical results for physiochemical properties, common anions, and common cations. The only applicable standard for human health found in DEQ-7 for these properties is for pH. As shown in the table, instances of pH being below the DEQ-7 standard were observed in 2012 in wells TDMW-1 and TDMW-2S. Table 7 shows field water quality measurements recorded during groundwater sampling. Field water quality measurements are not compared to standards (DEQ-7 standard for laboratory pH only), but provide additional information on groundwater quality.

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Table 5. UBMC groundwater (dissolved metals, mg/l)

UBMC Groundwater (dissolved metals, mg/l)									
Sample ID	*Collection Date*	*Aluminum*	*Arsenic*	*Cadmium*	*Copper*	*Iron*	*Lead*	*Manganese*	*Zinc*
	***Standard**	----	0.010	0.005	1.3	----	0.015	----	2
TDMW-1	3/29/2012	<0.03	<0.003	0.00057	<0.001	<0.05	<0.0005	<0.005	0.29
TDMW-1	5/9/2012	<0.03	<0.003	0.00119	<0.001	<0.05	<0.0005	0.028	1.24
TDMW-1	10/4/2012	<0.03 UJ	<0.003	0.00313	0.001	<0.05	<0.0005	<0.005	1.31
TDMW-1	12/13/2012	<0.03	<0.003	**0.0141**	0.001	<0.05	<0.0005	<0.005	**5.63**
TDMW-2S	3/29/2012	<0.03	<0.003	**0.0135**	<0.001	<0.05	<0.0005	27.7	**9.47**
TDMW-2S	5/9/2012	<0.03	<0.003	**0.0207**	0.002	0.12	0.0007	58.6	**11.4**
TDMW-2S	10/4/2012	<0.03 UJ	<0.003	**0.0234**	0.002	0.05	<0.0005	42.9	**10.6**
TDMW-2S	12/13/2012	<0.03	<0.003	**0.0271**	0.002	0.14	<0.0005	60.0	**12.7**
TDMW-2D	3/29/2012	<0.03	<0.003	<0.00008	<0.001	<0.05	<0.0005	<0.005	<0.01
TDMW-2D	5/9/2012	<0.03	<0.003	<0.00008	<0.001	<0.05	<0.0005	<0.005	<0.01
TDMW-2D	10/4/2012	<0.03 UJ	<0.003	<0.00008	0.001	<0.05	<0.0005	<0.005	<0.01
TDMW-2D	12/13/2012	<0.03	<0.003	<0.00008	<0.001	<0.05	<0.0005	<0.005	<0.01
TDMW-3D	3/29/2012	<0.03	<0.003	0.00011	<0.001	<0.05	<0.0005	<0.005	0.02
TDMW-3D	5/9/2012	<0.03	<0.003	0.00015	<0.001	<0.05	0.0015	0.011	0.05
TDMW-6	5/9/2012	<0.03	<0.003	0.00017	<0.001	<0.05	0.0025	0.021	0.05
TDMW-3D	10/4/2012	<0.03 UJ	<0.003	0.00016	<0.001	<0.05	<0.0005	<0.005	0.03
TDMW-3D	12/12/2012	<0.03	<0.003	0.00020	<0.001	<0.05	<0.0005	<0.005	0.03
TDMW-4D	3/29/2012	<0.03	<0.003	<0.00008	<0.001	<0.05	<0.0005	<0.005	<0.01
TDMW-6	3/29/2012	<0.03 UJ	<0.003	<0.00008	<0.001	<0.05	<0.0005	<0.005	<0.01
TDMW-4D	5/9/2012	<0.03	<0.003	<0.00008	<0.001	<0.05	<0.0005	<0.005	<0.01
TDMW-4D	10/4/2012	0.03 J	<0.003	0.00013	<0.001	<0.05	<0.0005	0.045	<0.01
TDMW-6	10/4/2012	0.04 J	<0.003	0.00013	<0.001	<0.05	<0.0005	0.045	<0.01
TDMW-4D	12/12/2012	0.03	<0.003	<0.00008	0.013	<0.05	<0.0005	<0.005	<0.01
TDMW-6	12/12/2012	0.03	<0.003	<0.00008	<0.001	<0.05	<0.0005	<0.005	<0.01
TDMW-5	3/29/2012	<0.03	<0.003	<0.00008	<0.001	<0.05	<0.0005	<0.005	<0.01
TDMW-5	5/9/2012	<0.03	<0.003	<0.00008	<0.001	<0.05	<0.0005	<0.005	<0.01
TDMW-5	10/4/2012	<0.03 UJ	<0.003	0.00014	<0.001	<0.05	<0.0005	<0.005	0.02
TDMW-5	12/12/2012	<0.03	<0.003	<0.00008	<0.001	<0.05	<0.0005	<0.005	0.01

Note:

< Indicates the concentration is less than the reporting limit

Exceeds standard

* Montana Numeric Water Quality Standards Circular 7, 2012, human health standard

Groundwater standards are for dissolved metals only

---- No standard

Duplicate of TDMW-4D

Duplicate of TDMW-3D

mg/l = milligrams per liter

J validation flag denotes the reported results are estimates due to low MS/MSD recoveries and/or poor MSD/field duplicate precision

UJ validation flag denotes that the reported concentration is non-detect and the reported concentration is an estimate due to low MS/MSD recovery and/or poor duplicate precision

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Table 6. UBMC groundwater (physiochemical, anions, cations)

UBMC Groundwater																
		Physiochemical					Common Anions (mg/l)					Common Cations (mg/l)				
Sample ID	Collection Date	pH	Conductivity, umhos/cm	Hardness	Total Susp. Solids, mg/l	Total Diss. Solids, mg/L	Alkalinity	Bicarbonate	Carbonate	Chloride	Sulfate	Calcium (D)	Magnesium (D)	Potassium (D)	Sodium (D)
	*Standard	6.5 - 8.5	----	----	----	----	----	----	----	----	----	----	----	----	----
TDMW-1	3/29/2012	6.5 J-	886 J	453	<10	602	67	82	<4	<1	380	80	62	1	2
TDMW-1	5/9/2012	6.1 J-	576	263	<10	379	61	75	<4	<1	220	50	38	<1	1
TDMW-1	10/4/2012	6.5 J-	550	276	<10	352	70	86	<4	<1	220	53	35	1	2
TDMW-1	12/13/2012	6.4 J-	777	395	<10	580	62	76	<4	<1	350	74	51	1	2
TDMW-2S	3/29/2012	6.5 J-	1400 J	732	42	1040	120	150	<4	<1	670	128	108	2	2
TDMW-2S	5/9/2012	6.0 J-	2610	1480	<10	2400	130	160	<4	<1	1500	243	230	2	2
TDMW-2S	10/4/2012	6.2 J-	1400	752	<10	1120	120	150	<4	<1	790	133	102	3	2
TDMW-2S	12/13/2012	6.3 J-	1800	977	14	1540	150	180	<4	<1	1000	192	143	3	2
TDMW-2D	3/29/2012	7.2 J-	261 J	126	<10	128	100	120	<4	<1	22	26	15	<1	1
TDMW-2D	5/9/2012	6.8 J-	280	126	<10	159	110	130	<4	<1	36	28	14	<1	1
TDMW-2D	10/4/2012	7.0 J-	255	125	<10	130	85	100	<4	<1	39	26	15	<1	1
TDMW-2D	12/13/2012	7.0 J-	348	167	<10	203	110	130	<4	<1	76	33	20	<1	2
TDMW-3D	3/29/2012	7.4 J-	669 J	335	<10	430	58	71	<4	<1	260	80	33	<1	2
TDMW-3D	5/9/2012	5.8 J-	470	209	<10	316	45	54	<4	<1	180	52	22	<1	2
TDMW-6	5/9/2012	6.6 J-	471	212	<10	308	44	54	<4	<1	180	52	22	<1	2
TDMW-3D	10/4/2012	7.2 J-	586	294	<10	403	61	74	<4	<1	250	69	30	<1	2
TDMW-3D	12/12/2012	7.1 J-	717	360	<10	494	51	62	<4	<1	310	84	36	<1	2
TDMW-4D	3/29/2012	7.4 J-	248 J	116	22	122	97	120	<4	<1	15	25	13	<1	2
TDMW-6	3/29/2012	7.4 J-	246 J	113	18	130	99	120	<4	<1	16	24	13	<1	2
TDMW-4D	5/9/2012	7.1 J-	192	76	<10	116	62	75	<4	<1	31	17	8	<1	3
TDMW-4D	10/4/2012	7.6 J-	333	141	169	171	150	180	<4	<1	27	25	19	<1	15
TDMW-6	10/4/2012	7.8 J-	331	142	154	170	150	180	<4	<1	27	26	19	<1	15
TDMW-4D	12/12/2012	7.7 J-	336	143	148	174	160	180	5	<1	33	26	19	<1	13
TDMW-6	12/12/2012	7.8 J-	336	147	151	179	150	180	5	<1	33	26	20	<1	14
TDMW-5	3/29/2012	8.0 J-	289 J	137	<10	146	90	110	<4	<1	33	29	16	<1	2
TDMW-5	5/9/2012	7.6 J-	183	74	<10	114	40	49	<4	<1	43	20	6	<1	1
TDMW-5	10/4/2012	7.7 J-	307	154	18	168	130	150	<4	<1	44	35	16	<1	2
TDMW-5	12/12/2012	7.8 J-	273	131	<10	144	97	110	<4	<1	48	29	14	<1	2

Note:

< Indicates the concentration is less than the reporting limit

Exceeds standard

* Montana Numeric Water Quality Standards Circular 7, 2012, human health standard

---- No standard

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Table 6. Continued

	Duplicate of TDMW-4D
	Duplicate of TDMW-3D
	mg/l = milligrams per liter
	D = Dissolved
	umhos/cm = micromhos/centimeter
	J validation flag denotes the reported results are estimates due to low MS/MSD recoveries and/or poor MSD duplicate precision
	J- validation flag denotes that the result is an estimate with low bias due to exceeded holding times

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Table 7. UBMC groundwater field water quality measurements

UBMC Groundwater Field Parameters							
Sample ID	*Collection Date*	*pH*	*Conductivity, umhos/cm*	*Temperature, °C*	*Dissolved Oxygen, % Saturation*	*Dissolved Oxygen, mg/l*	*Oxidation Reduction Potential, mv*
TDMW-1	3/29/2012	6.34	845	6.54	55.4	6.77	229.4
TDMW-1	5/9/2012	6.07	555	7.04	48.4	5.84	190.2
TDMW-1	10/4/2012	6.16	554	6.67	43.6	5.29	87.7
TDMW-1	12/12/2012	6.42	821	6.14	38.3	4.74	183.6
TDMW-2S	3/29/2012	6.34	1298	5.42	6.3	0.78	230.6
TDMW-2S	5/9/2012	6.09	2554	6.75	4	0.47	206.1
TDMW-2S	10/4/2012	5.81	1481	8.55	8.3	0.96	105.5
TDMW-2S	12/12/2012	6.22	1901	4.85	4.9	0.64	185.1
TDMW-2D	3/29/2012	7.13	243	6.75	49.3	5.99	218.8
TDMW-2D	5/9/2012	6.92	264	7.62	57.1	6.81	200
TDMW-2D	10/4/2012	6.75	254	6.9	50.6	6.15	86.4
TDMW-2D	12/12/2012	7.19	342	6.23	38.2	4.79	184
TDMW-3D	3/29/2012	7.32	692	5.77	69.4	8.68	227.2
TDMW-3D	5/9/2012	6.72	455	6.88	79.5	9.69	182.4
TDMW-3D	10/4/2012	6.62	595	5.6	69	8.67	99.5
TDMW-3D	12/12/2012	6.84	739	5.52	70.02	8.82	148.6
TDMW-4D	3/29/2012	7.39	231	5.18	77.5	9.81	214.9
TDMW-4D	5/9/2012	7.42	176	8.07	89.9	10.64	154.1
TDMW-4D	10/4/2012	7.25	339	4.61	7.3	0.94	104.4
TDMW-4D	12/12/2012	7.59	343	3.7	9.3	1.24	154.2
TDMW-5	3/29/2012	8.18	273	4.11	71.7	9.34	191.7
TDMW-5	5/9/2012	8.01	176	9.22	99.1	11.4	181.6
TDMW-5	10/4/2012	7.44	309	4.43	76.3	9.88	127.7
TDMW-5	12/12/2012	6.32	274	4.74	72	9.25	194

Note: °C = degrees Celcius
mg/l = milligrams per liter
mv = millivolts
umhos = micromhos

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4.1.1 Groundwater Elevation Data

Prior to each sampling event, groundwater elevation data was collected using a water level meter to record static water levels in monitoring wells and site piezometers to the nearest 1/100th of a foot. As shown in Table 8, the measurements reflect significant seasonal variation in several of the wells and piezometers installed in alluvium and much smaller seasonal fluctuations in bedrock installations. Water levels in piezometers installed in the tailings impoundment were affected by dewatering operations in the spring and summer of 2012. Table 8 shows the measured static water levels and the groundwater elevation in feet above mean sea level (famsl). Groundwater elevations are lower across the site in 2012 when compared to the 2011 data as a result of less spring runoff and precipitation in 2012.

Table 8. UBMC Groundwater elevation data

Station ID	Date	Time	SWL (ft below measuring point)	Ground surface elevation (famsl)	MP elevation (famsl)	Groundwater elevation (famsl)
TDMW-1	3/29/2012	1500	15.70	5441.52	5443.28	5427.58
	5/9/2012	1730	35.50	5441.52	5443.28	5407.78
	10/4/2012	1709	18.85	5441.52	5443.28	5424.43
	12/13/2012	1045	18.66	5441.52	5443.28	5424.62
TDMW-2S	3/29/2012	1540	13.33	5437.61	5439.24	5425.91
	5/9/2012	1805	11.91	5437.61	5439.24	5425.91
	10/4/2012	1839	15.71	5437.61	5439.24	5425.91
	12/12/2012	1626	15.01	5437.61	5439.24	5425.91
TDMW-2D	3/29/2012	1525	12.65	5438.03	5441.25	5428.60
	5/9/2012	1805	11.49	5438.03	5441.25	5429.76
	10/4/2012	1755	15.06	5438.03	5441.25	5426.19
	12/12/2012	1025	15.00	5438.03	5441.25	5426.25
TDMW-3S	3/29/2012	1335	32.30	5495.76	5497.44	5465.14
	5/9/2012	1625	32.15	5495.76	5497.44	5465.29
	10/4/2012	1504	Dry	5495.76	5497.44	Dry
	12/12/2012	1514	32.19	5495.76	5497.44	5465.25
TDMW-3D	3/29/2012	1315	45.95	5496.34	5497.49	5451.54
	5/9/2012	1618	45.92	5496.34	5497.49	5451.57
	10/4/2012	1507	54.36	5496.34	5497.49	5443.13
	12/12/2012	1510	53.63	5496.34	5497.49	5443.86

Table 8. Continued

Station ID	Date	Time	SWL (ft below measuring point)	Ground surface elevation (famsl)	MP elevation (famsl)	Groundwater elevation (famsl)
TDMW-3D	5/9/2012	1456	Dry	5496.43	5496.67	Dry
	10/4/2012	1323	Dry	5496.43	5496.67	Dry
	12/12/2012	1304	Dry	5496.43	5496.67	Dry
TDMW-4D	3/29/2012	1100	35.31	5496.51	5496.74	5461.43
	5/9/2012	1500	36.15	5496.51	5496.74	5460.59
	10/4/2012	1320	46.38	5496.51	5496.74	5450.36
	12/12/2012	1258	46.29	5496.51	5496.74	5450.45
TDMW-5	3/29/2012	820	73.90	5537.82	5540.21	5466.31
	5/9/2012	1200	65.81	5537.82	5540.21	5474.40
	10/4/2012	1055	77.15	5537.82	5540.21	5463.06
	12/12/2012	1050	77.51	5537.82	5540.21	5462.70
SUMP-S bedrock	3/29/2012	950	7.50	5437.61	5439.24	5431.74
	5/9/2012	1349	4.60	5437.61	5439.24	5434.64
	10/4/2012	1216	8.51	5437.61	5439.24	5430.73
	12/12/2012	1224	8.45	5437.61	5439.24	5430.79
SUMP-S alluvium	3/29/2012	945	5.60	5441.52	5443.28	5437.68
	5/9/2012	1349	7.23	5441.52	5443.28	5436.05
	10/4/2012	1215	9.63	5441.52	5443.28	5433.65
	12/12/2012	1227	9.56	5441.52	5443.28	5433.72
SUMP-N	3/29/2012	955	13.54	5490.09	5491.86	5478.32
	5/9/2012	1410	20.02	5490.09	5491.86	5471.84
	10/4/2012	1218	22.95	5490.09	5491.86	5468.91
	12/12/2012	1231	12.91	5490.09	5491.86	5478.95
PZ-09	3/29/2012	1005	11.40	5482.69	5486.24	5474.84
	5/9/2012	1422	14.54	5482.69	5486.24	5471.70
	10/4/2012	1225	14.55	5482.69	5486.24	5471.69
	12/12/2012	1236	14.57	5482.69	5486.24	5471.67

Table 8. Continued

Station ID	Date	Time	SWL (ft below measuring point)	Ground surface elevation (famsl)	MP elevation (famsl)	Groundwater elevation (famsl)
GW-02A	3/29/2012	1010	24.60	5484.28	5486.00	5461.40
	5/9/2012	1436	25.35	5484.28	5486.00	5460.65
	10/4/2012	1235	33.34	5484.28	5486.00	5452.66
	12/12/2012	1241	33.13	5484.28	5486.00	5452.87
GW-02	3/29/2012	1020	24.90	5483.64	5486.09	5461.19
	5/9/2012	1441	25.72	5483.64	5486.09	5460.37
	10/4/2012	1250	38.51	5483.64	5486.09	5447.58
	12/12/2012	1244	37.34	5483.64	5486.09	5448.75
PZ-02B-C	3/29/2012	1015	24.43	5480.65	5484.95	5460.52
	5/9/2012	1448	25.81	5480.65	5484.95	5459.14
	10/4/2012	1255	39.54	5480.65	5484.95	5445.41
	12/12/2012	1250	39.03	5480.65	5484.95	5445.92
P-5	3/29/2012	1435	48.25	5496.90	5499.82	5451.57
	5/10/2012	830	46.68	5496.90	5499.82	5453.14
	10/4/2012	1636	49.01	5496.90	5499.82	5450.81
	12/12/2012	1601	Dry	5496.90	5499.82	Dry
GW-01a	3/29/2012	1430	30.63	5482.61	5484.58	5453.95
	5/10/2012	835	32.02	5482.61	5484.58	5452.56
	10/4/2012	1632	46.98	5482.61	5484.58	5437.60
	12/12/2012	1606	47.84	5482.61	5484.58	5436.74
PZ-03B-B	3/29/2012	1410	25.40	5480.60	5484.35	5458.95
	5/9/2012	1700	27.17	5480.60	5484.35	5457.18
	10/4/2012	1616	43.67	5480.60	5484.35	5440.68
	12/12/2012	1315	43.74	5480.60	5484.35	5440.61
PZ-03SA-A	3/29/2012	1400	12.30	5480.08	5483.78	5471.48
	5/9/2012	1705	7.59	5480.08	5483.78	5476.19
	10/4/2012	1620	10.44	5480.08	5483.78	5473.34
	12/12/2012	1317	10.49	5480.08	5483.78	5473.29

Table 8. Continued

Station ID	Date	Time	SWL (ft below measuring point)	Ground surface elevation (famsl)	MP elevation (famsl)	Groundwater elevation (famsl)
GW-01c	3/29/2012	1420	26.75	5483.94	5486.97	5460.22
	5/10/2012	840	29.13	5483.94	5486.97	5457.84
	10/4/2012	1651	49.31	5483.94	5486.97	5437.66
	12/12/2012	1618	49.49	5483.94	5486.97	5437.48

SWL = static water level
MP = measuring point

Continuous level data, measured and recorded in site wells and piezometers by electronic transducers and data loggers, is attached electronically in Appendix H. Graphs of the 2012 data are attached in Appendix E. The data represents the indicated head of water in the well/piezometer column above the well bottom in feet.

4.2 Surface Water

The metals analyzed for UBMC surface water monitoring stations are aluminum, arsenic, cadmium, copper, iron, manganese, and zinc. The cations included are: calcium, magnesium, potassium, and sodium. Total recoverable metals concentrations were compared to both the human health and aquatic life standards found in DEQ-7. Dissolved aluminum is compared to aquatic life standards when the pH of the sample is between 6.5 and 9. Samples for dissolved aluminum were passed through a filter designed to remove particles greater than 0.45 µm in diameter at the time of sample collection. Tables 9 through 12 show the results for metals in UBMC surface water.

As shown in Table 9, there are multiple exceedances of DEQ-7 human health standards at many of the UBMC surface water stations for all four quarters of sampling. The exception is the upgradient station, BRSW-1 which exhibits good water quality and met all DEQ-7 standards during 2012 sampling. These results are consistent with historic surface water sampling results reported by TerraGraphics for 1993 through 2009 (TerraGraphics 2010) and by Portage in 2011 (Portage 2012). Exceedances of human health standards were primarily observed for cadmium, lead, and zinc. Iron and manganese concentrations were elevated at sampling stations located below the Mike Horse Dam, but the iron and manganese human health standards were removed from DEQ-7 in October 2012.

Table 10 shows the total metals results compared to chronic and acute aquatic life standards. As shown in Table 11, the standards for cadmium, copper, lead, and zinc are calculated for each sampling event based on the hardness of the sample (hardness values are shown in Table 13). The standards for these metals are adjusted by hardness because in general the toxicity of these metals to aquatic life decreases with increasing hardness. Table 12 shows the results for dissolved aluminum compared to aquatic life standards.

The results show numerous exceedances of both acute and chronic aquatic life standards at all surface water sampling stations with the exception of the upgradient station BRSW-1 which exhibits good water quality and met all DEQ-7 standards during 2012 sampling. These results are consistent with historic surface water sampling results reported by TerraGraphics for 1993 through 2009 (TerraGraphics 2010) and by Portage in 2011 (Portage 2012). Cadmium, copper and zinc frequently exceed acute standards while iron and lead exceed chronic standards.

As shown in table 12, there were two exceedances of the DEQ-7 aluminum chronic aquatic life standards. These exceedances are associated with the spring sampling event and the results are consistent with those observed in 2011.

Table 13 shows the analytical results for physiochemical properties, common anions, and common cations. The only applicable standard for human health found in DEQ-7 for these properties is for pH. As shown in the table, pH was below the DEQ human health standard at station BRSW-38 (upstream of the water treatment plant) during the second quarter (high flow) sampling event. This result is not supported by the field pH measurement. Table 14 shows field water quality measurements recorded during surface water sampling. Field water quality measurements are not compared to standards (DEQ-7 standard for laboratory pH only), but provide additional information on surface water quality.

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Table 9. UBMC surface water vs. human health (total recoverable metals, mg/l)

UBMC Surface Water (total recoverable metals, mg/l)								
Sample ID	*Collection Date*	*Arsenic*	*Cadmium*	*Copper*	*Iron*	*Lead*	*Manganese*	*Zinc*
	***Standard**	0.010	0.005	1.3	----	0.015	----	2
BRSW-1	3/26/2012	<0.003	<0.00008	0.002	0.25	<0.0005	0.006	<0.01
BRSW-1	5/7/2012	<0.003	<0.00008	<0.001	0.05	<0.0005	<0.005	<0.01
BRSW-1	10/2/2012	<0.003	<0.00008	<0.001	<0.03	<0.0005	<0.005	<0.01
BRSW-1	12/10/2012	<0.003	<0.00008	<0.001	<0.03	<0.0005	<0.005	<0.01
BRSW-2	3/26/2012	<0.003	**0.00537**	0.006	0.11	**0.0219**	1.72	1.18
BRSW-2	5/7/2012	<0.003	**0.0301**	0.015	0.22	**0.0543**	12.0	**12.7**
BRSW-2	10/2/2012	0.006	**0.0130**	0.025	0.86	**0.115**	5.60	1.92
BRSW-3A	3/27/2012	<0.003	0.00426	0.022	0.44	0.0032	1.50	1.36
BRSW-3A	5/7/2012	<0.003	0.00217	0.005	0.13	0.0019	1.14	0.83
BRSW-3A	10/2/2012	<0.003	0.00025	0.001	<0.03	0.0008	0.199	0.22
BRSW-3A	12/10/2012	<0.003	0.00164	0.004	0.08	0.0007	0.958	0.82
BRSW-3B	3/27/2012	**0.012**	0.00363	0.033	3.70	**0.129**	2.01	1.56
BRSW-3B	5/7/2012	<0.003	0.00152	0.002	0.09	0.0011	0.662	0.47
BRSW-3B	10/2/2012	<0.003	<0.00008	<0.001	<0.03	<0.0005	<0.005	0.26
BRSW-3B	12/10/2012	<0.003	0.00009	<0.001	<0.03	<0.0005	0.084	0.21
BRSW-22	3/26/2012	<0.003	**0.0154**	0.023	<0.03	0.0059	<0.005	**3.45**
BRSW-24	3/26/2012	<0.003	**0.0156**	0.023	<0.03	0.0059	<0.005	**3.43**
BRSW-22	5/7/2012	<0.003	0.00456	0.059	<0.03	0.0033	0.072	0.76
BRSW-24	5/7/2012	<0.003	0.00454	0.058	<0.03	0.0034	0.079	0.73
BRSW-22	10/2/2012	<0.003	**0.00613**	0.019	<0.03	0.0050	<0.005	1.12
BRSW-24	10/2/2012	<0.003	**0.00612**	0.017	<0.03	0.0046	<0.005	1.06
BRSW-22	12/10/2012	<0.003	**0.00904**	0.016	<0.03	0.0049	<0.005	**2.03**
BRSW-24	12/10/2012	<0.003	**0.00909**	0.016	<0.03	0.0049	<0.005	**2.06**
BRSW-23	3/27/2012	<0.003	**0.00790**	0.031	0.64	**0.0360**	0.595	1.91
BRSW-23	5/7/2012	0.004	0.00362	0.029	0.83	**0.0705**	0.567	0.76
BRSW-23	10/2/2012	<0.003	0.00118	0.004	0.08	0.0090	0.349	0.25
BRSW-23	12/10/2012	<0.003	0.00234	0.007	0.13	0.0054	0.889	0.73
BRSW-38	3/27/2012	<0.003	**0.0130**	0.118	5.88	**0.0647**	1.66	**2.64**
BRSW-38	5/7/2012	<0.003	**0.00521**	0.028	0.56	**0.0214**	0.698	1.12
BRSW-38	10/2/2012	<0.003	0.00399	0.005	0.15	0.0092	0.748	0.89
BRSW-38	12/10/2012	<0.003	**0.00838**	0.027	1.63	**0.0252**	2.48	**2.04**
BRSW-48	3/27/2012	0.004	**0.0103**	0.120	6.77	**0.0619**	1.57	**2.30**
BRSW-48	5/7/2012	0.003	0.00381	0.034	0.93	**0.0483**	0.657	0.80
BRSW-48	10/2/2012	<0.003	0.00199	0.007	0.47	**0.0229**	0.874	0.41
BRSW-48	12/10/2012	<0.003	**0.00627**	0.044	3.35	**0.0371**	2.96	1.50

Note:

< Indicates the concentration is less than the reporting limit

Exceeds standard

* Montana Numeric Water Quality Standards Circular 7, 2012, human health standard

---- No standard

Duplicate of BRSW-22

mg/l = milligrams per liter

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Table 10. UBMC surface water vs. aquatic life (total recoverable metals, mg/l)

UBMC Surface Water (total recoverable metals, mg/l)								
Sample ID	*Collection Date*	*Arsenic*	***Cadmium*	***Copper*	*Iron*	***Lead*	*Manganese*	***Zinc*
	*Standard (acute/chronic)	0.34/0.15	See Chart	See Chart	----/1.0	See Chart	----	See Chart
BRSW-1	3/26/2012	<0.003	<0.00008	0.002	0.25	<0.0005	0.006	<0.01
BRSW-1	5/7/2012	<0.003	<0.00008	<0.001	0.05	<0.0005	<0.005	<0.01
BRSW-1	10/2/2012	<0.003	<0.00008	<0.001	<0.03	<0.0005	<0.005	<0.01
BRSW-1	12/10/2012	<0.003	<0.00008	<0.001	<0.03	<0.0005	<0.005	<0.01
BRSW-2	3/26/2012	<0.003	**0.00537**	0.006	0.11	0.0219	1.72	**1.18**
BRSW-2	5/7/2012	<0.003	**0.0301**	0.015	0.22	0.0543	12.0	**12.7**
BRSW-2	10/2/2012	0.006	**0.0130**	0.025	0.86	0.115	5.60	**1.92**
BRSW-3A	3/27/2012	<0.003	**0.00426**	**0.022**	0.44	0.0032	1.50	**1.36**
BRSW-3A	5/7/2012	<0.003	**0.00217**	0.005	0.13	0.0019	1.14	**0.83**
BRSW-3A	10/2/2012	<0.003	0.00025	0.001	<0.03	0.0008	0.199	**0.22**
BRSW-3A	12/10/2012	<0.003	**0.00164**	0.004	0.08	0.0007	0.958	**0.82**
BRSW-3B	3/27/2012	0.012	**0.00363**	**0.033**	**3.70**	**0.129**	2.01	**1.56**
BRSW-3B	5/7/2012	<0.003	**0.00152**	0.002	0.09	0.0011	0.662	**0.47**
BRSW-3B	10/2/2012	<0.003	<0.00008	<0.001	<0.03	<0.0005	<0.005	**0.26**
BRSW-3B	12/10/2012	<0.003	0.00009	<0.001	<0.03	<0.0005	0.084	**0.21**
BRSW-22	3/26/2012	<0.003	**0.0154**	0.023	<0.03	0.0059	<0.005	**3.45**
BRSW-24	3/26/2012	<0.003	**0.0156**	0.023	<0.03	0.0059	<0.005	**3.43**
BRSW-22	5/7/2012	<0.003	**0.00456**	**0.059**	<0.03	**0.0033**	0.072	**0.76**
BRSW-24	5/7/2012	<0.003	**0.00454**	**0.058**	<0.03	**0.0034**	0.079	**0.73**
BRSW-22	10/2/2012	<0.003	**0.00613**	**0.019**	<0.03	0.0050	<0.005	**1.12**
BRSW-24	10/2/2012	<0.003	**0.00612**	**0.017**	<0.03	0.0046	<0.005	**1.06**
BRSW-22	12/10/2012	<0.003	**0.00904**	0.016	<0.03	0.0049	<0.005	**2.03**
BRSW-24	12/10/2012	<0.003	**0.00909**	0.016	<0.03	0.0049	<0.005	**2.06**
BRSW-23	3/27/2012	<0.003	**0.00790**	**0.031**	0.64	**0.0360**	0.595	**1.91**
BRSW-23	5/7/2012	0.004	**0.00362**	**0.029**	0.83	**0.0705**	0.567	**0.76**
BRSW-23	10/2/2012	<0.003	**0.00118**	0.004	0.08	**0.0090**	0.349	**0.25**
BRSW-23	12/10/2012	<0.003	**0.00234**	0.007	0.13	**0.0054**	0.889	**0.73**
BRSW-38	3/27/2012	<0.003	**0.0130**	**0.118**	**5.88**	**0.0647**	1.66	**2.64**
BRSW-38	5/7/2012	<0.003	**0.00521**	**0.028**	0.56	**0.0214**	0.698	**1.12**
BRSW-38	10/2/2012	<0.003	**0.00399**	0.005	0.15	**0.0092**	0.748	**0.89**
BRSW-38	12/10/2012	<0.003	**0.00838**	**0.027**	**1.63**	**0.0252**	2.48	**2.04**
BRSW-48	3/27/2012	0.004	**0.0103**	**0.120**	**6.77**	**0.0619**	1.57	**2.30**
BRSW-48	5/7/2012	0.003	**0.00381**	**0.034**	0.93	**0.0483**	0.657	**0.80**
BRSW-48	10/2/2012	<0.003	**0.00199**	0.007	0.47	**0.0229**	0.874	**0.41**
BRSW-48	12/10/2012	<0.003	**0.00627**	**0.044**	**3.35**	**0.0371**	2.96	**1.50**

Note:

< Indicates the concentration is less than the reporting limit

Exceeds acute standard

Exceeds chronic standard

* Montana Numeric Water Quality Standards Circular 7, 2012, aquatic life standards

** Calculated per Circular 7 @ 25 mg/l hardness

---- No standard

Duplicate of BRSW-22

mg/l = milligrams per liter

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Table 11. Hardness adjusted surface water quality standards (aquatic life, mg/l)

Hardness Adjusted Surface Water Quality Standards (mg/l)									
Sample ID	*Collection Date*	*Cadmium*		*Copper*		*Lead*		Zinc	
		Acute	Chronic	Acute	Chronic	Acute	Chronic	Acute	Chronic
BRSW-1	3/26/2012	0.00133	0.00019	0.00906	0.00629	0.04534	0.00177	0.08100	0.08100
BRSW-1	5/7/2012	0.00181	0.00024	0.01201	0.00812	0.06639	0.00259	0.10440	0.10440
BRSW-1	10/2/2012	0.00246	0.00030	0.01597	0.01051	0.09754	0.00380	0.13488	0.13488
BRSW-1	12/10/2012	0.00224	0.00028	0.01466	0.00973	0.08688	0.00339	0.12487	0.12487
BRSW-2	3/26/2012	0.00416	0.00044	0.02601	0.01636	0.18856	0.00735	0.20916	0.20916
BRSW-2	5/7/2012	0.03052	0.00188	0.16486	0.08733	2.28547	0.08906	1.10068	1.10068
BRSW-2	10/2/2012	0.07001	0.00345	0.35584	0.17547	6.46299	0.25185	2.19860	2.19860
BRSW-3A	3/27/2012	0.00454	0.00047	0.02816	0.01759	0.20995	0.00818	0.22466	0.22466
BRSW-3A	5/7/2012	0.00322	0.00037	0.02051	0.01319	0.13680	0.00533	0.16893	0.16893
BRSW-3A	10/2/2012	0.00292	0.00034	0.01870	0.01213	0.12076	0.00471	0.15548	0.15548
BRSW-3A	12/10/2012	0.00331	0.00037	0.02103	0.01349	0.14146	0.00551	0.17274	0.17274
BRSW-3B	3/27/2012	0.00519	0.00052	0.03194	0.01971	0.24885	0.00970	0.25158	0.25158
BRSW-3B	5/7/2012	0.00235	0.00029	0.01531	0.01012	0.09218	0.00359	0.12989	0.12989
BRSW-3B	10/2/2012	0.00237	0.00029	0.01545	0.01020	0.09325	0.00363	0.13089	0.13089
BRSW-3B	12/10/2012	0.00233	0.00029	0.01518	0.01004	0.09111	0.00355	0.12889	0.12889
BRSW-22	3/26/2012	0.00729	0.00066	0.04373	0.02621	0.38046	0.01483	0.33372	0.33372
BRSW-24	3/26/2012	0.00756	0.00068	0.04521	0.02701	0.39790	0.01551	0.34383	0.34383
BRSW-22	5/7/2012	0.00200	0.00026	0.01321	0.00885	0.07546	0.00294	0.11370	0.11370
BRSW-24	5/7/2012	0.00200	0.00026	0.01321	0.00885	0.07546	0.00294	0.11370	0.11370
BRSW-22	10/2/2012	0.00342	0.00038	0.02167	0.01387	0.14734	0.00574	0.17748	0.17748
BRSW-24	10/2/2012	0.00340	0.00038	0.02154	0.01379	0.14616	0.00570	0.17654	0.17654
BRSW-22	12/10/2012	0.00522	0.00052	0.03207	0.01978	0.25017	0.00975	0.25246	0.25246
BRSW-24	12/10/2012	0.00522	0.00052	0.03207	0.01978	0.25017	0.00975	0.25246	0.25246
BRSW-23	3/27/2012	0.00250	0.00030	0.01623	0.01067	0.09971	0.00389	0.13686	0.13686
BRSW-23	5/7/2012	0.00218	0.00027	0.01426	0.00949	0.08373	0.00326	0.12184	0.12184
BRSW-23	10/2/2012	0.00342	0.00038	0.02167	0.01387	0.14734	0.00574	0.17748	0.17748
BRSW-23	12/10/2012	0.00318	0.00036	0.02025	0.01304	0.13448	0.00524	0.16702	0.16702
BRSW-38	3/27/2012	0.00279	0.00033	0.01792	0.01167	0.11402	0.00444	0.14964	0.14964
BRSW-38	5/7/2012	0.00215	0.00027	0.01413	0.00941	0.08269	0.00322	0.12083	0.12083
BRSW-38	10/2/2012	0.00311	0.00036	0.01987	0.01282	0.13102	0.00511	0.16415	0.16415
BRSW-38	12/10/2012	0.00412	0.00044	0.02576	0.01622	0.18607	0.00725	0.20732	0.20732
BRSW-48	3/27/2012	0.00279	0.00033	0.01792	0.01167	0.11402	0.00444	0.14964	0.14964
BRSW-48	5/7/2012	0.00222	0.00028	0.01453	0.00965	0.08582	0.00334	0.12387	0.12387
BRSW-48	10/2/2012	0.00331	0.00037	0.02103	0.01349	0.14146	0.00551	0.17274	0.17274
BRSW-48	12/10/2012	0.00372	0.00041	0.02346	0.01490	0.16404	0.00639	0.19064	0.19064

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Table 12. UBMC surface water vs. aquatic life (dissolved metals, mg/l)

UBMC Surface Water (dissolved metals, mg/l)		
Sample ID	*Collection Date*	*Aluminum*
	***Standard (acute/chronic)**	0.75/0.087
BRSW-1	3/26/2012	**0.19**
BRSW-1	5/7/2012	<0.03
BRSW-1	10/2/2012	<0.03
BRSW-1	12/10/2012	<0.03
BRSW-2	3/26/2012	<0.03
BRSW-2	5/7/2012	<0.03
BRSW-2	10/2/2012	<0.03
BRSW-3A	3/27/2012	<0.03
BRSW-3A	5/7/2012	<0.03
BRSW-3A	10/2/2012	<0.03
BRSW-3A	12/10/2012	<0.03
BRSW-3B	3/27/2012	<0.03
BRSW-3B	5/7/2012	<0.03
BRSW-3B	10/2/2012	<0.03
BRSW-3B	12/10/2012	<0.03
BRSW-22	3/26/2012	<0.03
BRSW-24	3/26/2012	<0.03
BRSW-22	5/7/2012	0.05
BRSW-24	5/7/2012	0.05
BRSW-22	10/2/2012	<0.03
BRSW-24	10/2/2012	<0.03
BRSW-22	12/10/2012	<0.03
BRSW-24	12/10/2012	<0.03
BRSW-23	3/27/2012	**0.13**
BRSW-23	5/7/2012	0.04
BRSW-23	10/2/2012	<0.03
BRSW-23	12/10/2012	<0.03
BRSW-38	3/27/2012	<0.03
BRSW-38	5/7/2012	0.03
BRSW-38	10/2/2012	<0.03
BRSW-38	12/10/2012	<0.03
BRSW-48	3/27/2012	<0.03
BRSW-48	5/7/2012	0.05
BRSW-48	10/2/2012	<0.03

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Table 12. Continued

UBMC Surface Water (dissolved metals, mg/l)		
Sample ID	*Collection Date*	*Aluminum*
	***Standard (acute/chronic)**	0.75/0.087
BRSW-48	12/10/2012	<0.03

Note:

< Indicates the concentration is less than the reporting limit

Exceeds acute standard

Exceeds chronic standard

* Montana Numeric Water Quality Standards
Circular 7, 2012, aquatic life standards

The aluminum standard is for dissolved metals only per Circular 7

Dissolved aluminum is only analyzed when pH is between 6.5 and 9

---- No standard

Duplicate of BRSW-22

mg/l = milligrams per liter

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Table 13. UBMC surface water physiochemical, anions, cations

UBMC Surface Water																
		Physiochemical					Common Anions(mg/l)					Common Cations (mg/l)				
Sample ID	Collection Date	pH		Conductivity, umhos/cm	Hardness	Total Susp. Solids, mg/l	Total Diss. Solids, mg/L	Alkalinity	Bicarbonate	Carbonate	Chloride		Sulfate	Calcium (D)	Magnesium (D)	Potassium (D)	Sodium (D)
	*Standard	6.5 - 8.5		----	----	----	----	----	----	----	----		----	----	----	----	----
BRSW-1	3/26/2012	7.7	J-	131	63	<10	62	65	79	<4	<1		2	13	7	<1	1
BRSW-1	5/7/2012	7.7	J-	177	85	<10	85	93	110	<4	<1		3	17	10	<1	<1
BRSW-1	10/2/2012	7.9	J-	218	115	<10	108	110	130	<4	<1		5	23	14	<1	1
BRSW-1	12/10/2012	7.8	J-	204	105	<10	101	110	120	5	<1	UJ	5	21	13	<1	1
BRSW-2	3/26/2012	6.7	J-	440	193	<10	282	8	10	<4	<1		190	51	16	<1	<1
BRSW-2	5/7/2012	7.4	J-	2260	1370	<10	2040	42	52	<4	<1		1400	241	187	3	<1
BRSW-2	10/2/2012	7.8	J-	3880	3100	11	3640	38	46	<4	<1		2500	497	424	6	2
BRSW-3A	3/27/2012	7.3	J-	448	210	<10	260	100	120	<4	<1		120	46	23	<1	2
BRSW-3A	5/7/2012	7.0	J-	331	150	<10	207	72	88	<4	<1		86	29	19	<1	1
BRSW-3A	10/2/2012	7.6	J-	271	136	<10	143	110	140	<4	<1		21	29	16	<1	1
BRSW-3A	12/10/2012	7.4	J-	310	154	<10	177	110	120	5	<1	UJ	47	32	18	<1	1
BRSW-3B	3/27/2012	7.0	J-	526	240	62	324	110	130	<4	<1		160	54	28	<1	2
BRSW-3B	5/7/2012	7.0	J-	230	110	<10	139	73	89	<4	<1		39	22	13	<1	1
BRSW-3B	10/2/2012	7.8	J-	213	111	<10	108	110	130	<4	<1		6	23	13	<1	1
BRSW-3B	12/10/2012	7.9	J-	212	109	<10	109	100	120	5	<1	UJ	10	23	13	<1	1
BRSW-22	3/26/2012	7.3	J-	680	335	<10	420	95	120	<4	<1		260	91	26	1	2
BRSW-24	3/26/2012	7.3	J-	679	347	<10	442	95	120	<4	<1		260	95	27	1	2
BRSW-22	5/7/2012	7.6	J-	205	94	<10	119	81	99	<4	<1		22	22	10	<1	<1
BRSW-24	5/7/2012	7.6	J-	206	94	<10	118	81	99	<4	<1		22	22	10	<1	<1
BRSW-22	10/2/2012	7.5	J-	315	159	<10	189	98	120	<4	<1		57	40	14	<1	1
BRSW-24	10/2/2012	7.4	J-	313	158	<10	182	98	120	<4	<1		57	40	14	<1	1
BRSW-22	12/10/2012	7.3	J-	475	241	<10	309	100	120	5	<1	UJ	130	64	20	1	1
BRSW-24	12/10/2012	7.3	J-	474	241	<10	300	100	120	5	<1	UJ	130	64	20	<1	1
BRSW-23	3/27/2012	7.4	J-	270	117	10	154	61	74	<4	<1		63	25	13	<1	1
BRSW-23	5/7/2012	7.3	J-	222	102	13	127	80	98	<4	<1		29	21	12	<1	<1
BRSW-23	10/2/2012	7.8	J-	301	159	<10	164	110	130	<4	<1		44	29	21	<1	1
BRSW-23	12/10/2012	7.5	J-	295	148	<10	165	100	120	5	<1	UJ	43	30	18	<1	1
BRSW-38	3/27/2012	7.2	J-	306	130	24	172	51	63	<4	<1		91	28	14	<1	1
BRSW-38	5/7/2012	**6.2**	J-	227	101	<10	130	71	86	<4	<1		39	21	12	<1	<1
BRSW-38	10/2/2012	7.3	J-	298	145	<10	166	93	110	<4	<1		54	30	17	<1	1
BRSW-38	12/10/2012	7.1	J-	396	191	<10	264	80	97	<4	<1	UJ	110	39	23	<1	2
BRSW-48	3/27/2012	6.7	J-	301	130	30	166	43	52	<4	<1		94	28	15	<1	1

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Table 13. Continued

UBMC Surface Water

		Physiochemical					Common Anions(mg/l)					Common Cations (mg/l)			
Sample ID	*Collection Date*	*pH*	*Conductivity, umhos/cm*	*Hardness*	*Total Susp. Solids, mg/l*	*Total Diss. Solids, mg/L*	*Alkalinity*	*Bicarbonate*	*Carbonate*	*Chloride*	*Sulfate*	*Calcium (D)*	*Magnesium (D)*	*Potassium (D)*	*Sodium (D)*
BRSW-48	5/7/2012	7.1 J-	226	104	12	127	79	97	<4	<1	32	21	13	<1	<1
BRSW-48	10/2/2012	7.6 J-	300	154	<10	164	100	130	<4	<1	47	29	20	<1	1
BRSW-48	12/10/2012	7.0 J-	358	173	<10	224	92	110	<4	<1 UJ	82	35	21	<1	1

Note:

< Indicates the concentration is less than the reporting limit

Exceeds standard

* Montana Numeric Water Quality Standards Circular 7, 2012, human health standard

---- No standard

Duplicate of BRSW-22

mg/l = milligrams per liter

D = Dissolved

umhos/cm = micromhos/centimeter

J- validation flag denotes that the result is an estimate with low bias due to exceeded holding times

UJ validation flag denotes that the reported concentration is non-detect and the reported concentration is an estimate due to low MS recovery

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Table 14. UBMC surface water field parameters

UBMC Surface Water Field Parameters							
Sample ID	*Collection Date*	*pH*	*Conductivity, umhos/cm*	*Temperature, °C*	*Dissolved Oxygen, % Saturation*	*Dissolved Oxygen, mg/l*	*Oxidation Reduction Potential, mv*
BRSW-1	3/26/2012	7.3	127	2.92	80.7	10.88	262.4
BRSW-1	5/7/2012	7.6	180	5.98	83.6	10.44	171
BRSW-1	10/2/2012	7.91	213	7.79	104.5	12.43	72.8
BRSW-1	12/10/2012	7.68	210	0.6	85	12.17	115.1
BRSW-2	3/26/2012	6.6	466	0.27	71.9	10.4	257
BRSW-2	5/7/2012	7.13	2362	7.56	85.8	10.19	176.2
BRSW-2	10/2/2012	7.62	3920	12.03	90.8	9.64	123.5
BRSW-3A	3/27/2012	7.27	391	6.08	71.2	8.38	105.6
BRSW-3A	5/7/2012	7.08	336	7.53	91	10.91	170.1
BRSW-3A	10/2/2012	7.44	259	10.41	93.8	10.47	101.3
BRSW-3A	12/10/2012	7.25	315	3.52	81.3	10.74	136.7
BRSW-3B	3/27/2012	7.07	595	5.48	35.7	4.47	109.4
BRSW-3B	5/7/2012	7.11	241	5.05	79	10.06	163.2
BRSW-3B	10/2/2012	7.8	227	7.54	93.7	11.22	109.1
BRSW-3B	12/10/2012	7.68	242	4.4	87.7	11.34	136.4
BRSW-22	3/26/2012	6.97	669	1.61	72	9.98	272.9
BRSW-22	5/7/2012	7.5	213	7.67	81.6	9.77	173.6
BRSW-22	10/2/2012	7.39	316	10.61	92.2	10.25	119.4
BRSW-22	12/10/2012	7.04	496	1.67	78.5	10.94	133.6
BRSW-23	3/27/2012	7.32	232	2.48	84.2	11.42	104.6
BRSW-23	5/7/2012	7.52	229	7.03	89.6	10.87	152.9
BRSW-23	10/2/2012	7.88	294	11.69	99.4	10.78	67.5
BRSW-23	12/10/2012	7.11	310	0.93	87	12.36	131.8
BRSW-38	3/27/2012	6.98	258	0.77	79.7	11.39	131.9
BRSW-38	5/7/2012	6.91	224	4.54	88	11.3	182.6
BRSW-38	10/2/2012	7.16	300	8.19	79.7	9.4	152.1
BRSW-38	12/10/2012	6.79	409	0.78	82.9	11.85	168.8
BRSW-48	3/27/2012	6.65	269	2.16	83.2	11.45	99.2
BRSW-48	5/7/2012	7.34	232	6.78	85.6	10.44	105.9
BRSW-48	10/2/2012	7.55	324	11.42	92.4	10.13	-2.4
BRSW-48	12/10/2012	6.75	380	0.75	82.8	11.82	68

Note: °C = degrees Celcius
mg/l = milligrams per liter
mv = millivolts
umhos = micromhos

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4.2.1 Surface Water Flow

For each sampling event the cross section of the stream was gauged with a hand-held, electronic velocity measurement instrument. Cross section thickness (depth of stream) and the cross section intervals (width of stream) were recorded for each measurement point to the nearest 1/10th of a foot. The average stream current velocity in feet per second for each point was also recorded. The cross sectional area of the stream and the velocity profile was then used to calculate an instantaneous discharge flowrate at the time of sampling. Table 15 summarizes the UBMC mining area flow measurements for 2012 in cubic feet per second (cfs). Compared to 2011, surface water flows at the UBMC were significantly reduced because of a decrease in snowpack and annual precipitation.

Table 15. UBMC surface water discharge

Station	BRSW01	BRSW01	BRSW01	BRSW01
Date	3/26/2012	5/7/2012	10/2/2012	12/10/2012
Discharge (cfs)	1.32	2.29	0.27	0.14
Station	BRSW3a	BRSW3a	BRSW3a	BRSW3a
Date	3/27/2012	5/7/2012	10/2/2012	12/10/2012
Discharge (cfs)	0.17	0.40	0.22	0.12
Station	BRSW3b	BRSW3b	BRSW3b	BRSW3b
Date	3/27/2012	5/7/2012	9/20/2011	12/10/2012
Discharge (cfs)	0.05	0.63	0.31	0.09
Station	BRSW22	BRSW22	BRSW22	BRSW22
Date	3/26/2012	5/7/2012	10/2/2012	12/10/2012
Discharge (cfs)	0.02	0.91	0.01	0.002
Station	BRSW23	BRSW23	BRSW23	BRSW23
Date	3/27/2012	5/7/2012	10/2/2012	12/10/2012
Discharge (cfs)	0.94	4.72	0.25	0.27
Station	BRSW38	BRSW38	BRSW38	BRSW38
Date	3/27/2012	5/7/2012	10/2/2012	12/10/2012
Discharge (cfs)	1.78	5.77	1.15	0.43
Station	BRSW48	BRSW48	BRSW48	BRSW48
Date	3/27/2012	5/7/2012	10/2/2012	12/10/2012
Discharge (cfs)	0.96	4.22	0.31	0.10

4.3 Sediment

Sediment samples were collected at surface water sampling stations during sampling events and analyzed for total metals: aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc. Table 16 shows the analytical results compared to the SSLs selected to screen sediments in the *Final Remedial Investigation Report*, for the UBMC (TetraTech, 2013). As shown in Table 16, there were numerous exceedances of the ecological health based SSLs for UBMC mining area sediments.

Sediment sample results were also compared to USEPA RSLs. Table 17 shows the results of screening total recoverable metals in UBMC mining area sediments against the human health residential RSLs (EPA, 2012) and the BTVs developed for the UBMC (TetraTech, 2013). As shown in Table 17 there were several exceedances of the BTVs for arsenic, lead and manganese. The exception is station BRSD-1 (Beartrap Creek upgradient of the Mike Horse Dam) in which all metals concentrations in sediments were below RSLs. These results are consistent with 2011 sediment sampling results.

Table 16. UBMC sediments vs. SSLs (total recoverable metals, mg/kg)

UBMC Sediments (total recoverable metals, mg/kg)																	
Sample ID	Collection Date	Aluminum		Arsenic		Cadmium	Copper		Iron		Lead		Manganese		Zinc		
Sediment Screening Levels	[abfg]TEL	----		5.9		0.596	35.7		----		35		----		123		
	[cbdfg]PAET	----		19		97.5	340		----		240		1400		500		
	[ebfg]SEL	----		33		10	110		----		250		1100		820		
BRSD-1	3/26/2012	6110		**10**		<1	13	J	13500		19	J	349	J	92	J	
BRSD-1	5/7/2012	5480		**38**		**1**	23		10900		**53**		386		**225**		
BRSD-1	10/2/2012	6120		**16**	J-	<1	15		12800		**29**	J-	309	J-	97	J-	
BRSD-1	12/10/2012	4990		**20**	J-	<1	14		11200		21		254	J+	75		
BRSD-3A	3/27/2012	3760		**34**		**19**	**588**	J	15000		**286**	J	**20400**	J	**4010**	J	
BRSD-3A	5/7/2012	7740		**75**		**15**	**276**		28800		**733**		**7890**		**2840**		
BRSD-3A	10/2/2012	4030		**68**	J-	**17**	**386**		25800		**609**	J-	**9160**	J-	**3500**	J-	
BRSD-3A	12/10/2012	4110		**59**	J-	**21**	**442**		23700		34		371	J+	**4420**		
BRSD-3B	3/27/2012	4440		5		<1	31	J	8970		22	J	555	J	101	J	
BRSD-3B	5/7/2012	4790		<5		<1	26		10400		25		454		98		
BRSD-3B	10/2/2012	4400		**6**	J-	**1**	**117**		31000		**82**	J-	**1680**	J-	**275**	J-	
BRSD-3B	12/10/2012	2940		5	J-	<1	**50**		19000		34		371	J+	114		
BRSD-22	3/26/2012	8620		**58**		**53**	**1550**	J	29100		**5480**	J	**13200**	J	**6420**	J	
BRSD-24	3/26/2012	6980		**66**		**64**	**1690**	J	28600		**5970**	J	**15000**	J	**7400**	J	
BRSD-22	5/7/2012	9910		**57**		**21**	**1380**		31000		**1390**		**3860**		**3600**		
BRSD-24	5/7/2012	7810		**53**		**19**	**1550**		27100		**1060**		**5560**		**3220**		
BRSD-22	10/2/2012	8690		**47**	J-	**20**	**1600**		22400		**1680**	J-	**6860**	J-	**3050**	J-	
BRSD-24	10/2/2012	8220		**36**	J-	**14**	**1120**		23100		**1040**	J-	**4270**	J-	**2250**	J-	
BRSD-22	12/10/2012	7620		**40**	J-	**14**	**1070**		23500		**1300**		**3630**	J+	**2070**		
BRSD-24	12/10/2012	6700		**53**	J-	**10**	**971**		23300		**969**		**3340**	J+	**1710**		
BRSD-23	3/27/2012	2130		**26**		**4**	**190**	J	8660		**380**	J	394	J	**1120**	J	
BRSD-23	5/7/2012	3500		**81**		**12**	**421**		33400		**1180**		**6220**		**1930**		
BRSD-23	10/2/2012	3160		**83**	J-	**11**	**333**		35600		**923**	J-	**5690**	J-	**2050**	J-	
BRSD-23	12/10/2012	4840		**48**	J-	**16**	**297**		25000		**1970**		**4460**	J+	**3180**		
BRSD-38	3/27/2012	6690		**52**		**22**	**512**	J	33000		**1780**	J	**4230**	J	**3860**	J	
BRSD-38	5/7/2012	6160		**68**		**22**	**463**		26100		**3920**		**5190**		**3510**		
BRSD-38	10/2/2012	4020		**36**	J-	**11**	**248**		18000		**758**	J-	**2820**	J-	**1960**	J-	
BRSD-38	12/10/2012	4420		**29**	J-	**17**	**242**		16800		**593**		**3820**	J+	**2780**		
BRSD-48	3/27/2012	6530		**84**		**35**	**692**	J	44500		**9090**	J	**4810**	J	**6260**	J	
BRSD-48	5/7/2012	6410		**55**		**20**	**629**		35000		**4610**		**4480**		**3550**		
BRSD-48	10/2/2012	4620		**40**	J-	**17**	**352**		23900		**1610**	J-	**2270**	J-	**3090**	J-	
BRSD-48	12/10/2012	5810		**48**	J-	**34**	**612**		28800		**4490**		**5110**	J+	**5500**		

Note:

< Indicates the concentration is less than the reporting limit

Exceeds one or more screening level

---- No standard

Duplicate of BRSD-22

mg/kg = milligrams per kilogram

J validation flag denotes the reported results are estimates due to low MS/MSD recoveries and/or poor MSD duplicate precision

J- validation flag denotes that the result is an estimate with low bias due to low MS and MSD recoveries and/or poor filed duplicate precision

J+ validation flag denotes that the result is an estimate with high bias due to high MS recovery

[b]Cubbage, James, David Batts, Scott Breidenback. 1997. "Creation and Analysis of Freshwater Sediment Quality Values in Washington State". July. http://www.ecy.wa.gov/pubs/97323a.pdf

[c]The PAET is defined as the 95th percentile of values with no significant biological effects and concentrations greater than the lowest "hit" level. It is designed as an alternative value to the Apparent Effect Threshold to reduce the effects of random error.

[d]Entry is lowest, reliable value among a compilation of PAET levels for; H – Hyalella azteca bioassay or M – Microtox bioassay.

[e]The SEL is defined as the 90th-95th percentile screening level concentration based on in-situ benthic community structure. Contaminant concentration above the SEL is likely detrimental to the majority of benthic species.

[f]SAIC and Avocet Consulting. 2002. "Phase I Report: Development of Freshwater Sediment Quality Values for Use in Washington State." September. – Prioritizing Areas for Attention – Areas exceeding the SEL are considered the highest-priority areas for biological testing. Areas between the PAET and the SEL are considered medium priority for attention, and areas between the TEL and the PAET are considered low priority. Areas below the TEL are screened out entirely. http://www.ecy.wa.gov/pubs/0209050.pdf

[g]SAIC and Avocet Consulting. 2003. "Phase II Report: Development and recommendation of SQVs for Freshwater Sediments in Washington State." September. – Recommendations for Screening – Report recommends SQVs as defined in the Phase I report be used (see note f above). http://www.ecy.wa.gov/pubs/0309088.pdf

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Table 17. UBMC sediments vs. RSLs (total recoverable metals, mg/kg)

UBMC Sediments (total recoverable metals, mg/kg)															
Sample ID	*Collection Date*	*Aluminum*	*Arsenic*		*Cadmium*	*Copper*		*Iron*	*Lead*		*Manganese*		*Zinc*		
[1]Regional Screening Level [2]Background Threshold Value		77000	40.4		70	3100		58270	1109		4893		23000		
BRSD-1	3/26/2012	6110	10		<1	13	J	13500	19	J	349	J	92	J	
BRSD-1	5/7/2012	5480	38		1	23		10900	53		386		225		
BRSD-1	10/2/2012	6120	16	J-	<1	15		12800	29	J-	309	J-	97	J-	
BRSD-1	12/10/2012	4990	20	J-	<1	14		11200	21		254	J+	75		
BRSD-3A	3/27/2012	3760	34		19	588	J	15000	286	J	**20400**	J	4010	J	
BRSD-3A	5/7/2012	7740	**75**		15	276		28800	733		**7890**		2840		
BRSD-3A	10/2/2012	4030	**68**	J-	17	386		25800	609	J-	**9160**	J-	3500	J-	
BRSD-3A	12/10/2012	4110	**59**	J-	21	442		23700	34		371	J+	4420		
BRSD-3B	3/27/2012	4440	5		<1	31	J	8970	22	J	555	J	101	J	
BRSD-3B	5/7/2012	4790	<5		<1	26		10400	25		454		98		
BRSD-3B	10/2/2012	4400	6	J-	1	117		31000	82	J-	1680	J-	275	J-	
BRSD-3B	12/10/2012	2940	5	J-	<1	50		19000	34		371	J+	114		
BRSD-22	3/26/2012	8620	**58**		53	1550	J	29100	**5480**	J	**13200**	J	6420	J	
BRSD-24	3/26/2012	6980	**66**		64	1690	J	28600	**5970**	J	**15000**	J	7400	J	
BRSD-22	5/7/2012	9910	**57**		21	1380		31000	**1390**		3860		3600		
BRSD-24	5/7/2012	7810	**53**		19	1550		27100	1060		**5560**		3220		
BRSD-22	10/2/2012	8690	**47**	J-	20	1600		22400	**1680**	J-	**6860**	J-	3050	J-	
BRSD-24	10/2/2012	8220	36	J-	14	1120		23100	1040	J-	4270	J-	2250	J-	
BRSD-22	12/10/2012	7620	40	J-	14	1070		23500	**1300**		3630	J+	2070		
BRSD-24	12/10/2012	6700	**53**	J-	10	971		23300	969		3340	J+	1710		
BRSD-23	3/27/2012	2130	26		4	190	J	8660	380	J	394	J	1120	J	
BRSD-23	5/7/2012	3500	**81**		12	421		33400	**1180**		**6220**		1930		
BRSD-23	10/2/2012	3160	**83**	J-	11	333		35600	923	J-	**5690**	J-	2050	J-	
BRSD-23	12/10/2012	4840	**48**	J-	16	297		25000	**1970**		4460	J+	3180		
BRSD-38	3/27/2012	6690	**52**		22	512	J	33000	**1780**	J	4230	J	3860	J	
BRSD-38	5/7/2012	6160	**68**		22	463		26100	**3920**		**5190**		3510		
BRSD-38	10/2/2012	4020	36	J-	11	248		18000	758	J-	2820	J-	1960	J-	
BRSD-38	12/10/2012	4420	29	J-	17	242		16800	593		3820	J+	2780		
BRSD-48	3/27/2012	6530	**84**		35	692	J	44500	**9090**	J	4810	J	6260	J	
BRSD-48	5/7/2012	6410	**55**		20	629		35000	**4610**		4480		3550		
BRSD-48	10/2/2012	4620	40	J-	17	352		23900	**1610**	J-	2270	J-	3090	J-	
BRSD-48	12/10/2012	5810	**48**	J-	34	612		28800	**4490**		**5110**	J+	5500		

Note:

Exceeds screening level

Duplicate of BRSD-22

mg/kg = milligrams per kilogram

[1]USEPA RSLs (USEPA 2012) for aluminum, cadmium, copper, and zinc

[2]BTV (TetraTech 2013) for arsenic, iron, lead, and manganese

J validation flag denotes the reported results are estimates due to low MS/MSD recoveries and/or poor MSD duplicate precision

J- validation flag denotes that the result is an estimate with low bias due to low MS and MSD recoveries and/or poor filed duplicate precision

J+ validation flag denotes that the result is an estimate with high bias due to high MS recovery

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5. CONCLUSIONS

This section presents conclusions relevant to the use of 2012 UBMC monitoring data.

5.1 Groundwater

The 2012 groundwater sampling results were generally consistent with 2011 sampling results which show exceedances of DEQ-7 human health standards for cadmium and zinc in monitoring well TDMW-2S. Manganese concentrations increased significantly in TDMW-2S during 2012. The 2011 and 2012 data also show a trend of increasing cadmium and zinc concentrations in wells TDMW-1 and TDMW-2S. In well TDMW-2S, conductivity and dissolved solids concentrations also increased, remain elevated, and appear to increase during periods of falling groundwater elevation. Groundwater elevations in wells TDMW-1 and TDMW-2S have been in a downtrend over the monitoring years 2011 – 2012. Recent efforts to dewater the Mike Horse tailings may also be impacting these wells by reducing the quantity of groundwater available for contaminant and dissolved solids dilution.

Water quality in all other UMBC monitoring wells sampled in 2012 met DEQ-7 human health standards for the constituents analyzed.

5.2 Surface Water

With the exception of upgradient surface water monitoring station BRSW-1 (Beartrap Creek upstream of the Mike Horse impounded tailings), there are multiple exceedances of DEQ-7 human health standards at many of the UBMC surface water sampling stations for all four quarters of sampling. Exceedances of human health standards were primarily observed for cadmium, lead, and zinc. There are also multiple exceedances of the chronic and acute aquatic life standards. These results are consistent with historic surface water sampling results reported by TerraGraphics for 1993 through 2009 (TerraGraphics 2010) and in 2011 (Portage 2012). Cadmium, copper, and zinc frequently exceed acute aquatic life standards while iron and lead exceed chronic standards.

5.3 Sediment

Sediment samples collected at surface water sampling stations show numerous exceedances of ecological health based SSLs for arsenic, cadmium, copper, lead, and zinc. Sediment samples also show several exceedances of the UBMC BTVs for arsenic, iron, lead, and manganese. The exception is upgradient sediment monitoring station BRSD-1 (Beartrap Creek upstream of the Mike Horse impounded tailings), in which concentrations of metals in sediment were lower than the applicable BTVs.

6. REFERENCES

DEQ, 2005, SRS Low-Flow Purging and Sampling Guidelines.

DEQ, 2005, Action Level for Arsenic in Surface Soil, Montana Department of Environmental Quality Remediation Division; April 2005.

DEQ, 2010, Montana Department of Environmental Quality Data Validation Guidelines for Evaluating Analytical Data; August 5, 2010.

DEQ, 2012, Circular DEQ-7 Montana Numeric Water Quality Standards; October 2012.

EPA,1986, National enforcement Investigations center Policies and Procedures, EPA 300/9-78-007-R, EPA, 1986.

EPA, 1994, Method 200.8 Determination of Trace Elements in Waters and Wastes by Inductively Coupled Plasma - Mass Spectrometry.

EPA, 2002, EPA Guidance on Environmental Data Verification and Data Validation, EPA QA/G-8; November.

EPA, 2004, Final EPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, EPA 540-R-04-004; October.

EPA, 2006, Guidance on Systematic Planning Using the Data Quality Objectives Process, EPA QA/G-4; February 2006.

EPA, 2008, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA Publication SW-846, Third Edition, as amended by Final Updates I, II, IIA, IIB, III, IIIA, IIIB, and IV finalized in the Federal Register on January 3, 2008.

EPA, 2012, Regional Screening Levels for Chemical Contaminants at Superfund Sites, U.S. Environmental Protection Agency; November 2012.

Portage, Inc., 2012, Final Sampling and Analysis Plan for Environmental Monitoring, Upper Blackfoot Mining Complex, Lewis and Clark County, Montana; March 2012

Portage, Inc., 2012, Final Data Summary Report, 2011 Environmental Monitoring, Upper Blackfoot Mining Complex, Lewis and Clark County, Montana; July 2012.

TerraGraphics, 2010, Data Summary Report Upper Blackfoot Mining Complex; November 22, 2010.

Tetra Tech, 2013, Final Remedial Investigation Report Upper Blackfoot Mining Complex Lewis and Clark County, Montana; March, 2014.

Appendix A

Laboratory Data Reports

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ANALYTICAL SUMMARY REPORT

May 29, 2012

MT DEQ-Site Response
PO Box 200901
Helena, MT 59620-0901

Workorder No.: H12050150 Quote ID: H645

Project Name: UBMC

Energy Laboratories Inc Helena MT received the following 8 samples for MT DEQ-Site Response on 5/8/2012 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H12050150-001	BRSD-38	05/07/12 10:22	05/08/12	Sediment	Metals by ICP/ICPMS, Total Digestion, Total Metals
H12050150-002	BRSD-48	05/07/12 12:07	05/08/12	Sediment	Same As Above
H12050150-003	BRSD-23	05/07/12 12:20	05/08/12	Sediment	Same As Above
H12050150-004	BRSD-3A	05/07/12 12:52	05/08/12	Sediment	Same As Above
H12050150-005	BRSD-3B	05/07/12 13:15	05/08/12	Sediment	Same As Above
H12050150-006	BRSD-22	05/07/12 15:10	05/08/12	Sediment	Same As Above
H12050150-007	BRSD-1	05/07/12 15:45	05/08/12	Sediment	Same As Above
H12050150-008	BRSD-24	05/07/12 15:02	05/08/12	Sediment	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise reported.

Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSD-38
Lab ID: H12050150-001
Matrix: Sediment

Project: UBMC
Collection Date: 05/07/12 10:22
Report Date: 05/29/12
DateReceived: 05/08/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	6160	mg/kg	D	7		SW6010B	05/16/12 23:03 / stp	05/09/12 08:45	ICP2-HE_120516B : 130		16555
Arsenic	68	mg/kg		5		SW6010B	05/14/12 17:45 / sld	05/09/12 08:45	ICP2-HE_120514B : 65		16555
Cadmium	22	mg/kg		1		SW6010B	05/14/12 17:45 / sld	05/09/12 08:45	ICP2-HE_120514B : 65		16555
Copper	463	mg/kg		5		SW6010B	05/23/12 23:32 / sld	05/21/12 10:32	ICP2-HE_120523B : 166		16675
Iron	26100	mg/kg		5		SW6010B	05/16/12 23:03 / stp	05/09/12 08:45	ICP2-HE_120516B : 130		16555
Lead	3920	mg/kg		5		SW6010B	05/14/12 17:45 / sld	05/09/12 08:45	ICP2-HE_120514B : 65		16555
Manganese	5190	mg/kg		5		SW6010B	05/23/12 23:32 / sld	05/21/12 10:32	ICP2-HE_120523B : 166		16675
Zinc	3510	mg/kg		5		SW6010B	05/14/12 17:45 / sld	05/09/12 08:45	ICP2-HE_120514B : 65		16555

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSD-48
Lab ID: H12050150-002
Matrix: Sediment

Project: UBMC
Collection Date: 05/07/12 12:07
DateReceived: 05/08/12
Report Date: 05/29/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	6410	mg/kg	D	7		SW6010B	05/16/12 23:07 / stp	05/09/12 08:45	ICP2-HE_120516B : 131		16555
Arsenic	55	mg/kg		5		SW6010B	05/14/12 17:49 / sld	05/09/12 08:45	ICP2-HE_120514B : 66		16555
Cadmium	20	mg/kg		1		SW6010B	05/14/12 17:49 / sld	05/09/12 08:45	ICP2-HE_120514B : 66		16555
Copper	629	mg/kg		5		SW6010B	05/24/12 00:09 / sld	05/21/12 10:32	ICP2-HE_120523B : 176		16675
Iron	35000	mg/kg		5		SW6010B	05/16/12 23:07 / stp	05/09/12 08:45	ICP2-HE_120516B : 131		16555
Lead	4610	mg/kg		5		SW6010B	05/14/12 17:49 / sld	05/09/12 08:45	ICP2-HE_120514B : 66		16555
Manganese	4480	mg/kg		5		SW6010B	05/24/12 00:09 / sld	05/21/12 10:32	ICP2-HE_120523B : 176		16675
Zinc	3550	mg/kg		5		SW6010B	05/14/12 17:49 / sld	05/09/12 08:45	ICP2-HE_120514B : 66		16555

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSD-23
Lab ID: H12050150-003
Matrix: Sediment

Project: UBMC
Collection Date: 05/07/12 12:20
Report Date: 05/29/12
DateReceived: 05/08/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	3500	mg/kg	D	7		SW6010B	05/16/12 23:18 / stp	05/09/12 08:45	ICP2-HE_120516B : 134		16555
Arsenic	81	mg/kg		5		SW6010B	05/14/12 17:53 / sld	05/09/12 08:45	ICP2-HE_120514B : 67		16555
Cadmium	12	mg/kg		1		SW6010B	05/14/12 17:53 / sld	05/09/12 08:45	ICP2-HE_120514B : 67		16555
Copper	421	mg/kg		5		SW6010B	05/24/12 00:13 / sld	05/21/12 10:32	ICP2-HE_120523B : 177		16675
Iron	33400	mg/kg		5		SW6010B	05/16/12 23:18 / stp	05/09/12 08:45	ICP2-HE_120516B : 134		16555
Lead	1180	mg/kg		5		SW6010B	05/14/12 17:53 / sld	05/09/12 08:45	ICP2-HE_120514B : 67		16555
Manganese	6220	mg/kg		5		SW6010B	05/24/12 00:13 / sld	05/21/12 10:32	ICP2-HE_120523B : 177		16675
Zinc	1930	mg/kg		5		SW6010B	05/14/12 17:53 / sld	05/09/12 08:45	ICP2-HE_120514B : 67		16555

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSD-3A
Lab ID: H12050150-004
Matrix: Sediment

Project: UBMC
Collection Date: 05/07/12 12:52
Report Date: 05/29/12
DateReceived: 05/08/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	7740	mg/kg	D	7		SW6010B	05/16/12 23:22 / stp	05/09/12 08:45	ICP2-HE_120516B : 135		16555
Arsenic	75	mg/kg		5		SW6010B	05/14/12 17:56 / sld	05/09/12 08:45	ICP2-HE_120514B : 68		16555
Cadmium	15	mg/kg		1		SW6010B	05/14/12 17:56 / sld	05/09/12 08:45	ICP2-HE_120514B : 68		16555
Copper	276	mg/kg		5		SW6010B	05/24/12 00:17 / sld	05/21/12 10:32	ICP2-HE_120523B : 178		16675
Iron	28800	mg/kg		5		SW6010B	05/16/12 23:22 / stp	05/09/12 08:45	ICP2-HE_120516B : 135		16555
Lead	733	mg/kg		5		SW6010B	05/14/12 17:56 / sld	05/09/12 08:45	ICP2-HE_120514B : 68		16555
Manganese	7890	mg/kg		5		SW6010B	05/24/12 00:17 / sld	05/21/12 10:32	ICP2-HE_120523B : 178		16675
Zinc	2840	mg/kg		5		SW6010B	05/14/12 17:56 / sld	05/09/12 08:45	ICP2-HE_120514B : 68		16555

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSD-3B
Lab ID: H12050150-005
Matrix: Sediment

Project: UBMC
Collection Date: 05/07/12 13:15
DateReceived: 05/08/12
Report Date: 05/29/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	4790	mg/kg		5		SW6010B	05/16/12 23:25 / stp	05/09/12 08:45	ICP2-HE_120516B : 136		16555
Arsenic	ND	mg/kg		5		SW6010B	05/14/12 18:00 / sld	05/09/12 08:45	ICP2-HE_120514B : 69		16555
Cadmium	ND	mg/kg		1		SW6010B	05/14/12 18:00 / sld	05/09/12 08:45	ICP2-HE_120514B : 69		16555
Copper	26	mg/kg		5		SW6010B	05/24/12 00:21 / sld	05/21/12 10:32	ICP2-HE_120523B : 179		16675
Iron	10400	mg/kg		5		SW6010B	05/14/12 18:00 / sld	05/09/12 08:45	ICP2-HE_120514B : 69		16555
Lead	25	mg/kg		5		SW6010B	05/14/12 18:00 / sld	05/09/12 08:45	ICP2-HE_120514B : 69		16555
Manganese	454	mg/kg		5		SW6010B	05/24/12 00:21 / sld	05/21/12 10:32	ICP2-HE_120523B : 179		16675
Zinc	98	mg/kg		5		SW6010B	05/14/12 18:00 / sld	05/09/12 08:45	ICP2-HE_120514B : 69		16555

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSD-22
Lab ID: H12050150-006
Matrix: Sediment

Project: UBMC
Collection Date: 05/07/12 15:10
Report Date: 05/29/12
DateReceived: 05/08/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	9910	mg/kg	D	7		SW6010B	05/16/12 23:29 / stp	05/09/12 08:45	ICP2-HE_120516B : 137		16555
Arsenic	57	mg/kg		5		SW6010B	05/14/12 18:04 / sld	05/09/12 08:45	ICP2-HE_120514B : 70		16555
Cadmium	21	mg/kg		1		SW6010B	05/14/12 18:04 / sld	05/09/12 08:45	ICP2-HE_120514B : 70		16555
Copper	1380	mg/kg		5		SW6010B	05/24/12 00:24 / sld	05/21/12 10:32	ICP2-HE_120523B : 180		16675
Iron	31000	mg/kg		5		SW6010B	05/16/12 23:29 / stp	05/09/12 08:45	ICP2-HE_120516B : 137		16555
Lead	1390	mg/kg		5		SW6010B	05/14/12 18:04 / sld	05/09/12 08:45	ICP2-HE_120514B : 70		16555
Manganese	3860	mg/kg		5		SW6010B	05/24/12 00:24 / sld	05/21/12 10:32	ICP2-HE_120523B : 180		16675
Zinc	3600	mg/kg		5		SW6010B	05/14/12 18:04 / sld	05/09/12 08:45	ICP2-HE_120514B : 70		16555

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSD-1
Lab ID: H12050150-007
Matrix: Sediment

Project: UBMC
Collection Date: 05/07/12 15:45
DateReceived: 05/08/12
Report Date: 05/29/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	5480	mg/kg		5		SW6010B	05/16/12 23:33 / stp	05/09/12 08:45	ICP2-HE_120516B : 138		16555
Arsenic	38	mg/kg		5		SW6010B	05/14/12 18:08 / sld	05/09/12 08:45	ICP2-HE_120514B : 71		16555
Cadmium	1	mg/kg		1		SW6010B	05/14/12 18:08 / sld	05/09/12 08:45	ICP2-HE_120514B : 71		16555
Copper	23	mg/kg		5		SW6010B	05/24/12 00:28 / sld	05/21/12 10:32	ICP2-HE_120523B : 181		16675
Iron	10900	mg/kg		5		SW6010B	05/14/12 18:08 / sld	05/09/12 08:45	ICP2-HE_120514B : 71		16555
Lead	53	mg/kg		5		SW6010B	05/14/12 18:08 / sld	05/09/12 08:45	ICP2-HE_120514B : 71		16555
Manganese	386	mg/kg		5		SW6010B	05/24/12 00:28 / sld	05/21/12 10:32	ICP2-HE_120523B : 181		16675
Zinc	225	mg/kg		5		SW6010B	05/14/12 18:08 / sld	05/09/12 08:45	ICP2-HE_120514B : 71		16555

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSD-24
Lab ID: H12050150-008
Matrix: Sediment

Project: UBMC
Collection Date: 05/07/12 15:02
Report Date: 05/29/12
DateReceived: 05/08/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	7810	mg/kg		5		SW6010B	05/18/12 19:36 / sld	05/09/12 08:45	ICP2-HE_120518B : 145		16555
Arsenic	53	mg/kg		5		SW6010B	05/14/12 18:11 / sld	05/09/12 08:45	ICP2-HE_120514B : 72		16555
Cadmium	19	mg/kg		1		SW6010B	05/14/12 18:11 / sld	05/09/12 08:45	ICP2-HE_120514B : 72		16555
Copper	1550	mg/kg		5		SW6010B	05/24/12 00:32 / sld	05/21/12 10:32	ICP2-HE_120523B : 182		16675
Iron	27100	mg/kg	D	8		SW6010B	05/24/12 16:29 / sld	05/21/12 10:32	ICP2-HE_120524A : 28		16675
Lead	1060	mg/kg		5		SW6010B	05/14/12 18:11 / sld	05/09/12 08:45	ICP2-HE_120514B : 72		16555
Manganese	5560	mg/kg		5		SW6010B	05/24/12 00:32 / sld	05/21/12 10:32	ICP2-HE_120523B : 182		16675
Zinc	3220	mg/kg		5		SW6010B	05/14/12 18:11 / sld	05/09/12 08:45	ICP2-HE_120514B : 72		16555

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

Client: MT DEQ-Site Response
Work Order: H12050150
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *29-May-12*

BatchID: 16555

Run ID :Run Order: **ICP2-HE_120516B: 122** SampType: **Method Blank** Sample ID: **MB-16555** Method: **SW6010B**
Analysis Date: **05/16/12 22:33** Units: **mg/kg** **Prep Info:** Prep Date: **5/9/2012** Prep Method: **SW3050 B**

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	ND	0.7									
Arsenic	ND	0.3									
Cadmium	ND	0.02									
Iron	1	0.3									
Lead	ND	0.6									
Zinc	0.2	0.07									

Associated samples: **H12050150-001A; H12050150-002A; H12050150-003A; H12050150-004A; H12050150-005A; H12050150-006A; H12050150-007A; H12050150-008A**

Run ID :Run Order: **ICP2-HE_120516B: 123** SampType: **Laboratory Fortified Blank** Sample ID: **LFB-16555** Method: **SW6010B**
Analysis Date: **05/16/12 22:37** Units: **mg/kg** **Prep Info:** Prep Date: **5/9/2012** Prep Method: **SW3050 B**

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	235	5.0	250		94	80	120				
Arsenic	46.0	1.0	50		92	80	120				
Cadmium	22.1	1.0	25		88	80	120				
Iron	238	5.0	250	1.019	95	80	120				
Lead	46.3	1.0	50		93	80	120				
Zinc	46.1	1.0	50	0.231	92	80	120				

Associated samples: **H12050150-001A; H12050150-002A; H12050150-003A; H12050150-004A; H12050150-005A; H12050150-006A; H12050150-007A; H12050150-008A**

Run ID :Run Order: **ICP2-HE_120516B: 124** SampType: **Laboratory Control Sample** Sample ID: **LCS-16555** Method: **SW6010B**
Analysis Date: **05/16/12 22:41** Units: **mg/kg** **Prep Info:** Prep Date: **5/9/2012** Prep Method: **SW3050 B**

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	14600	5.0	14550		100	50.7	131.3				
Arsenic	250	1.5	339.6		74	72.3	106.4				
Cadmium	106	1.0	135.6		78	73	105.1				
Iron	21900	5.0	22770	1.019	96	39.6	138.3				
Lead	164	3.1	185.1		89	75.9	108.6				
Zinc	170	1.0	210.9	0.231	80	74.2	109.9				

Associated samples: **H12050150-001A; H12050150-002A; H12050150-003A; H12050150-004A; H12050150-005A; H12050150-006A; H12050150-007A; H12050150-008A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050150
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *29-May-12*

BatchID: 16555

Run ID :Run Order: **ICP2-HE_120516B: 128** SampType: **Sample Matrix Spike** Sample ID: **H12050142-001AMS** Method: **SW6010B**

Analysis Date: **05/16/12 22:56** Units: **mg/kg** **Prep Info:** Prep Date: **5/9/2012** Prep Method: **SW3050 B**

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	13600	5.0	245.1	13340		75	125				A
Arsenic	47.8	1.5	49.02	6.558	84	75	125				
Cadmium	19.6	1.0	24.51	0.1382	79	75	125				
Iron	8640	5.0	245.1	8064		75	125				A
Lead	61.1	3.0	49.02	22.37	79	75	125				
Zinc	85.9	1.0	49.02	41.67	90	75	125				

Associated samples: **H12050150-001A; H12050150-002A; H12050150-003A; H12050150-004A; H12050150-005A; H12050150-006A; H12050150-007A; H12050150-008A**

Run ID :Run Order: **ICP2-HE_120516B: 129** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12050142-001AMSD** Method: **SW6010B**

Analysis Date: **05/16/12 23:00** Units: **mg/kg** **Prep Info:** Prep Date: **5/9/2012** Prep Method: **SW3050 B**

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	13200	5.0	245.1	13340		75	125	13560	2.3	20	A
Arsenic	47.4	1.5	49.02	6.558	83	75	125	47.8	0.9	20	
Cadmium	19.1	1.0	24.51	0.1382	77	75	125	19.56	2.6	20	
Iron	8350	5.0	245.1	8064		75	125	8644	3.4	20	A
Lead	66.5	3.0	49.02	22.37	90	75	125	61.14	8.4	20	
Zinc	89.9	1.0	49.02	41.67	98	75	125	85.88	4.6	20	

Associated samples: **H12050150-001A; H12050150-002A; H12050150-003A; H12050150-004A; H12050150-005A; H12050150-006A; H12050150-007A; H12050150-008A**

Run ID :Run Order: **ICP2-HE_120518B: 144** SampType: **Method Blank** Sample ID: **MB-16555** Method: **SW6010B**

Analysis Date: **05/18/12 19:32** Units: **mg/kg** **Prep Info:** Prep Date: **5/9/2012** Prep Method: **SW3050 B**

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.6	0.5									
Arsenic	ND	0.6									
Cadmium	ND	0.04									
Iron	0.9	0.6									
Lead	ND	1									
Zinc	0.4	0.1									

Associated samples: **H12050150-001A; H12050150-002A; H12050150-003A; H12050150-004A; H12050150-005A; H12050150-006A; H12050150-007A; H12050150-008A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050150
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *29-May-12*

BatchID: 16675

Run ID :Run Order: **ICP2-HE_120523B: 158** SampType: **Method Blank** Sample ID: **MB-16675** Method: **SW6010B**
Analysis Date: **05/23/12 23:03** Units: **mg/kg** **Prep Info:** Prep Date: **5/21/2012** Prep Method: **SW3050 B**

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	ND	0.1									
Iron	0.5	0.3									
Manganese	ND	0.03									

Associated samples: **H12050150-001A; H12050150-002A; H12050150-003A; H12050150-004A; H12050150-005A; H12050150-006A; H12050150-007A; H12050150-008A**

Run ID :Run Order: **ICP2-HE_120523B: 159** SampType: **Laboratory Fortified Blank** Sample ID: **LFB-16675** Method: **SW6010B**
Analysis Date: **05/23/12 23:07** Units: **mg/kg** **Prep Info:** Prep Date: **5/21/2012** Prep Method: **SW3050 B**

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	52.2	1.0	50		104	80	120				
Iron	261	5.0	250	0.5415	104	80	120				
Manganese	257	1.0	250		103	80	120				

Associated samples: **H12050150-001A; H12050150-002A; H12050150-003A; H12050150-004A; H12050150-005A; H12050150-006A; H12050150-007A; H12050150-008A**

Run ID :Run Order: **ICP2-HE_120523B: 160** SampType: **Laboratory Control Sample** Sample ID: **LCS-16675** Method: **SW6010B**
Analysis Date: **05/23/12 23:10** Units: **mg/kg** **Prep Info:** Prep Date: **5/21/2012** Prep Method: **SW3050 B**

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	251	1.0	277.2		90	77.5	109.6				
Iron	19300	5.0	22770	0.5415	85	39.6	138.3				
Manganese	356	1.0	365.3		97	80.8	115.7				

Associated samples: **H12050150-001A; H12050150-002A; H12050150-003A; H12050150-004A; H12050150-005A; H12050150-006A; H12050150-007A; H12050150-008A**

Run ID :Run Order: **ICP2-HE_120523B: 164** SampType: **Sample Matrix Spike** Sample ID: **H12050107-002AMS** Method: **SW6010B**
Analysis Date: **05/23/12 23:25** Units: **mg/kg** **Prep Info:** Prep Date: **5/21/2012** Prep Method: **SW3050 B**

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	195	1.0	24.88	153.4		75	125				A
Iron	12800	5.0	124.4	11950		75	125				A
Manganese	224	1.0	124.4	150.2	60	75	125				S

Associated samples: **H12050150-001A; H12050150-002A; H12050150-003A; H12050150-004A; H12050150-005A; H12050150-006A; H12050150-007A; H12050150-008A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050150
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *29-May-12*

BatchID: 16675

Run ID :Run Order: **ICP2-HE_120523B: 165** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12050107-002AMSD** Method: **SW6010B**
Analysis Date: **05/23/12 23:28** Units: **mg/kg** **Prep Info:** Prep Date: **5/8/2012** Prep Method: **SW3050 B**

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	188	1.0	24.88	153.4		75	125	195.1	4.0	20	A
Iron	13600	5.0	124.4	11950		75	125	12830	5.7	20	A
Manganese	268	1.0	124.4	150.2	95	75	125	224.4	18	20	

Associated samples: **H12050150-001A; H12050150-002A; H12050150-003A; H12050150-004A; H12050150-005A; H12050150-006A; H12050150-007A; H12050150-008A**

Run ID :Run Order: **ICP2-HE_120523B: 193** SampType: **Sample Matrix Spike** Sample ID: **H12050151-006AMS** Method: **SW6010B**
Analysis Date: **05/24/12 01:12** Units: **mg/kg** **Prep Info:** Prep Date: **5/21/2012** Prep Method: **SW3050 B**

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	58.5	1.0	24.63	29	120	75	125				
Iron	16800	5.0	123.2	16250		75	125				A
Manganese	611	1.0	123.2	461.7	122	75	125				

Associated samples: **H12050150-001A; H12050150-002A; H12050150-003A; H12050150-004A; H12050150-005A; H12050150-006A; H12050150-007A; H12050150-008A**

Run ID :Run Order: **ICP2-HE_120523B: 194** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12050151-006AMSD** Method: **SW6010B**
Analysis Date: **05/24/12 01:16** Units: **mg/kg** **Prep Info:** Prep Date: **5/9/2012** Prep Method: **SW3050 B**

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	58.0	1.0	24.75	29	117	75	125	58.51	0.9	20	
Iron	19600	5.0	123.8	16250		75	125	16840	15	20	A
Manganese	599	1.0	123.8	461.7	111	75	125	611.5	2.1	20	

Associated samples: **H12050150-001A; H12050150-002A; H12050150-003A; H12050150-004A; H12050150-005A; H12050150-006A; H12050150-007A; H12050150-008A**

Run ID :Run Order: **ICP2-HE_120524A: 27** SampType: **Method Blank** Sample ID: **MB-16675** Method: **SW6010B**
Analysis Date: **05/24/12 16:25** Units: **mg/kg** **Prep Info:** Prep Date: **5/21/2012** Prep Method: **SW3050 B**

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	0.3	0.1									
Iron	0.9	0.3									
Manganese	0.06	0.03									

Associated samples: **H12050150-001A; H12050150-002A; H12050150-003A; H12050150-004A; H12050150-005A; H12050150-006A; H12050150-007A; H12050150-008A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050150
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *29-May-12*

BatchID: R79959

Run ID :Run Order: **ICP2-HE_120514B: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**

Analysis Date: **05/14/12 10:20** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.799	0.0074	0.8		100	90	110				
Cadmium	0.383	0.0010	0.4		96	90	110				
Iron	3.98	0.030	4		100	90	110				
Lead	0.800	0.013	0.8		100	90	110				
Zinc	0.792	0.010	0.8		99	90	110				

Associated samples: **H12050150-001A; H12050150-002A; H12050150-003A; H12050150-004A; H12050150-005A; H12050150-006A; H12050150-007A; H12050150-008A**

Run ID :Run Order: **ICP2-HE_120514B: 10** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.7**

Analysis Date: **05/14/12 10:35** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.00484	0.0074				0	0				
Cadmium	-0.000190	0.0010				0	0				
Iron	191	0.030	200		95	80	120				
Lead	0.0393	0.013				0	0				
Zinc	0.00436	0.010				0	0				

Associated samples: **H12050150-001A; H12050150-002A; H12050150-003A; H12050150-004A; H12050150-005A; H12050150-006A; H12050150-007A; H12050150-008A**

Run ID :Run Order: **ICP2-HE_120514B: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**

Analysis Date: **05/14/12 10:39** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	1.03	0.0074	1		103	80	120				
Cadmium	0.886	0.0010	1		89	80	120				
Iron	190	0.030	200		95	80	120				
Lead	0.958	0.013	1		96	80	120				
Zinc	0.979	0.010	1		98	80	120				

Associated samples: **H12050150-001A; H12050150-002A; H12050150-003A; H12050150-004A; H12050150-005A; H12050150-006A; H12050150-007A; H12050150-008A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050150
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *29-May-12*

BatchID: R80049

Run ID :Run Order: **ICP2-HE_120516B: 8** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**

Analysis Date: **05/16/12 11:37** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	4.08	0.10	4		102	90	110				
Iron	3.97	0.030	4		99	90	110				

Associated samples: **H12050150-001A; H12050150-002A; H12050150-003A; H12050150-004A; H12050150-005A; H12050150-006A; H12050150-007A**

Run ID :Run Order: **ICP2-HE_120516B: 12** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.7**

Analysis Date: **05/16/12 11:52** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	524	0.10	500		105	80	120				
Iron	182	0.030	200		91	80	120				

Associated samples: **H12050150-001A; H12050150-002A; H12050150-003A; H12050150-004A; H12050150-005A; H12050150-006A; H12050150-007A**

Run ID :Run Order: **ICP2-HE_120516B: 13** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**

Analysis Date: **05/16/12 11:56** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	526	0.10	500		105	80	120				
Iron	183	0.030	200		92	80	120				

Associated samples: **H12050150-001A; H12050150-002A; H12050150-003A; H12050150-004A; H12050150-005A; H12050150-006A; H12050150-007A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050150
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *29-May-12*

BatchID: R80082

Run ID :Run Order: **ICP2-HE_120518B: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**
Analysis Date: **05/18/12 10:31** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	4.02	0.10	4		101	90	110				

Associated samples: **H12050150-008A**

Run ID :Run Order: **ICP2-HE_120518B: 10** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.7**
Analysis Date: **05/18/12 10:45** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	530	0.10	500		106	80	120				

Associated samples: **H12050150-008A**

Run ID :Run Order: **ICP2-HE_120518B: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**
Analysis Date: **05/18/12 10:50** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	527	0.10	500		105	80	120				

Associated samples: **H12050150-008A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050150
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *29-May-12*

BatchID: R80172

Run ID :Run Order: **ICP2-HE_120523B: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**

Analysis Date: **05/23/12 11:13** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	0.815	0.010	0.8		102	90	110				
Manganese	4.07	0.010	4		102	90	110				

Associated samples: **H12050150-001A; H12050150-002A; H12050150-003A; H12050150-004A; H12050150-005A; H12050150-006A; H12050150-007A; H12050150-008A**

Run ID :Run Order: **ICP2-HE_120523B: 10** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.7**

Analysis Date: **05/23/12 11:28** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	0.00389	0.010				0	0				
Manganese	-0.00725	0.010				0	0				

Associated samples: **H12050150-001A; H12050150-002A; H12050150-003A; H12050150-004A; H12050150-005A; H12050150-006A; H12050150-007A; H12050150-008A**

Run ID :Run Order: **ICP2-HE_120523B: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**

Analysis Date: **05/23/12 11:32** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	0.523	0.010	0.5		105	80	120				
Manganese	0.486	0.010	0.5		97	80	120				

Associated samples: **H12050150-001A; H12050150-002A; H12050150-003A; H12050150-004A; H12050150-005A; H12050150-006A; H12050150-007A; H12050150-008A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050150
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R80211

Date: *29-May-12*

Run ID :Run Order: **ICP2-HE_120524A: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**
Analysis Date: **05/24/12 15:07** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	3.89	0.030	4		97	90	110				

Associated samples: **H12050150-008A**

Run ID :Run Order: **ICP2-HE_120524A: 10** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.7**
Analysis Date: **05/24/12 15:22** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	188	0.030	200		94	80	120				

Associated samples: **H12050150-008A**

Run ID :Run Order: **ICP2-HE_120524A: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**
Analysis Date: **05/24/12 15:26** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	183	0.030	200		92	80	120				

Associated samples: **H12050150-008A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Workorder Receipt Checklist

H12050150

MT DEQ-Site Response

Login completed by: Wanda Johnson
Date Received: 5/8/2012

Reviewed by: BL2000\sdull
Received by: elm

Reviewed Date: 5/15/2012
Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Container/Temp Blank temperature:	2.4°C On Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Contact and Corrective Action Comments:

Samples were received in the laboratory at 14:44. Client put a time of 14:14 when he relinquished. Did not receive sample BRSD-2. Sample BRSD-24 was accidentally broken in laboratory. Contacted Alan Dreesbach regarding samples. Wj 5/8/12. Spoke with Alan Dreesbach and there is no sample BRSD-2. Ssample BRSD-24 is a duplicate of BRSD-22. Alan stated to split sample BRSD-22 to create BRSD-24. Wj 5/9/12

ENERGY LABORATORIES

Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT (Provide as much information as possible.)

Company Name: MDEQ

Report Mail Address: Quote H-645

Invoice Address:

Project Name, PWS, Permit, Etc.: UBMC Sediment

Contact Name: Shellie Haaland

Phone/Fax: 841-5033

Invoice Contact & Phone:

Sample Origin State: MT

Email: shaaland@mt.gov

Purchase Order:

EPA/State Compliance: Yes ☐ No ☐

Sampler: (Please Print) Alan Dreesbach, Brienne Meyer

Quote/Bottle Order:

Special Report/Formats:

☐ DW
☐ POTW/WWTP
☐ State: _____
☐ Other: _____

☐ EDD/EDT (Electronic Data) Format: _____
☐ LEVEL IV
☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids
Vegetation Bioassay Other
DW - Drinking Water

ANALYSIS REQUESTED

Bottle Order #9719

SEE ATTACHED

Standard Turnaround (TAT)

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: Please copy results to adreesbach@portageinc.com 406-490-5135

Shipped by: Hand

Cooler ID(s): Y

Receipt Temp: 2.4 °C TB

On Ice: Y N

Custody Seal: On Bottle Y N; On Cooler Y N

Intact Y N

Signature Match Y N

LABORATORY USE ONLY: H12050150

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	SEE ATTACHED
1	BRSD-38	5/7/12	1022	S	X
2	BRSD-48		1207		
3	BRSD-23		1220		
4	BRSD-3A		1252		
5	BRSD-3B		1315		
6	BRSD-2		1355		
7	BRSD-24		1502		
8	BRSD-22		1510		
9	BRSD-1		1545		
10					

Custody Record MUST be Signed

Relinquished by (print): Alan Dreesbach Date/Time: 5/8/12 @ 1414 Signature: [signature]

Relinquished by (print): Date/Time: Signature:

Received by (print): Date/Time: Signature:

Received by (print): Date/Time: Signature:

Received by Laboratory: Esther Merritt Date/Time: 5/8/12 14:44 Signature: [signature]

Sample Disposal: Return to Client: _____ Lab Disposal: _____

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report. ... information, downloadable fee schedule, forms, and links.

Section 35 Quarterly													
	Quantity	Analysis											
Surface Water	7	[1]Disolved Metals	[2]Total Rec. Metals	[5]Cations	Chloride	Sulfate	Alkalinity	Hardness	Acidity	TDS	TSS	pH	EC
Groundwater	9	[3]Disolved Metals		[5]Cations	Chloride	Sulfate	Alkalinity	Hardness	Acidity	TDS	TSS	pH	EC
Sediment	6		[4]Total Rec. Metals										

[1]Aluminum

[2]Arsenic, cadmium, copper, iron, lead, manganese, and zinc

[3]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[4]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[5]Calcium, magnesium, potassium, sodium

UBMC Quarterly													
	Quantity	Analysis											
[6]Surface Water	11	[1]Disolved Metals	[2]Total Rec. Metals	[5]Cations	Chloride	Sulfate	Alkalinity	Hardness	Acidity	TDS	TSS	pH	EC
Groundwater	10	[3]Disolved Metals		[5]Cations	Chloride	Sulfate	Alkalinity	Hardness	Acidity	TDS	TSS	pH	EC
Sediment	9		[4]Total Rec. Metals										

[1]Aluminum

[2]Arsenic, cadmium, copper, iron, lead, manganese, and zinc

[3]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[4]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[5]Calcium, magnesium, potassium, sodium

[6]Additional surface water samples may be collected for seeps.

ANALYTICAL SUMMARY REPORT

May 21, 2012

MT DEQ-Site Response
PO Box 200901
Helena, MT 59620-0901

Workorder No.: H12050152 Quote ID: H645

Project Name: UBMC

Energy Laboratories Inc Helena MT received the following 11 samples for MT DEQ-Site Response on 5/8/2012 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H12050152-001	BRSW-25-0917	05/07/12 9:17	05/08/12	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Hardness as CaCO3 Anions by Ion Chromatography pH Metals Digestion by EPA 200.2 Preparation for TSS Solids, Total Dissolved Solids, Total Suspended
H12050152-002	BRSW-26	05/07/12 9:27	05/08/12	Surface Water	Same As Above
H12050152-003	BRSW-38	05/07/12 10:09	05/08/12	Surface Water	Same As Above
H12050152-004	BRSW-48	05/07/12 11:42	05/08/12	Surface Water	Same As Above
H12050152-005	BRSW-23	05/07/12 12:17	05/08/12	Surface Water	Same As Above
H12050152-006	BRSW-3A	05/07/12 12:45	05/08/12	Surface Water	Same As Above
H12050152-007	BRSW-3B	05/07/12 13:15	05/08/12	Surface Water	Same As Above
H12050152-008	BRSW-2	05/07/12 13:55	05/08/12	Surface Water	Same As Above
H12050152-009	BRSW-24	05/07/12 15:02	05/08/12	Surface Water	Same As Above
H12050152-010	BRSW-22	05/07/12 15:10	05/08/12	Surface Water	Same As Above
H12050152-011	BRSW-1	05/07/12 15:40	05/08/12	Surface Water	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise reported.

Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-25-0917
Lab ID: H12050152-001
Matrix: Surface Water

Project: UBMC
Collection Date: 05/07/12 09:17
DateReceived: 05/08/12
Report Date: 05/21/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	4.7	s.u.		0.1		A4500-H B	05/09/12 11:22 / cmm		PHSC_101-H_120509A	25	R79840
Conductivity @ 25 C	1	umhos/cm		1		A2510 B	05/09/12 11:22 / cmm		PHSC_101-H_120509A	26	R79840
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/09/12 15:08 / cmm	05/09/12 14:41	-124 (14410200)_120509A	11	16567
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	05/09/12 14:53 / cmm		-124 (14410200)_120509B	15	TDS120509A
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	05/09/12 15:50 / cmm		MAN-TECH_120509B	28	R79862
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	05/09/12 15:50 / cmm		MAN-TECH_120509B	28	R79862
Carbonate as CO3	ND	mg/L		4		A2320 B	05/09/12 15:50 / cmm		MAN-TECH_120509B	28	R79862
Chloride	ND	mg/L		1		E300.0	05/10/12 16:10 / cmm		IC102-H_120510A	35	R79896
Sulfate	ND	mg/L		1		E300.0	05/10/12 16:10 / cmm		IC102-H_120510A	35	R79896
Hardness as CaCO3	ND	mg/L		1		A2340 B	05/11/12 11:45 / sld		WATERCALC_120511A	8	R79909
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/11/12 02:16 / sld		ICPMS204-B_120510B	194	R79906
Calcium	ND	mg/L		1		E200.8	05/11/12 02:16 / sld		ICPMS204-B_120510B	194	R79906
Magnesium	ND	mg/L		1		E200.8	05/11/12 02:16 / sld		ICPMS204-B_120510B	194	R79906
Potassium	ND	mg/L		1		E200.8	05/11/12 02:16 / sld		ICPMS204-B_120510B	194	R79906
Sodium	ND	mg/L		1		E200.8	05/11/12 02:16 / sld		ICPMS204-B_120510B	194	R79906
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	05/11/12 02:21 / sld		ICPMS204-B_120510B	195	R79906
Cadmium	ND	mg/L		0.00008		E200.8	05/11/12 02:21 / sld		ICPMS204-B_120510B	195	R79906
Copper	ND	mg/L		0.001		E200.8	05/11/12 02:21 / sld		ICPMS204-B_120510B	195	R79906
Iron	ND	mg/L		0.03		E200.8	05/11/12 02:21 / sld		ICPMS204-B_120510B	195	R79906
Lead	ND	mg/L		0.0005		E200.8	05/11/12 02:21 / sld		ICPMS204-B_120510B	195	R79906
Manganese	ND	mg/L		0.005		E200.8	05/11/12 02:21 / sld		ICPMS204-B_120510B	195	R79906
Zinc	ND	mg/L		0.01		E200.8	05/11/12 02:21 / sld		ICPMS204-B_120510B	195	R79906

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-26
Lab ID: H12050152-002
Matrix: Surface Water

Project: UBMC
Collection Date: 05/07/12 09:27
DateReceived: 05/08/12
Report Date: 05/21/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	4.5	s.u.		0.1		A4500-H B	05/09/12 11:26 / cmm		PHSC_101-H_120509A	27	R79840
Conductivity @ 25 C	1	umhos/cm		1		A2510 B	05/09/12 11:26 / cmm		PHSC_101-H_120509A	28	R79840
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/09/12 15:08 / cmm	05/09/12 14:41	-124 (14410200)_120509A	12	16567
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	05/09/12 14:54 / cmm		-124 (14410200)_120509B	17	TDS120509A
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	05/09/12 16:03 / cmm		MAN-TECH_120509B	32	R79862
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	05/09/12 16:03 / cmm		MAN-TECH_120509B	32	R79862
Carbonate as CO3	ND	mg/L		4		A2320 B	05/09/12 16:03 / cmm		MAN-TECH_120509B	32	R79862
Chloride	ND	mg/L		1		E300.0	05/10/12 16:23 / cmm		IC102-H_120510A	36	R79896
Sulfate	ND	mg/L		1		E300.0	05/10/12 16:23 / cmm		IC102-H_120510A	36	R79896
Hardness as CaCO3	ND	mg/L		1		A2340 B	05/11/12 11:45 / sld		WATERCALC_120511A	9	R79909
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/11/12 02:25 / sld		ICPMS204-B_120510B	196	R79906
Calcium	ND	mg/L		1		E200.8	05/11/12 02:25 / sld		ICPMS204-B_120510B	196	R79906
Magnesium	ND	mg/L		1		E200.8	05/11/12 02:25 / sld		ICPMS204-B_120510B	196	R79906
Potassium	ND	mg/L		1		E200.8	05/11/12 02:25 / sld		ICPMS204-B_120510B	196	R79906
Sodium	ND	mg/L		1		E200.8	05/11/12 02:25 / sld		ICPMS204-B_120510B	196	R79906
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	05/11/12 02:30 / sld		ICPMS204-B_120510B	197	R79906
Cadmium	ND	mg/L		0.00008		E200.8	05/11/12 02:30 / sld		ICPMS204-B_120510B	197	R79906
Copper	ND	mg/L		0.001		E200.8	05/11/12 02:30 / sld		ICPMS204-B_120510B	197	R79906
Iron	ND	mg/L		0.03		E200.8	05/11/12 02:30 / sld		ICPMS204-B_120510B	197	R79906
Lead	ND	mg/L		0.0005		E200.8	05/11/12 02:30 / sld		ICPMS204-B_120510B	197	R79906
Manganese	ND	mg/L		0.005		E200.8	05/11/12 02:30 / sld		ICPMS204-B_120510B	197	R79906
Zinc	ND	mg/L		0.01		E200.8	05/11/12 02:30 / sld		ICPMS204-B_120510B	197	R79906

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-38
Lab ID: H12050152-003
Matrix: Surface Water

Project: UBMC
Collection Date: 05/07/12 10:09
Report Date: 05/21/12
DateReceived: 05/08/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.2	s.u.		0.1		A4500-H B	05/09/12 11:29 / cmm		PHSC_101-H_120509A	29	R79840
Conductivity @ 25 C	227	umhos/cm		1		A2510 B	05/09/12 11:29 / cmm		PHSC_101-H_120509A	30	R79840
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/09/12 15:08 / cmm	05/09/12 14:41	-124 (14410200)_120509A	13	16567
Solids, Total Dissolved TDS @ 180 C	130	mg/L		10		A2540 C	05/09/12 14:54 / cmm		-124 (14410200)_120509B	18	TDS120509A
INORGANICS											
Alkalinity, Total as CaCO3	71	mg/L		4		A2320 B	05/09/12 16:10 / cmm		MAN-TECH_120509B	34	R79862
Bicarbonate as HCO3	86	mg/L		4		A2320 B	05/09/12 16:10 / cmm		MAN-TECH_120509B	34	R79862
Carbonate as CO3	ND	mg/L		4		A2320 B	05/09/12 16:10 / cmm		MAN-TECH_120509B	34	R79862
Chloride	ND	mg/L		1		E300.0	05/10/12 16:37 / cmm		IC102-H_120510A	37	R79896
Sulfate	39	mg/L		1		E300.0	05/10/12 16:37 / cmm		IC102-H_120510A	37	R79896
Hardness as CaCO3	101	mg/L		1		A2340 B	05/11/12 11:45 / sld		WATERCALC_120511A	10	R79909
METALS, DISSOLVED											
Aluminum	0.03	mg/L		0.03		E200.8	05/11/12 02:53 / sld		ICPMS204-B_120510B	202	R79906
Calcium	21	mg/L		1		E200.8	05/11/12 02:53 / sld		ICPMS204-B_120510B	202	R79906
Magnesium	12	mg/L		1		E200.8	05/11/12 02:53 / sld		ICPMS204-B_120510B	202	R79906
Potassium	ND	mg/L		1		E200.8	05/11/12 02:53 / sld		ICPMS204-B_120510B	202	R79906
Sodium	ND	mg/L		1		E200.8	05/11/12 02:53 / sld		ICPMS204-B_120510B	202	R79906
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	05/11/12 02:57 / sld	05/09/12 08:50	ICPMS204-B_120510B	203	16557
Cadmium	0.00521	mg/L		0.00008		E200.8	05/11/12 02:57 / sld	05/09/12 08:50	ICPMS204-B_120510B	203	16557
Copper	0.028	mg/L		0.001		E200.8	05/11/12 02:57 / sld	05/09/12 08:50	ICPMS204-B_120510B	203	16557
Iron	0.56	mg/L		0.03		E200.8	05/11/12 02:57 / sld	05/09/12 08:50	ICPMS204-B_120510B	203	16557
Lead	0.0214	mg/L		0.0005		E200.8	05/11/12 02:57 / sld	05/09/12 08:50	ICPMS204-B_120510B	203	16557
Manganese	0.698	mg/L		0.005		E200.8	05/11/12 02:57 / sld	05/09/12 08:50	ICPMS204-B_120510B	203	16557
Zinc	1.12	mg/L		0.01		E200.8	05/11/12 02:57 / sld	05/09/12 08:50	ICPMS204-B_120510B	203	16557

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-48
Lab ID: H12050152-004
Matrix: Surface Water

Project: UBMC
Collection Date: 05/07/12 11:42
Report Date: 05/21/12
DateReceived: 05/08/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.1	s.u.		0.1		A4500-H B	05/09/12 11:32 / cmm		PHSC_101-H_120509A	31	R79840
Conductivity @ 25 C	226	umhos/cm		1		A2510 B	05/09/12 11:32 / cmm		PHSC_101-H_120509A	32	R79840
Solids, Total Suspended TSS @ 105 C	12	mg/L		10		A2540 D	05/09/12 15:08 / cmm	05/09/12 14:41	-124 (14410200)_120509A	14	16567
Solids, Total Dissolved TDS @ 180 C	127	mg/L		10		A2540 C	05/09/12 14:54 / cmm		-124 (14410200)_120509B	19	TDS120509A
INORGANICS											
Alkalinity, Total as CaCO3	79	mg/L		4		A2320 B	05/09/12 16:17 / cmm		MAN-TECH_120509B	36	R79862
Bicarbonate as HCO3	97	mg/L		4		A2320 B	05/09/12 16:17 / cmm		MAN-TECH_120509B	36	R79862
Carbonate as CO3	ND	mg/L		4		A2320 B	05/09/12 16:17 / cmm		MAN-TECH_120509B	36	R79862
Chloride	ND	mg/L		1		E300.0	05/10/12 16:50 / cmm		IC102-H_120510A	38	R79896
Sulfate	32	mg/L		1		E300.0	05/10/12 16:50 / cmm		IC102-H_120510A	38	R79896
Hardness as CaCO3	104	mg/L		1		A2340 B	05/11/12 11:45 / sld		WATERCALC_120511A	11	R79909
METALS, DISSOLVED											
Aluminum	0.05	mg/L		0.03		E200.8	05/11/12 03:02 / sld		ICPMS204-B_120510B	204	R79906
Calcium	21	mg/L		1		E200.8	05/11/12 03:02 / sld		ICPMS204-B_120510B	204	R79906
Magnesium	13	mg/L		1		E200.8	05/11/12 03:02 / sld		ICPMS204-B_120510B	204	R79906
Potassium	ND	mg/L		1		E200.8	05/11/12 03:02 / sld		ICPMS204-B_120510B	204	R79906
Sodium	ND	mg/L		1		E200.8	05/11/12 03:02 / sld		ICPMS204-B_120510B	204	R79906
METALS, TOTAL RECOVERABLE											
Arsenic	0.003	mg/L		0.003		E200.8	05/11/12 03:20 / sld	05/09/12 08:50	ICPMS204-B_120510B	208	16557
Cadmium	0.00381	mg/L		0.00008		E200.8	05/11/12 03:20 / sld	05/09/12 08:50	ICPMS204-B_120510B	208	16557
Copper	0.034	mg/L		0.001		E200.8	05/11/12 03:20 / sld	05/09/12 08:50	ICPMS204-B_120510B	208	16557
Iron	0.93	mg/L		0.03		E200.8	05/11/12 03:20 / sld	05/09/12 08:50	ICPMS204-B_120510B	208	16557
Lead	0.0483	mg/L		0.0005		E200.8	05/11/12 03:20 / sld	05/09/12 08:50	ICPMS204-B_120510B	208	16557
Manganese	0.657	mg/L		0.005		E200.8	05/11/12 03:20 / sld	05/09/12 08:50	ICPMS204-B_120510B	208	16557
Zinc	0.80	mg/L		0.01		E200.8	05/11/12 03:20 / sld	05/09/12 08:50	ICPMS204-B_120510B	208	16557

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-23
Lab ID: H12050152-005
Matrix: Surface Water

Project: UBMC
Collection Date: 05/07/12 12:17
Report Date: 05/21/12
DateReceived: 05/08/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.3	s.u.		0.1		A4500-H B	05/09/12 11:35 / cmm		PHSC_101-H_120509A	33	R79840
Conductivity @ 25 C	222	umhos/cm		1		A2510 B	05/09/12 11:35 / cmm		PHSC_101-H_120509A	34	R79840
Solids, Total Suspended TSS @ 105 C	13	mg/L		10		A2540 D	05/09/12 15:09 / cmm	05/09/12 14:41	-124 (14410200)_120509A	16	16567
Solids, Total Dissolved TDS @ 180 C	127	mg/L		10		A2540 C	05/09/12 14:54 / cmm		-124 (14410200)_120509B	20	TDS120509A
INORGANICS											
Alkalinity, Total as CaCO3	80	mg/L		4		A2320 B	05/09/12 16:24 / cmm		MAN-TECH_120509B	38	R79862
Bicarbonate as HCO3	98	mg/L		4		A2320 B	05/09/12 16:24 / cmm		MAN-TECH_120509B	38	R79862
Carbonate as CO3	ND	mg/L		4		A2320 B	05/09/12 16:24 / cmm		MAN-TECH_120509B	38	R79862
Chloride	ND	mg/L		1		E300.0	05/10/12 17:04 / cmm		IC102-H_120510A	39	R79896
Sulfate	29	mg/L		1		E300.0	05/10/12 17:04 / cmm		IC102-H_120510A	39	R79896
Hardness as CaCO3	102	mg/L		1		A2340 B	05/11/12 11:45 / sld		WATERCALC_120511A	12	R79909
METALS, DISSOLVED											
Aluminum	0.04	mg/L		0.03		E200.8	05/11/12 03:24 / sld		ICPMS204-B_120510B	209	R79906
Calcium	21	mg/L		1		E200.8	05/11/12 03:24 / sld		ICPMS204-B_120510B	209	R79906
Magnesium	12	mg/L		1		E200.8	05/11/12 03:24 / sld		ICPMS204-B_120510B	209	R79906
Potassium	ND	mg/L		1		E200.8	05/11/12 03:24 / sld		ICPMS204-B_120510B	209	R79906
Sodium	ND	mg/L		1		E200.8	05/11/12 03:24 / sld		ICPMS204-B_120510B	209	R79906
METALS, TOTAL RECOVERABLE											
Arsenic	0.004	mg/L		0.003		E200.8	05/11/12 03:29 / sld	05/09/12 08:50	ICPMS204-B_120510B	210	16557
Cadmium	0.00362	mg/L		0.00008		E200.8	05/11/12 03:29 / sld	05/09/12 08:50	ICPMS204-B_120510B	210	16557
Copper	0.029	mg/L		0.001		E200.8	05/11/12 03:29 / sld	05/09/12 08:50	ICPMS204-B_120510B	210	16557
Iron	0.83	mg/L		0.03		E200.8	05/11/12 03:29 / sld	05/09/12 08:50	ICPMS204-B_120510B	210	16557
Lead	0.0705	mg/L		0.0005		E200.8	05/11/12 03:29 / sld	05/09/12 08:50	ICPMS204-B_120510B	210	16557
Manganese	0.567	mg/L		0.005		E200.8	05/11/12 03:29 / sld	05/09/12 08:50	ICPMS204-B_120510B	210	16557
Zinc	0.76	mg/L		0.01		E200.8	05/11/12 03:29 / sld	05/09/12 08:50	ICPMS204-B_120510B	210	16557

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-3A
Lab ID: H12050152-006
Matrix: Surface Water

Project: UBMC
Collection Date: 05/07/12 12:45
DateReceived: 05/08/12
Report Date: 05/21/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.0	s.u.		0.1		A4500-H B	05/09/12 11:37 / cmm		PHSC_101-H_120509A	35	R79840
Conductivity @ 25 C	331	umhos/cm		1		A2510 B	05/09/12 11:37 / cmm		PHSC_101-H_120509A	36	R79840
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/09/12 15:09 / cmm	05/09/12 14:41	-124 (14410200)_120509A	17	16567
Solids, Total Dissolved TDS @ 180 C	207	mg/L		10		A2540 C	05/09/12 14:54 / cmm		-124 (14410200)_120509B	21	TDS120509A
INORGANICS											
Alkalinity, Total as CaCO3	72	mg/L		4		A2320 B	05/09/12 16:30 / cmm		MAN-TECH_120509B	40	R79862
Bicarbonate as HCO3	88	mg/L		4		A2320 B	05/09/12 16:30 / cmm		MAN-TECH_120509B	40	R79862
Carbonate as CO3	ND	mg/L		4		A2320 B	05/09/12 16:30 / cmm		MAN-TECH_120509B	40	R79862
Chloride	ND	mg/L		1		E300.0	05/10/12 17:18 / cmm		IC102-H_120510A	40	R79896
Sulfate	86	mg/L		1		E300.0	05/10/12 17:18 / cmm		IC102-H_120510A	40	R79896
Hardness as CaCO3	150	mg/L		1		A2340 B	05/11/12 11:45 / sld		WATERCALC_120511A	13	R79909
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/11/12 03:52 / sld		ICPMS204-B_120510B	215	R79906
Calcium	29	mg/L		1		E200.8	05/11/12 03:52 / sld		ICPMS204-B_120510B	215	R79906
Magnesium	19	mg/L		1		E200.8	05/11/12 03:52 / sld		ICPMS204-B_120510B	215	R79906
Potassium	ND	mg/L		1		E200.8	05/11/12 03:52 / sld		ICPMS204-B_120510B	215	R79906
Sodium	1	mg/L		1		E200.8	05/11/12 03:52 / sld		ICPMS204-B_120510B	215	R79906
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	05/11/12 03:56 / sld	05/09/12 08:50	ICPMS204-B_120510B	216	16557
Cadmium	0.00217	mg/L		0.00008		E200.8	05/11/12 03:56 / sld	05/09/12 08:50	ICPMS204-B_120510B	216	16557
Copper	0.005	mg/L		0.001		E200.8	05/11/12 03:56 / sld	05/09/12 08:50	ICPMS204-B_120510B	216	16557
Iron	0.13	mg/L		0.03		E200.8	05/11/12 03:56 / sld	05/09/12 08:50	ICPMS204-B_120510B	216	16557
Lead	0.0019	mg/L		0.0005		E200.8	05/11/12 03:56 / sld	05/09/12 08:50	ICPMS204-B_120510B	216	16557
Manganese	1.14	mg/L		0.005		E200.8	05/11/12 03:56 / sld	05/09/12 08:50	ICPMS204-B_120510B	216	16557
Zinc	0.83	mg/L		0.01		E200.8	05/11/12 03:56 / sld	05/09/12 08:50	ICPMS204-B_120510B	216	16557

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-3B
Lab ID: H12050152-007
Matrix: Surface Water

Project: UBMC
Collection Date: 05/07/12 13:15
DateReceived: 05/08/12
Report Date: 05/21/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.0	s.u.		0.1		A4500-H B	05/09/12 11:40 / cmm		PHSC_101-H_120509A	37	R79840
Conductivity @ 25 C	230	umhos/cm		1		A2510 B	05/09/12 11:40 / cmm		PHSC_101-H_120509A	38	R79840
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/09/12 15:09 / cmm	05/09/12 14:41	-124 (14410200)_120509A	18	16567
Solids, Total Dissolved TDS @ 180 C	139	mg/L		10		A2540 C	05/09/12 14:55 / cmm		-124 (14410200)_120509B	22	TDS120509A
INORGANICS											
Alkalinity, Total as CaCO3	73	mg/L		4		A2320 B	05/09/12 16:37 / cmm		MAN-TECH_120509B	42	R79862
Bicarbonate as HCO3	89	mg/L		4		A2320 B	05/09/12 16:37 / cmm		MAN-TECH_120509B	42	R79862
Carbonate as CO3	ND	mg/L		4		A2320 B	05/09/12 16:37 / cmm		MAN-TECH_120509B	42	R79862
Chloride	ND	mg/L		1		E300.0	05/10/12 17:31 / cmm		IC102-H_120510A	41	R79896
Sulfate	39	mg/L		1		E300.0	05/10/12 17:31 / cmm		IC102-H_120510A	41	R79896
Hardness as CaCO3	110	mg/L		1		A2340 B	05/11/12 11:45 / sld		WATERCALC_120511A	14	R79909
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/11/12 04:01 / sld		ICPMS204-B_120510B	217	R79906
Calcium	22	mg/L		1		E200.8	05/11/12 04:01 / sld		ICPMS204-B_120510B	217	R79906
Magnesium	13	mg/L		1		E200.8	05/11/12 04:01 / sld		ICPMS204-B_120510B	217	R79906
Potassium	ND	mg/L		1		E200.8	05/11/12 04:01 / sld		ICPMS204-B_120510B	217	R79906
Sodium	1	mg/L		1		E200.8	05/11/12 04:01 / sld		ICPMS204-B_120510B	217	R79906
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	05/11/12 04:05 / sld	05/09/12 08:50	ICPMS204-B_120510B	218	16557
Cadmium	0.00152	mg/L		0.00008		E200.8	05/11/12 04:05 / sld	05/09/12 08:50	ICPMS204-B_120510B	218	16557
Copper	0.002	mg/L		0.001		E200.8	05/11/12 04:05 / sld	05/09/12 08:50	ICPMS204-B_120510B	218	16557
Iron	0.09	mg/L		0.03		E200.8	05/11/12 04:05 / sld	05/09/12 08:50	ICPMS204-B_120510B	218	16557
Lead	0.0011	mg/L		0.0005		E200.8	05/11/12 04:05 / sld	05/09/12 08:50	ICPMS204-B_120510B	218	16557
Manganese	0.662	mg/L		0.005		E200.8	05/11/12 04:05 / sld	05/09/12 08:50	ICPMS204-B_120510B	218	16557
Zinc	0.47	mg/L		0.01		E200.8	05/11/12 04:05 / sld	05/09/12 08:50	ICPMS204-B_120510B	218	16557

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-2
Lab ID: H12050152-008
Matrix: Surface Water

Project: UBMC
Collection Date: 05/07/12 13:55
DateReceived: 05/08/12
Report Date: 05/21/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.4	s.u.		0.1		A4500-H B	05/09/12 11:43 / cmm		PHSC_101-H_120509A	39	R79840
Conductivity @ 25 C	2260	umhos/cm		1		A2510 B	05/09/12 11:43 / cmm		PHSC_101-H_120509A	40	R79840
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/09/12 15:09 / cmm	05/09/12 14:41	-124 (14410200)_120509A	19	16567
Solids, Total Dissolved TDS @ 180 C	2040	mg/L		10		A2540 C	05/09/12 14:57 / cmm		-124 (14410200)_120509B	23	TDS120509A
INORGANICS											
Alkalinity, Total as CaCO3	42	mg/L		4		A2320 B	05/09/12 16:43 / cmm		MAN-TECH_120509B	44	R79862
Bicarbonate as HCO3	52	mg/L		4		A2320 B	05/09/12 16:43 / cmm		MAN-TECH_120509B	44	R79862
Carbonate as CO3	ND	mg/L		4		A2320 B	05/09/12 16:43 / cmm		MAN-TECH_120509B	44	R79862
Chloride	ND	mg/L		1		E300.0	05/14/12 14:04 / cmm		IC102-H_120514A	19	R79964
Sulfate	1400	mg/L	D	5		E300.0	05/10/12 17:45 / cmm		IC102-H_120510A	42	R79896
Hardness as CaCO3	1370	mg/L		1		A2340 B	05/11/12 11:45 / sld		WATERCALC_120511A	15	R79909
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/11/12 04:10 / sld		ICPMS204-B_120510B	219	R79906
Calcium	241	mg/L		1		E200.8	05/11/12 04:10 / sld		ICPMS204-B_120510B	219	R79906
Magnesium	187	mg/L		1		E200.8	05/11/12 04:10 / sld		ICPMS204-B_120510B	219	R79906
Potassium	3	mg/L		1		E200.8	05/11/12 04:10 / sld		ICPMS204-B_120510B	219	R79906
Sodium	ND	mg/L		1		E200.8	05/11/12 04:10 / sld		ICPMS204-B_120510B	219	R79906
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	05/11/12 04:14 / sld	05/09/12 08:50	ICPMS204-B_120510B	220	16557
Cadmium	0.0301	mg/L		0.00008		E200.8	05/11/12 04:14 / sld	05/09/12 08:50	ICPMS204-B_120510B	220	16557
Copper	0.015	mg/L		0.001		E200.8	05/11/12 04:14 / sld	05/09/12 08:50	ICPMS204-B_120510B	220	16557
Iron	0.22	mg/L		0.03		E200.8	05/11/12 04:14 / sld	05/09/12 08:50	ICPMS204-B_120510B	220	16557
Lead	0.0543	mg/L		0.0005		E200.8	05/11/12 04:14 / sld	05/09/12 08:50	ICPMS204-B_120510B	220	16557
Manganese	12.0	mg/L		0.005		E200.8	05/17/12 01:54 / sld	05/09/12 08:50	ICPMS204-B_120516B	164	16557
Zinc	12.7	mg/L		0.01		E200.8	05/17/12 01:54 / sld	05/09/12 08:50	ICPMS204-B_120516B	164	16557

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-24
Lab ID: H12050152-009
Matrix: Surface Water

Project: UBMC
Collection Date: 05/07/12 15:02
Report Date: 05/21/12
DateReceived: 05/08/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.6	s.u.		0.1		A4500-H B	05/09/12 11:45 / cmm		PHSC_101-H_120509A	41	R79840
Conductivity @ 25 C	206	umhos/cm		1		A2510 B	05/09/12 11:45 / cmm		PHSC_101-H_120509A	42	R79840
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/09/12 15:10 / cmm	05/09/12 14:41	-124 (14410200)_120509A	20	16567
Solids, Total Dissolved TDS @ 180 C	118	mg/L		10		A2540 C	05/09/12 14:57 / cmm		-124 (14410200)_120509B	24	TDS120509A
INORGANICS											
Alkalinity, Total as CaCO3	81	mg/L		4		A2320 B	05/09/12 16:57 / cmm		MAN-TECH_120509B	48	R79862
Bicarbonate as HCO3	99	mg/L		4		A2320 B	05/09/12 16:57 / cmm		MAN-TECH_120509B	48	R79862
Carbonate as CO3	ND	mg/L		4		A2320 B	05/09/12 16:57 / cmm		MAN-TECH_120509B	48	R79862
Chloride	ND	mg/L		1		E300.0	05/10/12 18:26 / cmm		IC102-H_120510A	45	R79896
Sulfate	22	mg/L		1		E300.0	05/10/12 18:26 / cmm		IC102-H_120510A	45	R79896
Hardness as CaCO3	94	mg/L		1		A2340 B	05/11/12 11:45 / sld		WATERCALC_120511A	16	R79909
METALS, DISSOLVED											
Aluminum	0.05	mg/L		0.03		E200.8	05/11/12 04:19 / sld		ICPMS204-B_120510B	221	R79906
Calcium	22	mg/L		1		E200.8	05/11/12 04:19 / sld		ICPMS204-B_120510B	221	R79906
Magnesium	10	mg/L		1		E200.8	05/11/12 04:19 / sld		ICPMS204-B_120510B	221	R79906
Potassium	ND	mg/L		1		E200.8	05/11/12 04:19 / sld		ICPMS204-B_120510B	221	R79906
Sodium	ND	mg/L		1		E200.8	05/11/12 04:19 / sld		ICPMS204-B_120510B	221	R79906
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	05/11/12 04:23 / sld		ICPMS204-B_120510B	222	R79906
Cadmium	0.00454	mg/L		0.00008		E200.8	05/11/12 04:23 / sld		ICPMS204-B_120510B	222	R79906
Copper	0.058	mg/L		0.001		E200.8	05/11/12 04:23 / sld		ICPMS204-B_120510B	222	R79906
Iron	ND	mg/L		0.03		E200.8	05/11/12 04:23 / sld		ICPMS204-B_120510B	222	R79906
Lead	0.0034	mg/L		0.0005		E200.8	05/11/12 04:23 / sld		ICPMS204-B_120510B	222	R79906
Manganese	0.079	mg/L		0.005		E200.8	05/17/12 01:59 / sld		ICPMS204-B_120516B	165	R80038
Zinc	0.73	mg/L		0.01		E200.8	05/17/12 01:59 / sld		ICPMS204-B_120516B	165	R80038

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-22
Lab ID: H12050152-010
Matrix: Surface Water

Project: UBMC
Collection Date: 05/07/12 15:10
DateReceived: 05/08/12
Report Date: 05/21/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.6	s.u.		0.1		A4500-H B	05/09/12 11:48 / cmm		PHSC_101-H_120509A	43	R79840
Conductivity @ 25 C	205	umhos/cm		1		A2510 B	05/09/12 11:48 / cmm		PHSC_101-H_120509A	44	R79840
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/09/12 15:12 / cmm	05/09/12 14:41	-124 (14410200)_120509A	21	16567
Solids, Total Dissolved TDS @ 180 C	119	mg/L		10		A2540 C	05/09/12 14:57 / cmm		-124 (14410200)_120509B	25	TDS120509A
INORGANICS											
Alkalinity, Total as CaCO3	81	mg/L		4		A2320 B	05/09/12 17:04 / cmm		MAN-TECH_120509B	50	R79862
Bicarbonate as HCO3	99	mg/L		4		A2320 B	05/09/12 17:04 / cmm		MAN-TECH_120509B	50	R79862
Carbonate as CO3	ND	mg/L		4		A2320 B	05/09/12 17:04 / cmm		MAN-TECH_120509B	50	R79862
Chloride	ND	mg/L		1		E300.0	05/10/12 19:06 / cmm		IC102-H_120510A	48	R79896
Sulfate	22	mg/L		1		E300.0	05/10/12 19:06 / cmm		IC102-H_120510A	48	R79896
Hardness as CaCO3	94	mg/L		1		A2340 B	05/11/12 11:45 / sld		WATERCALC_120511A	17	R79909
METALS, DISSOLVED											
Aluminum	0.05	mg/L		0.03		E200.8	05/11/12 04:28 / sld		ICPMS204-B_120510B	223	R79906
Calcium	22	mg/L		1		E200.8	05/11/12 04:28 / sld		ICPMS204-B_120510B	223	R79906
Magnesium	10	mg/L		1		E200.8	05/11/12 04:28 / sld		ICPMS204-B_120510B	223	R79906
Potassium	ND	mg/L		1		E200.8	05/11/12 04:28 / sld		ICPMS204-B_120510B	223	R79906
Sodium	ND	mg/L		1		E200.8	05/11/12 04:28 / sld		ICPMS204-B_120510B	223	R79906
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	05/11/12 04:51 / sld		ICPMS204-B_120510B	228	R79906
Cadmium	0.00456	mg/L		0.00008		E200.8	05/11/12 04:51 / sld		ICPMS204-B_120510B	228	R79906
Copper	0.059	mg/L		0.001		E200.8	05/11/12 04:51 / sld		ICPMS204-B_120510B	228	R79906
Iron	ND	mg/L		0.03		E200.8	05/11/12 04:51 / sld		ICPMS204-B_120510B	228	R79906
Lead	0.0033	mg/L		0.0005		E200.8	05/11/12 04:51 / sld		ICPMS204-B_120510B	228	R79906
Manganese	0.072	mg/L		0.005		E200.8	05/11/12 04:51 / sld		ICPMS204-B_120510B	228	R79906
Zinc	0.76	mg/L		0.01		E200.8	05/11/12 04:51 / sld		ICPMS204-B_120510B	228	R79906

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-1
Lab ID: H12050152-011
Matrix: Surface Water

Project: UBMC
Collection Date: 05/07/12 15:40
DateReceived: 05/08/12
Report Date: 05/21/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.7	s.u.		0.1		A4500-H B	05/09/12 11:50 / cmm		PHSC_101-H_120509A	45	R79840
Conductivity @ 25 C	177	umhos/cm		1		A2510 B	05/09/12 11:50 / cmm		PHSC_101-H_120509A	46	R79840
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/09/12 15:12 / cmm	05/09/12 14:41	-124 (14410200)_120509A	22	16567
Solids, Total Dissolved TDS @ 180 C	85	mg/L		10		A2540 C	05/09/12 14:58 / cmm		-124 (14410200)_120509B	28	TDS120509A
INORGANICS											
Alkalinity, Total as CaCO3	93	mg/L		4		A2320 B	05/09/12 17:11 / cmm		MAN-TECH_120509B	52	R79862
Bicarbonate as HCO3	110	mg/L		4		A2320 B	05/09/12 17:11 / cmm		MAN-TECH_120509B	52	R79862
Carbonate as CO3	ND	mg/L		4		A2320 B	05/09/12 17:11 / cmm		MAN-TECH_120509B	52	R79862
Chloride	ND	mg/L		1		E300.0	05/10/12 19:20 / cmm		IC102-H_120510A	49	R79896
Sulfate	3	mg/L		1		E300.0	05/10/12 19:20 / cmm		IC102-H_120510A	49	R79896
Hardness as CaCO3	85	mg/L		1		A2340 B	05/11/12 11:45 / sld		WATERCALC_120511A	18	R79909
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/11/12 05:09 / sld		ICPMS204-B_120510B	232	R79906
Calcium	17	mg/L		1		E200.8	05/11/12 05:09 / sld		ICPMS204-B_120510B	232	R79906
Magnesium	10	mg/L		1		E200.8	05/11/12 05:09 / sld		ICPMS204-B_120510B	232	R79906
Potassium	ND	mg/L		1		E200.8	05/11/12 05:09 / sld		ICPMS204-B_120510B	232	R79906
Sodium	ND	mg/L		1		E200.8	05/11/12 05:09 / sld		ICPMS204-B_120510B	232	R79906
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	05/11/12 05:27 / sld	05/09/12 08:50	ICPMS204-B_120510B	236	16557
Cadmium	ND	mg/L		0.00008		E200.8	05/11/12 05:27 / sld	05/09/12 08:50	ICPMS204-B_120510B	236	16557
Copper	ND	mg/L		0.001		E200.8	05/11/12 05:27 / sld	05/09/12 08:50	ICPMS204-B_120510B	236	16557
Iron	0.05	mg/L		0.03		E200.8	05/11/12 05:27 / sld	05/09/12 08:50	ICPMS204-B_120510B	236	16557
Lead	ND	mg/L		0.0005		E200.8	05/11/12 05:27 / sld	05/09/12 08:50	ICPMS204-B_120510B	236	16557
Manganese	ND	mg/L		0.005		E200.8	05/11/12 05:27 / sld	05/09/12 08:50	ICPMS204-B_120510B	236	16557
Zinc	ND	mg/L		0.01		E200.8	05/11/12 05:27 / sld	05/09/12 08:50	ICPMS204-B_120510B	236	16557

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

Client: MT DEQ-Site Response
Work Order: H12050152
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *25-May-12*

BatchID: 16557

Run ID :Run Order: **ICPMS204-B_120510B: 151** SampType: **Method Blank** Sample ID: **MB-16557** Method: **E200.8**
Analysis Date: **05/10/12 23:01** Units: **mg/L** **Prep Info:** Prep Date: **5/9/2012** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	5E-05									
Cadmium	ND	2E-05									
Copper	ND	0.0004									
Iron	0.002	0.0006									
Lead	ND	2E-05									
Manganese	ND	6E-05									
Zinc	0.002	0.0003									

Associated samples: **H12050152-003C; H12050152-004C; H12050152-005C; H12050152-006C; H12050152-007C; H12050152-008C; H12050152-011C**

Run ID :Run Order: **ICPMS204-B_120510B: 152** SampType: **Laboratory Control Sample** Sample ID: **LCS-16557** Method: **E200.8**
Analysis Date: **05/10/12 23:06** Units: **mg/L** **Prep Info:** Prep Date: **5/9/2012** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.489	0.0010	0.5		98	85	115				
Cadmium	0.255	0.0010	0.25		102	85	115				
Copper	0.489	0.0050	0.5		98	85	115				
Iron	2.45	0.030	2.5	0.001508	98	85	115				
Lead	0.506	0.0010	0.5		101	85	115				
Manganese	2.31	0.0010	2.5		92	85	115				
Zinc	0.502	0.010	0.5	0.001761	100	85	115				

Associated samples: **H12050152-003C; H12050152-004C; H12050152-005C; H12050152-006C; H12050152-007C; H12050152-008C; H12050152-011C**

Run ID :Run Order: **ICPMS204-B_120510B: 156** SampType: **Sample Matrix Spike** Sample ID: **H12050117-001BMS3** Method: **E200.8**
Analysis Date: **05/10/12 23:24** Units: **mg/L** **Prep Info:** Prep Date: **5/9/2012** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.502	0.0010	0.5	0.01012	98	70	130				
Cadmium	0.256	0.0010	0.25	0.0000508	102	70	130				
Copper	0.486	0.0050	0.5	0.001466	97	70	130				
Iron	2.71	0.030	2.5	0.2452	99	70	130				
Lead	0.512	0.0010	0.5	0.00107	102	70	130				
Manganese	2.41	0.0010	2.5	0.01983	96	70	130				
Zinc	0.493	0.010	0.5	0.004403	98	70	130				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050152
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *25-May-12*

BatchID: 16557

Run ID :Run Order: **ICPMS204-B_120510B: 156** SampType: **Sample Matrix Spike** Sample ID: **H12050117-001BMS3** Method: **E200.8**
Analysis Date: **05/10/12 23:24** Units: **mg/L** **Prep Info:** Prep Date: **5/9/2012** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12050152-003C; H12050152-004C; H12050152-005C; H12050152-006C; H12050152-007C; H12050152-008C; H12050152-011C**

Run ID :Run Order: **ICPMS204-B_120510B: 157** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12050117-001BMSD3** Method: **E200.8**
Analysis Date: **05/10/12 23:28** Units: **mg/L** **Prep Info:** Prep Date: **5/9/2012** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.502	0.0010	0.5	0.01012	98	70	130	0.5024	0.2	20	
Cadmium	0.255	0.0010	0.25	0.0000508	102	70	130	0.2561	0.4	20	
Copper	0.487	0.0050	0.5	0.001466	97	70	130	0.4862	0.1	20	
Iron	2.62	0.030	2.5	0.2452	95	70	130	2.71	3.3	20	
Lead	0.515	0.0010	0.5	0.00107	103	70	130	0.5115	0.6	20	
Manganese	2.37	0.0010	2.5	0.01983	94	70	130	2.412	1.6	20	
Zinc	0.490	0.010	0.5	0.004403	97	70	130	0.4929	0.5	20	

Associated samples: **H12050152-003C; H12050152-004C; H12050152-005C; H12050152-006C; H12050152-007C; H12050152-008C; H12050152-011C**

Run ID :Run Order: **ICPMS204-B_120516B: 61** SampType: **Method Blank** Sample ID: **MB-16557** Method: **E200.8**
Analysis Date: **05/16/12 18:09** Units: **mg/L** **Prep Info:** Prep Date: **5/9/2012** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.004	5E-05									
Cadmium	ND	2E-05									
Copper	ND	0.0004									
Iron	ND	0.0006									
Lead	ND	2E-05									
Manganese	ND	6E-05									
Zinc	0.002	0.0003									

Associated samples: **H12050152-003C; H12050152-004C; H12050152-005C; H12050152-006C; H12050152-007C; H12050152-008C; H12050152-011C**

Run ID :Run Order: **ICPMS204-B_120516B: 62** SampType: **Laboratory Control Sample** Sample ID: **LCS-16557** Method: **E200.8**
Analysis Date: **05/16/12 18:13** Units: **mg/L** **Prep Info:** Prep Date: **5/9/2012** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.494	0.0010	0.5	0.003813	98	85	115				
Cadmium	0.255	0.0010	0.25		102	85	115				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050152
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *25-May-12*

BatchID: 16557

Run ID :Run Order: **ICPMS204-B_120516B: 62** SampType: **Laboratory Control Sample** Sample ID: **LCS-16557** Method: **E200.8**
Analysis Date: **05/16/12 18:13** Units: **mg/L** **Prep Info:** Prep Date: **5/9/2012** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	0.473	0.0050	0.5		95	85	115				
Iron	2.50	0.030	2.5		100	85	115				
Lead	0.498	0.0010	0.5		100	85	115				
Manganese	2.33	0.0010	2.5		93	85	115				
Zinc	0.497	0.010	0.5	0.001835	99	85	115				

Associated samples: **H12050152-003C; H12050152-004C; H12050152-005C; H12050152-006C; H12050152-007C; H12050152-008C; H12050152-011C**

Run ID :Run Order: **ICPMS204-B_120516B: 65** SampType: **Sample Matrix Spike** Sample ID: **H12050117-001BMS3** Method: **E200.8**
Analysis Date: **05/16/12 18:26** Units: **mg/L** **Prep Info:** Prep Date: **5/9/2012** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.510	0.0010	0.5	0.0124	100	70	130				
Cadmium	0.255	0.0010	0.25	0.000064	102	70	130				
Copper	0.479	0.0050	0.5	0.001502	95	70	130				
Iron	2.75	0.030	2.5	0.2515	100	70	130				
Lead	0.501	0.0010	0.5	0.001109	100	70	130				
Manganese	2.36	0.0010	2.5	0.02043	94	70	130				
Zinc	0.494	0.010	0.5	0.009769	97	70	130				

Associated samples: **H12050152-003C; H12050152-004C; H12050152-005C; H12050152-006C; H12050152-007C; H12050152-008C; H12050152-011C**

Run ID :Run Order: **ICPMS204-B_120516B: 66** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12050117-001BMSD3** Method: **E200.8**
Analysis Date: **05/16/12 18:31** Units: **mg/L** **Prep Info:** Prep Date: **5/9/2012** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.499	0.0010	0.5	0.0124	97	70	130	0.5099	2.2	20	
Cadmium	0.250	0.0010	0.25	0.000064	100	70	130	0.2547	1.7	20	
Copper	0.461	0.0050	0.5	0.001502	92	70	130	0.4786	3.7	20	
Iron	2.73	0.030	2.5	0.2515	99	70	130	2.746	0.7	20	
Lead	0.493	0.0010	0.5	0.001109	98	70	130	0.501	1.6	20	
Manganese	2.34	0.0010	2.5	0.02043	93	70	130	2.365	1.2	20	
Zinc	0.476	0.010	0.5	0.009769	93	70	130	0.4941	3.6	20	

Associated samples: **H12050152-003C; H12050152-004C; H12050152-005C; H12050152-006C; H12050152-007C; H12050152-008C; H12050152-011C**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050152
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *25-May-12*

BatchID: 16567

Run ID :Run Order: **ACCU-124 (14410200)_120509A: 1** SampType: **Method Blank** Sample ID: **MB-16567** Method: **A2540 D**

Analysis Date: **05/09/12 15:04** Units: **mg/L** **Prep Info:** Prep Date: **5/9/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	2									

Associated samples: **H12050152-001A; H12050152-002A; H12050152-003A; H12050152-004A; H12050152-005A; H12050152-006A; H12050152-007A; H12050152-008A; H12050152-009A; H12050152-010A; H12050152-011A**

Run ID :Run Order: **ACCU-124 (14410200)_120509A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS-16567** Method: **A2540 D**

Analysis Date: **05/09/12 15:04** Units: **mg/L** **Prep Info:** Prep Date: **5/9/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	1840	10	2000		92	70	130				

Associated samples: **H12050152-001A; H12050152-002A; H12050152-003A; H12050152-004A; H12050152-005A; H12050152-006A; H12050152-007A; H12050152-008A; H12050152-009A; H12050152-010A; H12050152-011A**

Run ID :Run Order: **ACCU-124 (14410200)_120509A: 4** SampType: **Sample Duplicate** Sample ID: **H12050148-001ADUP** Method: **A2540 D**

Analysis Date: **05/09/12 15:04** Units: **mg/L** **Prep Info:** Prep Date: **5/9/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	10								5	

Associated samples: **H12050152-001A; H12050152-002A; H12050152-003A; H12050152-004A; H12050152-005A; H12050152-006A; H12050152-007A; H12050152-008A; H12050152-009A; H12050152-010A; H12050152-011A**

Run ID :Run Order: **ACCU-124 (14410200)_120509A: 15** SampType: **Sample Duplicate** Sample ID: **H12050152-004ADUP** Method: **A2540 D**

Analysis Date: **05/09/12 15:09** Units: **mg/L** **Prep Info:** Prep Date: **5/9/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	12.0	10						12		5	

Associated samples: **H12050152-001A; H12050152-002A; H12050152-003A; H12050152-004A; H12050152-005A; H12050152-006A; H12050152-007A; H12050152-008A; H12050152-009A; H12050152-010A; H12050152-011A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050152
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *25-May-12*

BatchID: R79840

Run ID :Run Order: **PHSC_101-H_120509A: 2** SampType: **Initial Calibration Verification Standard** Sample ID: **SC 150** Method: **A2510 B**
Analysis Date: **05/09/12 09:44** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	147	1.0	150		98	90	110				

Associated samples: **H12050152-001A; H12050152-002A; H12050152-003A; H12050152-004A; H12050152-005A; H12050152-006A; H12050152-007A; H12050152-008A; H12050152-009A; H12050152-010A; H12050152-011A**

Run ID :Run Order: **PHSC_101-H_120509A: 3** SampType: **Initial Calibration Verification Standard** Sample ID: **SC 5000** Method: **A2510 B**
Analysis Date: **05/09/12 09:47** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	5090	1.0	5000		102	90	110				

Associated samples: **H12050152-001A; H12050152-002A; H12050152-003A; H12050152-004A; H12050152-005A; H12050152-006A; H12050152-007A; H12050152-008A; H12050152-009A; H12050152-010A; H12050152-011A**

Run ID :Run Order: **PHSC_101-H_120509A: 4** SampType: **Initial Calibration Verification Standard** Sample ID: **SC 20000** Method: **A2510 B**
Analysis Date: **05/09/12 09:50** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	20300	1.0	20000		101	90	110				

Associated samples: **H12050152-001A; H12050152-002A; H12050152-003A; H12050152-004A; H12050152-005A; H12050152-006A; H12050152-007A; H12050152-008A; H12050152-009A; H12050152-010A; H12050152-011A**

Run ID :Run Order: **PHSC_101-H_120509A: 5** SampType: **Initial Calibration Verification Standard** Sample ID: **SC 2ND 1000** Method: **A2510 B**
Analysis Date: **05/09/12 09:53** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	1010	1.0	1000		101	90	110				

Associated samples: **H12050152-001A; H12050152-002A; H12050152-003A; H12050152-004A; H12050152-005A; H12050152-006A; H12050152-007A; H12050152-008A; H12050152-009A; H12050152-010A; H12050152-011A**

Run ID :Run Order: **PHSC_101-H_120509A: 12** SampType: **Sample Duplicate** Sample ID: **H12050148-001ADUP** Method: **A2510 B**
Analysis Date: **05/09/12 11:02** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	1.00	1.0						1	0.0	10	

Associated samples: **H12050152-001A; H12050152-002A; H12050152-003A; H12050152-004A; H12050152-005A; H12050152-006A; H12050152-007A; H12050152-008A; H12050152-009A; H12050152-010A; H12050152-011A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050152
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *25-May-12*

BatchID: R79840

Run ID :Run Order: **PHSC_101-H_120509A: 48** SampType: **Sample Duplicate** Sample ID: **H12050152-011ADUP** Method: **A2510 B**

Analysis Date: **05/09/12 11:53** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	177	1.0						177	0.0	10	

Associated samples: **H12050152-001A; H12050152-002A; H12050152-003A; H12050152-004A; H12050152-005A; H12050152-006A; H12050152-007A; H12050152-008A; H12050152-009A; H12050152-010A; H12050152-011A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050152
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *25-May-12*

BatchID: R79840

Run ID :Run Order: **PHSC_101-H_120509A: 7** SampType: **Initial Calibration Verification Standard** Sample ID: **pH 7** Method: **A4500-H B**

Analysis Date: **05/09/12 10:32** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.00	0.10	7		100	98	102				

Associated samples: **H12050152-001A; H12050152-002A; H12050152-003A; H12050152-004A; H12050152-005A; H12050152-006A; H12050152-007A; H12050152-008A; H12050152-009A; H12050152-010A; H12050152-011A**

Run ID :Run Order: **PHSC_101-H_120509A: 11** SampType: **Sample Duplicate** Sample ID: **H12050148-001ADUP** Method: **A4500-H B**

Analysis Date: **05/09/12 11:02** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	4.47	0.10						4.6	2.9	3	

Associated samples: **H12050152-001A; H12050152-002A; H12050152-003A; H12050152-004A; H12050152-005A; H12050152-006A; H12050152-007A; H12050152-008A; H12050152-009A; H12050152-010A; H12050152-011A**

Run ID :Run Order: **PHSC_101-H_120509A: 47** SampType: **Sample Duplicate** Sample ID: **H12050152-011ADUP** Method: **A4500-H B**

Analysis Date: **05/09/12 11:53** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.73	0.10						7.74	0.1	3	

Associated samples: **H12050152-001A; H12050152-002A; H12050152-003A; H12050152-004A; H12050152-005A; H12050152-006A; H12050152-007A; H12050152-008A; H12050152-009A; H12050152-010A; H12050152-011A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050152
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *25-May-12*

BatchID: R79862

Run ID :Run Order: **MAN-TECH_120509B: 8** SampType: **Method Blank** Sample ID: **MBLK** Method: **A2320 B**
Analysis Date: **05/09/12 14:46** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	ND	1									

Associated samples: **H12050152-001A; H12050152-002A; H12050152-003A; H12050152-004A; H12050152-005A; H12050152-006A; H12050152-007A; H12050152-008A; H12050152-009A; H12050152-010A; H12050152-011A**

Run ID :Run Order: **MAN-TECH_120509B: 10** SampType: **Laboratory Control Sample** Sample ID: **LCS-05022012** Method: **A2320 B**
Analysis Date: **05/09/12 14:54** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	620	4.0	600		104	90	110				

Associated samples: **H12050152-001A; H12050152-002A; H12050152-003A; H12050152-004A; H12050152-005A; H12050152-006A; H12050152-007A; H12050152-008A; H12050152-009A; H12050152-010A; H12050152-011A**

Run ID :Run Order: **MAN-TECH_120509B: 16** SampType: **Sample Duplicate** Sample ID: **H12050148-002ADUP** Method: **A2320 B**
Analysis Date: **05/09/12 15:12** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	65	4.0						64.42	0.9	10	
Bicarbonate as HCO3	79	4.0						78.59	0.9	10	
Carbonate as CO3	ND	4.0								10	

Associated samples: **H12050152-001A; H12050152-002A; H12050152-003A; H12050152-004A; H12050152-005A; H12050152-006A; H12050152-007A; H12050152-008A; H12050152-009A; H12050152-010A; H12050152-011A**

Run ID :Run Order: **MAN-TECH_120509B: 30** SampType: **Sample Matrix Spike** Sample ID: **H12050152-001AMS** Method: **A2320 B**
Analysis Date: **05/09/12 15:58** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	630	4.0	600		104	80	120				

Associated samples: **H12050152-001A; H12050152-002A; H12050152-003A; H12050152-004A; H12050152-005A; H12050152-006A; H12050152-007A; H12050152-008A; H12050152-009A; H12050152-010A; H12050152-011A**

Run ID :Run Order: **MAN-TECH_120509B: 46** SampType: **Sample Duplicate** Sample ID: **H12050152-008ADUP** Method: **A2320 B**
Analysis Date: **05/09/12 16:50** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	42	4.0						42.21	0.4	10	
Bicarbonate as HCO3	51	4.0						51.5	0.4	10	
Carbonate as CO3	ND	4.0								10	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050152
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *25-May-12*

BatchID: R79862

Run ID :Run Order: **MAN-TECH_120509B: 46** SampType: **Sample Duplicate** Sample ID: **H12050152-008ADUP** Method: **A2320 B**

Analysis Date: **05/09/12 16:50** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12050152-001A; H12050152-002A; H12050152-003A; H12050152-004A; H12050152-005A; H12050152-006A; H12050152-007A; H12050152-008A; H12050152-009A; H12050152-010A; H12050152-011A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050152
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *25-May-12*

BatchID: R79896

Run ID :Run Order: **IC102-H_120510A: 13** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV051012-12** Method: **E300.0**

Analysis Date: **05/10/12 11:10** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	100	1.0	100		102	90	110				
Sulfate	400	1.0	400		100	90	110				

Associated samples: **H12050152-001A; H12050152-002A; H12050152-003A; H12050152-004A; H12050152-005A; H12050152-006A; H12050152-007A; H12050152-008A; H12050152-009A; H12050152-010A; H12050152-011A**

Run ID :Run Order: **IC102-H_120510A: 14** SampType: **Method Blank** Sample ID: **ICB051012-13** Method: **E300.0**

Analysis Date: **05/10/12 11:24** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.06	0.03									
Sulfate	0.1	0.1									

Associated samples: **H12050152-001A; H12050152-002A; H12050152-003A; H12050152-004A; H12050152-005A; H12050152-006A; H12050152-007A; H12050152-008A; H12050152-009A; H12050152-010A; H12050152-011A**

Run ID :Run Order: **IC102-H_120510A: 15** SampType: **Laboratory Fortified Blank** Sample ID: **LFB051012-14** Method: **E300.0**

Analysis Date: **05/10/12 11:38** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	51	1.0	50	0.063	102	90	110				
Sulfate	200	1.1	200	0.11	102	90	110				

Associated samples: **H12050152-001A; H12050152-002A; H12050152-003A; H12050152-004A; H12050152-005A; H12050152-006A; H12050152-007A; H12050152-008A; H12050152-009A; H12050152-010A; H12050152-011A**

Run ID :Run Order: **IC102-H_120510A: 29** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV051012-28** Method: **E300.0**

Analysis Date: **05/10/12 14:48** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	100	1.0	100		100	90	110				
Sulfate	400	1.0	400		99	90	110				

Associated samples: **H12050152-001A; H12050152-002A; H12050152-003A; H12050152-004A; H12050152-005A; H12050152-006A; H12050152-007A; H12050152-008A**

Run ID :Run Order: **IC102-H_120510A: 32** SampType: **Sample Matrix Spike** Sample ID: **H12050148-006AMS** Method: **E300.0**

Analysis Date: **05/10/12 15:29** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	53	1.0	50	0.271	105	90	110				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050152
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *25-May-12*

BatchID: R79896

Run ID :Run Order: **IC102-H_120510A: 32** SampType: **Sample Matrix Spike** Sample ID: **H12050148-006AMS** Method: **E300.0**
Analysis Date: **05/10/12 15:29** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	210	1.1	200	2.943	105	90	110				

Associated samples: **H12050152-001A; H12050152-002A; H12050152-003A; H12050152-004A; H12050152-005A; H12050152-006A; H12050152-007A; H12050152-008A; H12050152-009A; H12050152-010A; H12050152-011A**

Run ID :Run Order: **IC102-H_120510A: 33** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12050148-006AMSD** Method: **E300.0**
Analysis Date: **05/10/12 15:42** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	53	1.0	50	0.271	105	90	110	52.69	0.1	20	
Sulfate	210	1.1	200	2.943	105	90	110	212.1	0.7	20	

Associated samples: **H12050152-001A; H12050152-002A; H12050152-003A; H12050152-004A; H12050152-005A; H12050152-006A; H12050152-007A; H12050152-008A; H12050152-009A; H12050152-010A; H12050152-011A**

Run ID :Run Order: **IC102-H_120510A: 43** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV051012-40** Method: **E300.0**
Analysis Date: **05/10/12 17:58** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	100	1.0	100		100	90	110				
Sulfate	400	1.0	400		99	90	110				

Associated samples: **H12050152-009A; H12050152-010A; H12050152-011A**

Run ID :Run Order: **IC102-H_120510A: 46** SampType: **Sample Matrix Spike** Sample ID: **H12050152-009AMS** Method: **E300.0**
Analysis Date: **05/10/12 18:39** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	51	1.0	50	0.203	103	90	110				
Sulfate	230	1.1	200	21.89	104	90	110				

Associated samples: **H12050152-001A; H12050152-002A; H12050152-003A; H12050152-004A; H12050152-005A; H12050152-006A; H12050152-007A; H12050152-008A; H12050152-009A; H12050152-010A; H12050152-011A**

Run ID :Run Order: **IC102-H_120510A: 47** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12050152-009AMSD** Method: **E300.0**
Analysis Date: **05/10/12 18:53** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	51	1.0	50	0.203	102	90	110	51.47	0.1	20	
Sulfate	230	1.1	200	21.89	105	90	110	230.3	0.3	20	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050152
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *25-May-12*

BatchID: R79896

Run ID :Run Order: **IC102-H_120510A: 47** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12050152-009AMSD** Method: **E300.0**

Analysis Date: **05/10/12 18:53** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12050152-001A; H12050152-002A; H12050152-003A; H12050152-004A; H12050152-005A; H12050152-006A; H12050152-007A; H12050152-008A; H12050152-009A; H12050152-010A; H12050152-011A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050152
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *25-May-12*

BatchID: R79906

Run ID :Run Order: **ICPMS204-B_120510B: 8** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **05/10/12 12:13** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 12	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.255	0.10	0.25		102	90	110				
Arsenic	0.0505	0.0050	0.05		101	90	110				
Cadmium	0.0268	0.0010	0.025		107	90	110				
Calcium	2.71	0.50	2.5		109	90	110				
Copper	0.0525	0.010	0.05		105	90	110				
Iron	0.259	0.030	0.25		104	90	110				
Lead	0.0504	0.010	0.05		101	90	110				
Magnesium	2.56	0.50	2.5		102	90	110				
Manganese	0.258	0.010	0.25		103	90	110				
Potassium	2.61	0.50	2.5		104	90	110				
Sodium	2.65	0.50	2.5		106	90	110				
Zinc	0.0530	0.010	0.05		106	90	110				

Associated samples: **H12050152-001B; H12050152-001C; H12050152-002B; H12050152-002C; H12050152-003B; H12050152-003C; H12050152-004B; H12050152-004C; H12050152-005B; H12050152-005C; H12050152-006B; H12050152-006C; H12050152-007B; H12050152-007C; H12050152-008B; H12050152-008C; H12050152-009B; H12050152-009C; H12050152-010B; H12050152-010C; H12050152-011B; H12050152-011C**

Run ID :Run Order: **ICPMS204-B_120510B: 9** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **05/10/12 12:18** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 12	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	38.1	0.10	40		95	70	130				
Arsenic	7.00E-05	0.0050									
Cadmium	0.000970	0.0010									
Calcium	117	0.50	120		98	70	130				
Copper	3.80E-05	0.010									
Iron	96.3	0.030	100		96	70	130				
Lead	0.000142	0.010									
Magnesium	40.6	0.50	40		101	70	130				
Manganese	0.000204	0.010									
Potassium	40.6	0.50	40		101	70	130				
Sodium	98.3	0.50	100		98	70	130				
Zinc	0.00108	0.010									

Associated samples: **H12050152-001B; H12050152-001C; H12050152-002B; H12050152-002C; H12050152-003B; H12050152-003C; H12050152-004B; H12050152-004C; H12050152-005B; H12050152-005C; H12050152-006B; H12050152-006C; H12050152-007B; H12050152-007C; H12050152-008B; H12050152-008C; H12050152-009B; H12050152-009C; H12050152-010B; H12050152-010C; H12050152-011B; H12050152-011C**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050152
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *25-May-12*

BatchID: R79906

Run ID :Run Order: **ICPMS204-B_120510B: 10** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **05/10/12 12:22** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 12	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	39.0	0.10	40		97	70	130				
Arsenic	0.0108	0.0050	0.01		108	70	130				
Cadmium	0.0105	0.0010	0.01		105	70	130				
Calcium	119	0.50	120		99	70	130				
Copper	0.0207	0.010	0.02		103	70	130				
Iron	99.0	0.030	100		99	70	130				
Lead	0.000129	0.010				0	0				
Magnesium	40.9	0.50	40		102	70	130				
Manganese	0.0197	0.010	0.02		98	70	130				
Potassium	40.8	0.50	40		102	70	130				
Sodium	100	0.50	100		100	70	130				
Zinc	0.0116	0.010	0.01		116	70	130				

Associated samples: **H12050152-001B; H12050152-001C; H12050152-002B; H12050152-002C; H12050152-003B; H12050152-003C; H12050152-004B; H12050152-004C; H12050152-005B; H12050152-005C; H12050152-006B; H12050152-006C; H12050152-007B; H12050152-007C; H12050152-008B; H12050152-008C; H12050152-009B; H12050152-009C; H12050152-010B; H12050152-010C; H12050152-011B; H12050152-011C**

Run ID :Run Order: **ICPMS204-B_120510B: 17** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.8**

Analysis Date: **05/10/12 12:54** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 12	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	ND	0.0003									
Arsenic	ND	3E-05									
Cadmium	ND	1E-05									
Calcium	ND	0.003									
Copper	ND	3E-05									
Iron	ND	0.0002									
Lead	ND	1.0E-05									
Magnesium	ND	0.0007									
Manganese	2E-05	1E-05									
Potassium	ND	0.010									
Sodium	ND	0.003									
Zinc	ND	0.0003									

Associated samples: **H12050152-001B; H12050152-001C; H12050152-002B; H12050152-002C; H12050152-003B; H12050152-004B; H12050152-005B; H12050152-006B; H12050152-007B; H12050152-008B; H12050152-009B; H12050152-009C; H12050152-010B; H12050152-010C; H12050152-011B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050152
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *25-May-12*

BatchID: R79906

Run ID :Run Order: **ICPMS204-B_120510B: 18** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**

Analysis Date: **05/10/12 12:59** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 12	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0472	0.10	0.05		94	85	115				
Arsenic	0.0513	0.0050	0.05		103	85	115				
Cadmium	0.0478	0.0010	0.05		96	85	115				
Calcium	48.6	0.50	50		97	85	115				
Copper	0.0489	0.010	0.05		98	85	115				
Iron	4.83	0.030	5		97	85	115				
Lead	0.0488	0.010	0.05		98	85	115				
Magnesium	48.5	0.50	50		97	85	115				
Manganese	0.0477	0.010	0.05	0.0000152	95	85	115				
Potassium	49.3	0.50	50		99	85	115				
Sodium	48.3	0.50	50		97	85	115				
Zinc	0.0516	0.010	0.05		103	85	115				

Associated samples: **H12050152-001B; H12050152-001C; H12050152-002B; H12050152-002C; H12050152-003B; H12050152-004B; H12050152-005B; H12050152-006B; H12050152-007B; H12050152-008B; H12050152-009B; H12050152-009C; H12050152-010B; H12050152-010C; H12050152-011B**

Run ID :Run Order: **ICPMS204-B_120510B: 46** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **05/10/12 15:06** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 12	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.252	0.10	0.25		101	90	110				
Arsenic	0.0501	0.0050	0.05		100	90	110				
Cadmium	0.0258	0.0010	0.025		103	90	110				
Calcium	2.64	0.50	2.5		106	90	110				
Copper	0.0516	0.010	0.05		103	90	110				
Iron	0.252	0.030	0.25		101	90	110				
Lead	0.0477	0.010	0.05		95	90	110				
Magnesium	2.49	0.50	2.5		100	90	110				
Manganese	0.252	0.010	0.25		101	90	110				
Potassium	2.55	0.50	2.5		102	90	110				
Sodium	2.60	0.50	2.5		104	90	110				
Zinc	0.0516	0.010	0.05		103	90	110				

Associated samples: **H12050152-001B; H12050152-001C; H12050152-002B; H12050152-002C; H12050152-003B; H12050152-003C; H12050152-004B; H12050152-004C; H12050152-005B; H12050152-005C; H12050152-006B; H12050152-006C; H12050152-007B; H12050152-007C; H12050152-008B; H12050152-008C; H12050152-009B; H12050152-009C; H12050152-010B; H12050152-010C; H12050152-011B; H12050152-011C**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050152
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *25-May-12*

BatchID: R79906

Run ID :Run Order: **ICPMS204-B_120510B: 47** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **05/10/12 15:10** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 12	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	38.4	0.10	40		96	70	130				
Arsenic	0.000111	0.0050									
Cadmium	0.000860	0.0010									
Calcium	115	0.50	120		96	70	130				
Copper	5.40E-05	0.010									
Iron	97.8	0.030	100		98	70	130				
Lead	0.000129	0.010									
Magnesium	39.8	0.50	40		100	70	130				
Manganese	0.000195	0.010									
Potassium	39.7	0.50	40		99	70	130				
Sodium	97.3	0.50	100		97	70	130				
Zinc	0.00113	0.010									

Associated samples: **H12050152-001B; H12050152-001C; H12050152-002B; H12050152-002C; H12050152-003B; H12050152-003C; H12050152-004B; H12050152-004C; H12050152-005B; H12050152-005C; H12050152-006B; H12050152-006C; H12050152-007B; H12050152-007C; H12050152-008B; H12050152-008C; H12050152-009B; H12050152-009C; H12050152-010B; H12050152-010C; H12050152-011B; H12050152-011C**

Run ID :Run Order: **ICPMS204-B_120510B: 48** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **05/10/12 15:15** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 12	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	39.2	0.10	40		98	70	130				
Arsenic	0.0103	0.0050	0.01		103	70	130				
Cadmium	0.0105	0.0010	0.01		105	70	130				
Calcium	114	0.50	120		95	70	130				
Copper	0.0201	0.010	0.02		101	70	130				
Iron	97.9	0.030	100		98	70	130				
Lead	0.000114	0.010				0	0				
Magnesium	40.1	0.50	40		100	70	130				
Manganese	0.0195	0.010	0.02		98	70	130				
Potassium	39.5	0.50	40		99	70	130				
Sodium	97.2	0.50	100		97	70	130				
Zinc	0.0106	0.010	0.01		106	70	130				

Associated samples: **H12050152-001B; H12050152-001C; H12050152-002B; H12050152-002C; H12050152-003B; H12050152-003C; H12050152-004B; H12050152-004C; H12050152-005B; H12050152-005C; H12050152-006B; H12050152-006C; H12050152-007B; H12050152-007C; H12050152-008B; H12050152-008C; H12050152-009B; H12050152-009C; H12050152-010B; H12050152-010C; H12050152-011B; H12050152-011C**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050152
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *25-May-12*

BatchID: R79906

Run ID :Run Order: **ICPMS204-B_120510B: 142** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **05/10/12 22:20** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 12	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.263	0.10	0.25		105	90	110				
Arsenic	0.0520	0.0050	0.05		104	90	110				
Cadmium	0.0266	0.0010	0.025		106	90	110				
Calcium	2.75	0.50	2.5		110	90	110				
Copper	0.0538	0.010	0.05		108	90	110				
Iron	0.256	0.030	0.25		102	90	110				
Lead	0.0499	0.010	0.05		100	90	110				
Magnesium	2.60	0.50	2.5		104	90	110				
Manganese	0.262	0.010	0.25		105	90	110				
Potassium	2.61	0.50	2.5		105	90	110				
Sodium	2.72	0.50	2.5		109	90	110				
Zinc	0.0550	0.010	0.05		110	90	110				

Associated samples: **H12050152-001B; H12050152-001C; H12050152-002B; H12050152-002C; H12050152-003B; H12050152-003C; H12050152-004B; H12050152-004C; H12050152-005B; H12050152-005C; H12050152-006B; H12050152-006C; H12050152-007B; H12050152-007C; H12050152-008B; H12050152-008C; H12050152-009B; H12050152-009C; H12050152-010B; H12050152-010C; H12050152-011B; H12050152-011C**

Run ID :Run Order: **ICPMS204-B_120510B: 143** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **05/10/12 22:25** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 12	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	37.8	0.10	40		95	70	130				
Arsenic	0.000101	0.0050									
Cadmium	0.000824	0.0010									
Calcium	116	0.50	120		97	70	130				
Copper	6.90E-05	0.010									
Iron	97.3	0.030	100		97	70	130				
Lead	0.000137	0.010									
Magnesium	39.6	0.50	40		99	70	130				
Manganese	0.000160	0.010									
Potassium	39.3	0.50	40		98	70	130				
Sodium	96.5	0.50	100		97	70	130				
Zinc	0.00103	0.010									

Associated samples: **H12050152-001B; H12050152-001C; H12050152-002B; H12050152-002C; H12050152-003B; H12050152-003C; H12050152-004B; H12050152-004C; H12050152-005B; H12050152-005C; H12050152-006B; H12050152-006C; H12050152-007B; H12050152-007C; H12050152-008B; H12050152-008C; H12050152-009B; H12050152-009C; H12050152-010B; H12050152-010C; H12050152-011B; H12050152-011C**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050152
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *25-May-12*

BatchID: R79906

Run ID :Run Order: **ICPMS204-B_120510B: 144** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **05/10/12 22:29** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 12	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	37.6	0.10	40		94	70	130				
Arsenic	0.0105	0.0050	0.01		105	70	130				
Cadmium	0.0105	0.0010	0.01		105	70	130				
Calcium	117	0.50	120		97	70	130				
Copper	0.0201	0.010	0.02		101	70	130				
Iron	96.6	0.030	100		97	70	130				
Lead	0.000115	0.010				0	0				
Magnesium	40.2	0.50	40		101	70	130				
Manganese	0.0196	0.010	0.02		98	70	130				
Potassium	39.8	0.50	40		99	70	130				
Sodium	98.1	0.50	100		98	70	130				
Zinc	0.0116	0.010	0.01		116	70	130				

Associated samples: **H12050152-001B; H12050152-001C; H12050152-002B; H12050152-002C; H12050152-003B; H12050152-003C; H12050152-004B; H12050152-004C; H12050152-005B; H12050152-005C; H12050152-006B; H12050152-006C; H12050152-007B; H12050152-007C; H12050152-008B; H12050152-008C; H12050152-009B; H12050152-009C; H12050152-010B; H12050152-010C; H12050152-011B; H12050152-011C**

Run ID :Run Order: **ICPMS204-B_120510B: 205** SampType: **Sample Matrix Spike** Sample ID: **H12050152-004BMS** Method: **E200.8**

Analysis Date: **05/11/12 03:06** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 12	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0976	0.030	0.05	0.05325	89	70	130				
Arsenic	0.0499	0.0010	0.05	0.0006953	98	70	130				
Cadmium	0.0502	0.0010	0.05	0.00342	94	70	130				
Calcium	66.4	1.0	50	20.61	92	70	130				
Copper	0.0604	0.0050	0.05	0.01415	93	70	130				
Iron	4.88	0.030	5	0.1953	94	70	130				
Lead	0.0530	0.0010	0.05	0.006046	94	70	130				
Magnesium	58.8	1.0	50	12.69	92	70	130				
Manganese	0.559	0.0010	0.05	0.5304		70	130				A
Potassium	46.8	1.0	50	0.3509	93	70	130				
Sodium	47.9	1.0	50	0.8998	94	70	130				
Zinc	0.714	0.010	0.05	0.7156		70	130				A

Associated samples: **H12050152-001B; H12050152-001C; H12050152-002B; H12050152-002C; H12050152-003B; H12050152-004B; H12050152-005B; H12050152-006B; H12050152-007B; H12050152-008B; H12050152-009B; H12050152-009C; H12050152-010B; H12050152-010C; H12050152-011B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050152
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *25-May-12*

BatchID: R79906

Run ID :Run Order: **ICPMS204-B_120510B: 206** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12050152-004BMSD** Method: **E200.8**

Analysis Date: **05/11/12 03:11** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 12	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.101	0.030	0.05	0.05325	96	70	130	0.0976	3.4	20	
Arsenic	0.0512	0.0010	0.05	0.0006953	101	70	130	0.04992	2.5	20	
Cadmium	0.0504	0.0010	0.05	0.00342	94	70	130	0.05019	0.3	20	
Calcium	67.8	1.0	50	20.61	94	70	130	66.36	2.2	20	
Copper	0.0616	0.0050	0.05	0.01415	95	70	130	0.06041	1.9	20	
Iron	4.91	0.030	5	0.1953	94	70	130	4.883	0.5	20	
Lead	0.0533	0.0010	0.05	0.006046	95	70	130	0.05303	0.5	20	
Magnesium	59.3	1.0	50	12.69	93	70	130	58.78	0.9	20	
Manganese	0.570	0.0010	0.05	0.5304		70	130	0.5589	1.9	20	A
Potassium	47.9	1.0	50	0.3509	95	70	130	46.85	2.2	20	
Sodium	48.5	1.0	50	0.8998	95	70	130	47.89	1.3	20	
Zinc	0.711	0.010	0.05	0.7156		70	130	0.7137	0.4	20	A

Associated samples: **H12050152-001B; H12050152-001C; H12050152-002B; H12050152-002C; H12050152-003B; H12050152-004B; H12050152-005B; H12050152-006B; H12050152-007B; H12050152-008B; H12050152-009B; H12050152-009C; H12050152-010B; H12050152-010C; H12050152-011B**

Run ID :Run Order: **ICPMS204-B_120510B: 229** SampType: **Sample Matrix Spike** Sample ID: **H12050152-010CMS** Method: **E200.8**

Analysis Date: **05/11/12 04:55** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 12	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.110	0.030	0.05	0.06765	86	70	130				
Arsenic	0.0503	0.0010	0.05	0.0003884	100	70	130				
Cadmium	0.0525	0.0010	0.05	0.004555	96	70	130				
Calcium	67.3	1.0	50	21.79	91	70	130				
Copper	0.102	0.0050	0.05	0.05913	86	70	130				
Iron	4.79	0.030	5	0.008261	96	70	130				
Lead	0.0505	0.0010	0.05	0.003342	94	70	130				
Magnesium	56.6	1.0	50	9.726	94	70	130				
Manganese	0.119	0.0010	0.05	0.07234	94	70	130				
Potassium	47.0	1.0	50	0.3701	93	70	130				
Sodium	48.7	1.0	50	0.7029	96	70	130				
Zinc	0.749	0.010	0.05	0.7563		70	130				A

Associated samples: **H12050152-001B; H12050152-001C; H12050152-002B; H12050152-002C; H12050152-003B; H12050152-004B; H12050152-005B; H12050152-006B; H12050152-007B; H12050152-008B; H12050152-009B; H12050152-009C; H12050152-010B; H12050152-010C; H12050152-011B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050152
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *25-May-12*

BatchID: R79906

Run ID :Run Order: **ICPMS204-B_120510B: 230** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12050152-010CMSD** Method: **E200.8**

Analysis Date: **05/11/12 05:00** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 12	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.111	0.030	0.05	0.06765	86	70	130	0.1104	0.2	20	
Arsenic	0.0501	0.0010	0.05	0.0003884	99	70	130	0.05029	0.3	20	
Cadmium	0.0513	0.0010	0.05	0.004555	93	70	130	0.05247	2.3	20	
Calcium	68.6	1.0	50	21.79	94	70	130	67.3	1.9	20	
Copper	0.103	0.0050	0.05	0.05913	88	70	130	0.1019	1.0	20	
Iron	4.77	0.030	5	0.008261	95	70	130	4.792	0.5	20	
Lead	0.0504	0.0010	0.05	0.003342	94	70	130	0.05051	0.2	20	
Magnesium	58.1	1.0	50	9.726	97	70	130	56.56	2.7	20	
Manganese	0.117	0.0010	0.05	0.07234	90	70	130	0.1191	1.7	20	
Potassium	48.5	1.0	50	0.3701	96	70	130	47.01	3.0	20	
Sodium	49.5	1.0	50	0.7029	98	70	130	48.67	1.7	20	
Zinc	0.753	0.010	0.05	0.7563		70	130	0.749	0.6	20	A

Associated samples: **H12050152-001B; H12050152-001C; H12050152-002B; H12050152-002C; H12050152-003B; H12050152-004B; H12050152-005B; H12050152-006B; H12050152-007B; H12050152-008B; H12050152-009B; H12050152-009C; H12050152-010B; H12050152-010C; H12050152-011B**

Run ID :Run Order: **ICPMS204-B_120510B: 233** SampType: **Sample Matrix Spike** Sample ID: **H12050152-011BMS** Method: **E200.8**

Analysis Date: **05/11/12 05:14** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 12	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0549	0.030	0.05	0.008115	94	70	130				
Arsenic	0.0511	0.0010	0.05	0.0005366	101	70	130				
Cadmium	0.0479	0.0010	0.05		96	70	130				
Calcium	64.6	1.0	50	16.92	95	70	130				
Copper	0.0487	0.0050	0.05	0.0006805	96	70	130				
Iron	4.88	0.030	5	0.006854	98	70	130				
Lead	0.0480	0.0010	0.05	0.000116	96	70	130				
Magnesium	58.3	1.0	50	10.32	96	70	130				
Manganese	0.0471	0.0010	0.05	0.0003917	93	70	130				
Potassium	48.3	1.0	50	0.2971	96	70	130				
Sodium	49.5	1.0	50	0.8633	97	70	130				
Zinc	0.0559	0.010	0.05	0.006055	100	70	130				

Associated samples: **H12050152-001B; H12050152-001C; H12050152-002B; H12050152-002C; H12050152-003B; H12050152-004B; H12050152-005B; H12050152-006B; H12050152-007B; H12050152-008B; H12050152-009B; H12050152-009C; H12050152-010B; H12050152-010C; H12050152-011B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050152
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *25-May-12*

BatchID: R79906

Run ID :Run Order: **ICPMS204-B_120510B: 234** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12050152-011BMSD** Method: **E200.8**

Analysis Date: **05/11/12 05:18** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 12	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0542	0.030	0.05	0.008115	92	70	130	0.05488	1.2	20	
Arsenic	0.0508	0.0010	0.05	0.0005366	101	70	130	0.05109	0.5	20	
Cadmium	0.0476	0.0010	0.05		95	70	130	0.04792	0.7	20	
Calcium	64.0	1.0	50	16.92	94	70	130	64.64	1.1	20	
Copper	0.0480	0.0050	0.05	0.0006805	95	70	130	0.04868	1.3	20	
Iron	4.85	0.030	5	0.006854	97	70	130	4.882	0.6	20	
Lead	0.0479	0.0010	0.05	0.000116	96	70	130	0.04803	0.3	20	
Magnesium	57.0	1.0	50	10.32	93	70	130	58.32	2.2	20	
Manganese	0.0474	0.0010	0.05	0.0003917	94	70	130	0.04708	0.8	20	
Potassium	48.3	1.0	50	0.2971	96	70	130	48.3	0.1	20	
Sodium	48.4	1.0	50	0.8633	95	70	130	49.46	2.3	20	
Zinc	0.0559	0.010	0.05	0.006055	100	70	130	0.05593	0.1	20	

Associated samples: **H12050152-001B; H12050152-001C; H12050152-002B; H12050152-002C; H12050152-003B; H12050152-004B; H12050152-005B; H12050152-006B; H12050152-007B; H12050152-008B; H12050152-009B; H12050152-009C; H12050152-010B; H12050152-010C; H12050152-011B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050152
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *25-May-12*

BatchID: R79964

Run ID :Run Order: **IC102-H_120514A: 13** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV051412-12** Method: **E300.0**
Analysis Date: **05/14/12 12:43** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	100	1.0	100		100	90	110				

Associated samples: **H12050152-008A**

Run ID :Run Order: **IC102-H_120514A: 14** SampType: **Method Blank** Sample ID: **ICB051412-13** Method: **E300.0**
Analysis Date: **05/14/12 12:56** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.03									

Associated samples: **H12050152-008A**

Run ID :Run Order: **IC102-H_120514A: 15** SampType: **Laboratory Fortified Blank** Sample ID: **LFB051412-14** Method: **E300.0**
Analysis Date: **05/14/12 13:10** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	51	1.0	50		102	90	110				

Associated samples: **H12050152-008A**

Run ID :Run Order: **IC102-H_120514A: 16** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV051412-15** Method: **E300.0**
Analysis Date: **05/14/12 13:24** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	98	1.0	100		98	90	110				

Associated samples: **H12050152-008A**

Run ID :Run Order: **IC102-H_120514A: 28** SampType: **Sample Matrix Spike** Sample ID: **H12050222-007AMS** Method: **E300.0**
Analysis Date: **05/14/12 16:07** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	51	1.0	50	0.407	100	90	110				

Associated samples: **H12050152-008A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050152
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *25-May-12*

BatchID: R79964

Run ID :Run Order: **IC102-H_120514A: 29** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12050222-007AMSD** Method: **E300.0**

Analysis Date: **05/14/12 16:20** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	50	1.0	50	0.407	**99**	90	110	50.62	**1.2**	20	

Associated samples: **H12050152-008A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050152
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *25-May-12*

BatchID: R80038

Run ID :Run Order: **ICPMS204-B_120516B: 8** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**
Analysis Date: **05/16/12 14:08** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.252	0.010	0.25		101	90	110				
Zinc	0.0532	0.010	0.05		106	90	110				

Associated samples: **H12050152-008C; H12050152-009C**

Run ID :Run Order: **ICPMS204-B_120516B: 9** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**
Analysis Date: **05/16/12 14:13** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.000204	0.010									
Zinc	0.000975	0.010									

Associated samples: **H12050152-008C; H12050152-009C**

Run ID :Run Order: **ICPMS204-B_120516B: 10** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**
Analysis Date: **05/16/12 14:17** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.0194	0.010	0.02		97	70	130				
Zinc	0.0107	0.010	0.01		107	70	130				

Associated samples: **H12050152-008C; H12050152-009C**

Run ID :Run Order: **ICPMS204-B_120516B: 23** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.8**
Analysis Date: **05/16/12 15:17** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	7E-05	1E-05									
Zinc	0.0003	0.0003									

Associated samples: **H12050152-009C**

Run ID :Run Order: **ICPMS204-B_120516B: 24** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**
Analysis Date: **05/16/12 15:21** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.0489	0.010	0.05	0.0000657	98	85	115				
Zinc	0.0501	0.010	0.05	0.0003007	100	85	115				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050152
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *25-May-12*

BatchID: R80038

Run ID :Run Order: **ICPMS204-B_120516B: 24** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**
Analysis Date: **05/16/12 15:21** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12050152-009C**

Run ID :Run Order: **ICPMS204-B_120516B: 152** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**
Analysis Date: **05/17/12 01:00** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.263	0.010	0.25		105	90	110				
Zinc	0.0524	0.010	0.05		105	90	110				

Associated samples: **H12050152-008C; H12050152-009C**

Run ID :Run Order: **ICPMS204-B_120516B: 153** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**
Analysis Date: **05/17/12 01:05** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.000158	0.010									
Zinc	0.00117	0.010									

Associated samples: **H12050152-008C; H12050152-009C**

Run ID :Run Order: **ICPMS204-B_120516B: 154** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**
Analysis Date: **05/17/12 01:09** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.0191	0.010	0.02		96	70	130				
Zinc	0.0109	0.010	0.01		109	70	130				

Associated samples: **H12050152-008C; H12050152-009C**

Run ID :Run Order: **ICPMS204-B_120516B: 173** SampType: **Sample Matrix Spike** Sample ID: **H12050222-001BMS** Method: **E200.8**
Analysis Date: **05/17/12 02:35** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.0481	0.0010	0.05	0.0005956	95	70	130				
Zinc	0.0489	0.010	0.05	0.006853	84	70	130				

Associated samples: **H12050152-009C**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050152
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *25-May-12*

BatchID: R80038

Run ID :Run Order: **ICPMS204-B_120516B: 174** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12050222-001BMSD** Method: **E200.8**

Analysis Date: **05/17/12 02:40** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.0484	0.0010	0.05	0.0005956	96	70	130	0.04806	0.6	20	
Zinc	0.0485	0.010	0.05	0.006853	83	70	130	0.04888	0.8	20	

Associated samples: **H12050152-009C**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050152
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *25-May-12*

BatchID: TDS120509A

Run ID :Run Order: **ACCU-124 (14410200)_120509B: 1** SampType: **Method Blank** Sample ID: **MB-1_120509A** Method: **A2540 C**
Analysis Date: **05/09/12 14:49** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	ND	3									

Associated samples: **H12050152-001A; H12050152-002A; H12050152-003A; H12050152-004A; H12050152-005A; H12050152-006A; H12050152-007A; H12050152-008A; H12050152-009A; H12050152-010A; H12050152-011A**

Run ID :Run Order: **ACCU-124 (14410200)_120509B: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS-2_120509A** Method: **A2540 C**
Analysis Date: **05/09/12 14:49** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2050	10	2000		103	90	110				

Associated samples: **H12050152-001A; H12050152-002A; H12050152-003A; H12050152-004A; H12050152-005A; H12050152-006A; H12050152-007A; H12050152-008A; H12050152-009A; H12050152-010A; H12050152-011A**

Run ID :Run Order: **ACCU-124 (14410200)_120509B: 4** SampType: **Sample Duplicate** Sample ID: **H12050095-031A DUP** Method: **A2540 C**
Analysis Date: **05/09/12 14:50** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	ND	10								5	

Associated samples: **H12050152-001A; H12050152-002A; H12050152-003A; H12050152-004A; H12050152-005A; H12050152-006A; H12050152-007A; H12050152-008A; H12050152-009A; H12050152-010A; H12050152-011A**

Run ID :Run Order: **ACCU-124 (14410200)_120509B: 6** SampType: **Sample Matrix Spike** Sample ID: **H12050095-032A MS** Method: **A2540 C**
Analysis Date: **05/09/12 14:50** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2050	10	2000		102	80	120				

Associated samples: **H12050152-001A; H12050152-002A; H12050152-003A; H12050152-004A; H12050152-005A; H12050152-006A; H12050152-007A; H12050152-008A; H12050152-009A; H12050152-010A; H12050152-011A**

Run ID :Run Order: **ACCU-124 (14410200)_120509B: 16** SampType: **Sample Duplicate** Sample ID: **H12050152-001A DUP** Method: **A2540 C**
Analysis Date: **05/09/12 14:54** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	ND	10								5	

Associated samples: **H12050152-001A; H12050152-002A; H12050152-003A; H12050152-004A; H12050152-005A; H12050152-006A; H12050152-007A; H12050152-008A; H12050152-009A; H12050152-010A; H12050152-011A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050152
Project: UBMC

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *25-May-12*

BatchID: TDS120509A

Run ID :Run Order: **ACCU-124 (14410200)_120509B: 26** SampType: **Method Blank** Sample ID: **MB-26_120509A** Method: **A2540 C**

Analysis Date: **05/09/12 14:57** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	6.00	10									

Associated samples: **H12050152-001A; H12050152-002A; H12050152-003A; H12050152-004A; H12050152-005A; H12050152-006A; H12050152-007A; H12050152-008A; H12050152-009A; H12050152-010A; H12050152-011A**

Run ID :Run Order: **ACCU-124 (14410200)_120509B: 27** SampType: **Laboratory Control Sample** Sample ID: **LCS-27_120509A** Method: **A2540 C**

Analysis Date: **05/09/12 14:57** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2080	10	2000	6	104	90	110				

Associated samples: **H12050152-001A; H12050152-002A; H12050152-003A; H12050152-004A; H12050152-005A; H12050152-006A; H12050152-007A; H12050152-008A; H12050152-009A; H12050152-010A; H12050152-011A**

Run ID :Run Order: **ACCU-124 (14410200)_120509B: 29** SampType: **Sample Duplicate** Sample ID: **H12050152-011A DUP** Method: **A2540 C**

Analysis Date: **05/09/12 14:58** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	99.0	10						85	15	5	R

Associated samples: **H12050152-001A; H12050152-002A; H12050152-003A; H12050152-004A; H12050152-005A; H12050152-006A; H12050152-007A; H12050152-008A; H12050152-009A; H12050152-010A; H12050152-011A**

Run ID :Run Order: **ACCU-124 (14410200)_120509B: 31** SampType: **Sample Matrix Spike** Sample ID: **H12050168-001A MS** Method: **A2540 C**

Analysis Date: **05/09/12 14:58** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2190	10	2000	296	95	80	120				

Associated samples: **H12050152-001A; H12050152-002A; H12050152-003A; H12050152-004A; H12050152-005A; H12050152-006A; H12050152-007A; H12050152-008A; H12050152-009A; H12050152-010A; H12050152-011A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Workorder Receipt Checklist

H12050152

MT DEQ-Site Response

Login completed by: Tracy L. Lorash
Date Received: 5/8/2012

Reviewed by: BL2000\sdull
Received by: elm

Reviewed Date: 5/10/2012
Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Container/Temp Blank temperature:	2.4°C On Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Contact and Corrective Action Comments:

None

Chain of Custody and Analytical Request Record

PLEASE PRINT (Provide as much information as possible.)

Company Name: MDEQ	Project Name, PWS, Permit, Etc.: UBMC Surface Water	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: Quote H-645	Contact Name: Phone/Fax: Email: Shellie Haaland 841-5033 shalland@mt.gov		Sampler: (Please Print) Alan Dreesbach, Brienne Meyer
Invoice Address:	Invoice Contact & Phone:	Purchase Order:	Quote/Bottle Order:

Special Report/Formats:

☐ DW ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: _____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

Number of Containers
Sample Type: A Air W Water S Soils/Solids V Vegetation B Bioassay O Other D DW - Drinking Water

ANALYSIS REQUESTED

Bottle Order #4714

SEE ATTACHED

Standard Turnaround (TAT)

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: Please copy results to adreesbach@portageinc.com 406-490-5155 5135

Shipped by: Hand del.
Cooler ID(s): 1
Receipt Temp 2.4 °C
On Ice: (Y) N
Custody Seal On Bottle Y (N) On Cooler Y (N)
Intact Y N
Signature Match Y N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	
1	BRSW-25-0917	5/7/12	0917	W	X
2	BRSW-26		0927		
3	BRSW-38		1009		
4	BRSW-48		1142		
5	BRSW-23		1217		
6	BRSW-3A		1245		
7	BRSW-3B		1315		
8	BRSW-2		1355		
9	BRSW-24		1502		
10	BRSW-22		1510		

BP 5/8/12

LABORATORY USE ONLY H12050152

Custody Record MUST be Signed

Relinquished by (print): Alan Dreesbach	Date/Time: 5/8/12 14:14	Signature:	
Relinquished by (print):	Date/Time:	Signature:	
Received by (print):	Date/Time:	Signature:	
Received by (print):	Date/Time:	Signature:	
Received by Laboratory: Esther Merritt	Date/Time: 5/8/12 14:14	Signature: Esther Merritt	

Sample Disposal: Return to Client: _____ Lab Disposal: _____

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.
This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

Chain of Custody and Analytical Request Record

PLEASE PRINT (Provide as much information as possible.)

Company Name:	Project Name, PWS, Permit, Etc.	Sample Origin	EPA/State Compliance:
MDEQ	UBMC Surface Water	State: MT	Yes ☐ No ☐
Report Mail Address:	**Contact Name:** Phone/Fax:	**Email:**	**Sampler: (Please Print)**
Quote H-645	Shellie Haaland 841-5033	shalland@mt.gov	Alan Dreesbach, Brienne Meyers
Invoice Address:	**Invoice Contact & Phone:**	**Purchase Order:**	**Quote/Bottle Order:**

Special Report/Formats:

☐ DW ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP **Format:**
☐ State: ☐ LEVEL IV
☐ Other: ☐ NELAC

ANALYSIS REQUESTED

Number of Containers
Sample Type: A Air W Water S Soils/Solids V Vegetation B Bioassay O Other D DW - Drinking Water

SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	Bottle Order #9714	SEE ATTACHED
1 BRSW-1	05/07/12	1540	W		X
2					
3					
4					
5					
6					
7					
8					
9					
10					

BJM 5/8/12

Standard Turnaround (TAT)

R U S H

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: Please copy results to adreesbach@portageinc.com 406-490-~~5155~~ 5135

Shipped by: Hand
Cooler ID(s): 1
Receipt Temp: 2.4 TB °C
On Ice: (Y) N
Custody Seal On Bottle Y (N) On Cooler Y (N)
Intact Y N
Signature Match Y N

LABORATORY USE ONLY #1205015?

Custody Record MUST be Signed

Relinquished by (print): Alan Dreesbach	Date/Time: 5/8/12 14:14	Signature:	Received by (print): / Date/Time: / Signature:
Relinquished by (print):	Date/Time:	Signature:	Received by (print): / Date/Time: / Signature:
Sample Disposal: Return to Client: ____ Lab Disposal: ____			Received by Laboratory: Esther Morrit 5/8/12 14:14

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.
This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

Section 35 Quarterly													
	Quantity	Analysis											
Surface Water	7	[1]Disolved Metals	[2]Total Rec. Metals	[5]Cations	Chloride	Sulfate	Alkalinity	Hardness	Acidity	TDS	TSS	pH	EC
Groundwater	9	[3]Disolved Metals		[5]Cations	Chloride	Sulfate	Alkalinity	Hardness	Acidity	TDS	TSS	pH	EC
Sediment	6		[4]Total Rec. Metals										

[1]Aluminum

[2]Arsenic, cadmium, copper, iron, lead, manganese, and zinc

[3]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[4]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[5]Calcium, magnesium, potassium, sodium

UBMC Quarterly													
	Quantity	Analysis											
[6]Surface Water	11	[1]Disolved Metals	[2]Total Rec. Metals	[5]Cations	Chloride	Sulfate	Alkalinity	Hardness	Acidity	TDS	TSS	pH	EC
Groundwater	10	[3]Disolved Metals		[5]Cations	Chloride	Sulfate	Alkalinity	Hardness	Acidity	TDS	TSS	pH	EC
Sediment	9		[4]Total Rec. Metals										

[1]Aluminum

[2]Arsenic, cadmium, copper, iron, lead, manganese, and zinc

[3]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[4]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[5]Calcium, magnesium, potassium, sodium

[6]Additional surface water samples may be collected for seeps.

ANALYTICAL SUMMARY REPORT

June 06, 2012

MT DEQ-Site Response
PO Box 200901
Helena, MT 59620-0901

Workorder No.: H12050222 Quote ID: H645 - UBMC

Project Name: UBMC Groundwater

Energy Laboratories Inc Helena MT received the following 9 samples for MT DEQ-Site Response on 5/11/2012 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H12050222-001	TDMW-7	05/09/12 12:26	05/11/12	Groundwater	Metals by ICP/ICPMS, Dissolved Alkalinity Conductivity Hardness as CaCO3 Anions by Ion Chromatography pH Preparation for TSS Solids, Total Dissolved Solids, Total Suspended
H12050222-002	TDMW-8	05/09/12 12:40	05/11/12	Groundwater	Same As Above
H12050222-003	TDMW-5	05/09/12 13:25	05/11/12	Groundwater	Same As Above
H12050222-004	TDMW-4D	05/09/12 15:41	05/11/12	Groundwater	Same As Above
H12050222-005	TDMW-3D	05/09/12 16:40	05/11/12	Groundwater	Same As Above
H12050222-006	TDMW-6	05/09/12 16:50	05/11/12	Groundwater	Same As Above
H12050222-007	TDMW-1	05/09/12 17:50	05/11/12	Groundwater	Same As Above
H12050222-008	TDMW-2S	05/09/12 19:02	05/11/12	Groundwater	Same As Above
H12050222-009	TDMW-2D	05/09/12 18:30	05/11/12	Groundwater	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise reported.

Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID TDMW-7
Lab ID: H12050222-001
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 05/09/12 12:26
DateReceived: 05/11/12
Report Date: 06/06/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.1	s.u.		0.1		A4500-H B	05/11/12 15:40 / cmm		PHSC_101-H_120511A	32	R79900
Conductivity @ 25 C	1	umhos/cm		1		A2510 B	05/11/12 15:40 / cmm		PHSC_101-H_120511A	33	R79900
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/14/12 15:11 / cmm	05/14/12 14:45	J-124 (14410200)_120514A	3	16614
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	05/14/12 14:48 / cmm		J-124 (14410200)_120514B	4	TDS120514A
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	05/14/12 17:33 / cmm		MAN-TECH_120514A	12	R79960
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	05/14/12 17:33 / cmm		MAN-TECH_120514A	12	R79960
Carbonate as CO3	ND	mg/L		4		A2320 B	05/14/12 17:33 / cmm		MAN-TECH_120514A	12	R79960
Chloride	ND	mg/L		1		E300.0	05/14/12 14:32 / cmm		IC102-H_120514A	21	R79964
Sulfate	ND	mg/L		1		E300.0	05/14/12 14:32 / cmm		IC102-H_120514A	21	R79964
Hardness as CaCO3	ND	mg/L		1		A2340 B	05/24/12 08:36 / wjj		WATERCALC_120524A	1	R80170
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/17/12 02:12 / sld		ICPMS204-B_120516B	168	R80038
Arsenic	ND	mg/L		0.003		E200.8	05/17/12 02:12 / sld		ICPMS204-B_120516B	168	R80038
Cadmium	ND	mg/L		0.00008		E200.8	05/22/12 17:49 / dck		ICPMS204-B_120522A	78	R80136
Calcium	ND	mg/L		1		E200.7	05/14/12 12:15 / sld		ICP2-HE_120514A	36	R79951
Copper	ND	mg/L		0.001		E200.8	05/17/12 02:12 / sld		ICPMS204-B_120516B	168	R80038
Iron	ND	mg/L		0.05		E200.8	05/22/12 17:49 / dck		ICPMS204-B_120522A	78	R80136
Lead	ND	mg/L		0.0005		E200.8	05/17/12 02:12 / sld		ICPMS204-B_120516B	168	R80038
Magnesium	ND	mg/L		1		E200.7	05/14/12 12:15 / sld		ICP2-HE_120514A	36	R79951
Manganese	ND	mg/L		0.005		E200.8	05/22/12 17:49 / dck		ICPMS204-B_120522A	78	R80136
Potassium	ND	mg/L		1		E200.7	05/14/12 12:15 / sld		ICP2-HE_120514A	36	R79951
Sodium	ND	mg/L		1		E200.7	05/14/12 12:15 / sld		ICP2-HE_120514A	36	R79951
Zinc	ND	mg/L		0.01		E200.8	05/22/12 17:49 / dck		ICPMS204-B_120522A	78	R80136

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID TDMW-8
Lab ID: H12050222-002
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 05/09/12 12:40
DateReceived: 05/11/12
Report Date: 06/06/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.2	s.u.		0.1		A4500-H B	05/11/12 15:46 / cmm		PHSC_101-H_120511A	36	R79900
Conductivity @ 25 C	1	umhos/cm		1		A2510 B	05/11/12 15:46 / cmm		PHSC_101-H_120511A	37	R79900
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/14/12 15:11 / cmm	05/14/12 14:45	J-124 (14410200)_120514A	5	16614
Solids, Total Dissolved TDS @ 180 C	ND	mg/L	H	10		A2540 C	05/30/12 13:55 / cmm		-124 (14410200)_120530B	14	TDS120530A
TDS was re-analyzed past the recommended hold time to confirm analytical results.											
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	05/14/12 17:38 / cmm		MAN-TECH_120514A	14	R79960
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	05/14/12 17:38 / cmm		MAN-TECH_120514A	14	R79960
Carbonate as CO3	ND	mg/L		4		A2320 B	05/14/12 17:38 / cmm		MAN-TECH_120514A	14	R79960
Chloride	ND	mg/L		1		E300.0	05/14/12 14:45 / cmm		IC102-H_120514A	22	R79964
Sulfate	ND	mg/L		1		E300.0	05/14/12 14:45 / cmm		IC102-H_120514A	22	R79964
Hardness as CaCO3	ND	mg/L		1		A2340 B	05/24/12 08:36 / wjj		WATERCALC_120524A	2	R80170
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/17/12 02:49 / sld		ICPMS204-B_120516B	176	R80038
Arsenic	ND	mg/L		0.003		E200.8	05/17/12 02:49 / sld		ICPMS204-B_120516B	176	R80038
Cadmium	ND	mg/L		0.00008		E200.8	05/22/12 17:53 / dck		ICPMS204-B_120522A	79	R80136
Calcium	ND	mg/L		1		E200.7	05/14/12 12:19 / sld		ICP2-HE_120514A	37	R79951
Copper	ND	mg/L		0.001		E200.8	05/17/12 02:49 / sld		ICPMS204-B_120516B	176	R80038
Iron	ND	mg/L		0.05		E200.8	05/17/12 02:49 / sld		ICPMS204-B_120516B	176	R80038
Lead	ND	mg/L		0.0005		E200.8	05/17/12 02:49 / sld		ICPMS204-B_120516B	176	R80038
Magnesium	ND	mg/L		1		E200.7	05/14/12 12:19 / sld		ICP2-HE_120514A	37	R79951
Manganese	ND	mg/L		0.005		E200.8	05/17/12 02:49 / sld		ICPMS204-B_120516B	176	R80038
Potassium	ND	mg/L		1		E200.7	05/14/12 12:19 / sld		ICP2-HE_120514A	37	R79951
Sodium	ND	mg/L		1		E200.7	05/14/12 12:19 / sld		ICP2-HE_120514A	37	R79951
Zinc	ND	mg/L		0.01		E200.8	05/17/12 02:49 / sld		ICPMS204-B_120516B	176	R80038

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID TDMW-5
Lab ID: H12050222-003
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 05/09/12 13:25
DateReceived: 05/11/12
Report Date: 06/06/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.6	s.u.		0.1		A4500-H B	05/11/12 15:49 / cmm		PHSC_101-H_120511A	38	R79900
Conductivity @ 25 C	183	umhos/cm		1		A2510 B	05/11/12 15:49 / cmm		PHSC_101-H_120511A	39	R79900
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/14/12 15:11 / cmm	05/14/12 14:45	J-124 (14410200)_120514A	6	16614
Solids, Total Dissolved TDS @ 180 C	114	mg/L		10		A2540 C	05/14/12 14:49 / cmm		J-124 (14410200)_120514B	8	TDS120514A
INORGANICS											
Alkalinity, Total as CaCO3	40	mg/L		4		A2320 B	05/14/12 17:45 / cmm		MAN-TECH_120514A	16	R79960
Bicarbonate as HCO3	49	mg/L		4		A2320 B	05/14/12 17:45 / cmm		MAN-TECH_120514A	16	R79960
Carbonate as CO3	ND	mg/L		4		A2320 B	05/14/12 17:45 / cmm		MAN-TECH_120514A	16	R79960
Chloride	ND	mg/L		1		E300.0	05/14/12 14:59 / cmm		IC102-H_120514A	23	R79964
Sulfate	43	mg/L		1		E300.0	05/14/12 14:59 / cmm		IC102-H_120514A	23	R79964
Hardness as CaCO3	74	mg/L		1		A2340 B	05/14/12 12:34 / abb		CALC_120516B	747	R80002
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/17/12 02:54 / sld		ICPMS204-B_120516B	177	R80038
Arsenic	ND	mg/L		0.003		E200.8	05/17/12 02:54 / sld		ICPMS204-B_120516B	177	R80038
Cadmium	ND	mg/L		0.00008		E200.8	05/22/12 17:58 / dck		ICPMS204-B_120522A	80	R80136
Calcium	20	mg/L		1		E200.7	05/14/12 12:34 / sld		ICP2-HE_120514A	41	R79951
Copper	ND	mg/L		0.001		E200.8	05/17/12 02:54 / sld		ICPMS204-B_120516B	177	R80038
Iron	ND	mg/L		0.05		E200.8	05/17/12 02:54 / sld		ICPMS204-B_120516B	177	R80038
Lead	ND	mg/L		0.0005		E200.8	05/17/12 02:54 / sld		ICPMS204-B_120516B	177	R80038
Magnesium	6	mg/L		1		E200.7	05/14/12 12:34 / sld		ICP2-HE_120514A	41	R79951
Manganese	ND	mg/L		0.005		E200.8	05/17/12 02:54 / sld		ICPMS204-B_120516B	177	R80038
Potassium	ND	mg/L		1		E200.7	05/14/12 12:34 / sld		ICP2-HE_120514A	41	R79951
Sodium	1	mg/L		1		E200.7	05/14/12 12:34 / sld		ICP2-HE_120514A	41	R79951
Zinc	ND	mg/L		0.01		E200.8	05/17/12 02:54 / sld		ICPMS204-B_120516B	177	R80038

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID TDMW-4D
Lab ID: H12050222-004
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 05/09/12 15:41
DateReceived: 05/11/12
Report Date: 06/06/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.1	s.u.		0.1		A4500-H B	05/11/12 15:52 / cmm		PHSC_101-H_120511A	40	R79900
Conductivity @ 25 C	192	umhos/cm		1		A2510 B	05/11/12 15:52 / cmm		PHSC_101-H_120511A	41	R79900
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/14/12 15:11 / cmm	05/14/12 14:45	J-124 (14410200)_120514A	7	16614
Solids, Total Dissolved TDS @ 180 C	116	mg/L		10		A2540 C	05/14/12 14:50 / cmm		J-124 (14410200)_120514B	9	TDS120514A
INORGANICS											
Alkalinity, Total as CaCO3	62	mg/L		4		A2320 B	05/14/12 17:58 / cmm		MAN-TECH_120514A	20	R79960
Bicarbonate as HCO3	75	mg/L		4		A2320 B	05/14/12 17:58 / cmm		MAN-TECH_120514A	20	R79960
Carbonate as CO3	ND	mg/L		4		A2320 B	05/14/12 17:58 / cmm		MAN-TECH_120514A	20	R79960
Chloride	ND	mg/L		1		E300.0	05/14/12 15:12 / cmm		IC102-H_120514A	24	R79964
Sulfate	31	mg/L		1		E300.0	05/14/12 15:12 / cmm		IC102-H_120514A	24	R79964
Hardness as CaCO3	76	mg/L		1		A2340 B	05/14/12 12:37 / abb		CALC_120516B	867	R80002
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/17/12 02:59 / sld		ICPMS204-B_120516B	178	R80038
Arsenic	ND	mg/L		0.003		E200.8	05/17/12 02:59 / sld		ICPMS204-B_120516B	178	R80038
Cadmium	ND	mg/L		0.00008		E200.8	05/22/12 18:03 / dck		ICPMS204-B_120522A	81	R80136
Calcium	17	mg/L		1		E200.7	05/14/12 12:37 / sld		ICP2-HE_120514A	42	R79951
Copper	ND	mg/L		0.001		E200.8	05/17/12 02:59 / sld		ICPMS204-B_120516B	178	R80038
Iron	ND	mg/L		0.05		E200.8	05/17/12 02:59 / sld		ICPMS204-B_120516B	178	R80038
Lead	ND	mg/L		0.0005		E200.8	05/17/12 02:59 / sld		ICPMS204-B_120516B	178	R80038
Magnesium	8	mg/L		1		E200.7	05/14/12 12:37 / sld		ICP2-HE_120514A	42	R79951
Manganese	ND	mg/L		0.005		E200.8	05/17/12 02:59 / sld		ICPMS204-B_120516B	178	R80038
Potassium	ND	mg/L		1		E200.7	05/14/12 12:37 / sld		ICP2-HE_120514A	42	R79951
Sodium	3	mg/L		1		E200.7	05/14/12 12:37 / sld		ICP2-HE_120514A	42	R79951
Zinc	ND	mg/L		0.01		E200.8	05/17/12 02:59 / sld		ICPMS204-B_120516B	178	R80038

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID TDMW-3D
Lab ID: H12050222-005
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 05/09/12 16:40
DateReceived: 05/11/12
Report Date: 06/06/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.8	s.u.		0.1		A4500-H B	05/11/12 15:55 / cmm		PHSC_101-H_120511A	42	R79900
Conductivity @ 25 C	470	umhos/cm		1		A2510 B	05/11/12 15:55 / cmm		PHSC_101-H_120511A	43	R79900
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/14/12 15:12 / cmm	05/14/12 14:45	J-124 (14410200)_120514A	8	16614
Solids, Total Dissolved TDS @ 180 C	316	mg/L		10		A2540 C	05/14/12 14:50 / cmm		-124 (14410200)_120514B	10	TDS120514A
INORGANICS											
Alkalinity, Total as CaCO3	45	mg/L		4		A2320 B	05/14/12 18:05 / cmm		MAN-TECH_120514A	22	R79960
Bicarbonate as HCO3	54	mg/L		4		A2320 B	05/14/12 18:05 / cmm		MAN-TECH_120514A	22	R79960
Carbonate as CO3	ND	mg/L		4		A2320 B	05/14/12 18:05 / cmm		MAN-TECH_120514A	22	R79960
Chloride	ND	mg/L		1		E300.0	05/14/12 15:26 / cmm		IC102-H_120514A	25	R79964
Sulfate	180	mg/L		1		E300.0	05/14/12 15:26 / cmm		IC102-H_120514A	25	R79964
Hardness as CaCO3	209	mg/L		1		A2340 B	05/24/12 08:36 / wjj		WATERCALC_120524A	3	R80170
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/17/12 03:03 / sld		ICPMS204-B_120516B	179	R80038
Arsenic	ND	mg/L		0.003		E200.8	05/17/12 03:03 / sld		ICPMS204-B_120516B	179	R80038
Cadmium	0.00015	mg/L		0.00008		E200.8	05/22/12 18:07 / dck		ICPMS204-B_120522A	82	R80136
Calcium	52	mg/L		1		E200.7	05/14/12 12:49 / sld		ICP2-HE_120514A	45	R79951
Copper	ND	mg/L		0.001		E200.8	05/17/12 03:03 / sld		ICPMS204-B_120516B	179	R80038
Iron	ND	mg/L		0.05		E200.8	05/17/12 03:03 / sld		ICPMS204-B_120516B	179	R80038
Lead	0.0015	mg/L		0.0005		E200.8	05/17/12 03:03 / sld		ICPMS204-B_120516B	179	R80038
Magnesium	22	mg/L		1		E200.8	05/22/12 18:07 / dck		ICPMS204-B_120522A	82	R80136
Manganese	0.011	mg/L		0.005		E200.8	05/17/12 03:03 / sld		ICPMS204-B_120516B	179	R80038
Potassium	ND	mg/L		1		E200.7	05/14/12 12:49 / sld		ICP2-HE_120514A	45	R79951
Sodium	2	mg/L		1		E200.7	05/14/12 12:49 / sld		ICP2-HE_120514A	45	R79951
Zinc	0.05	mg/L		0.01		E200.8	05/17/12 03:03 / sld		ICPMS204-B_120516B	179	R80038

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID TDMW-6
Lab ID: H12050222-006
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 05/09/12 16:50
DateReceived: 05/11/12
Report Date: 06/06/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.6	s.u.		0.1		A4500-H B	05/11/12 15:58 / cmm		PHSC_101-H_120511A	44	R79900
Conductivity @ 25 C	471	umhos/cm		1		A2510 B	05/11/12 15:58 / cmm		PHSC_101-H_120511A	45	R79900
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/14/12 15:12 / cmm	05/14/12 14:45	J-124 (14410200)_120514A	9	16614
Solids, Total Dissolved TDS @ 180 C	308	mg/L		10		A2540 C	05/14/12 14:51 / cmm		-124 (14410200)_120514B	11	TDS120514A
INORGANICS											
Alkalinity, Total as CaCO3	44	mg/L		4		A2320 B	05/14/12 18:11 / cmm		MAN-TECH_120514A	24	R79960
Bicarbonate as HCO3	54	mg/L		4		A2320 B	05/14/12 18:11 / cmm		MAN-TECH_120514A	24	R79960
Carbonate as CO3	ND	mg/L		4		A2320 B	05/14/12 18:11 / cmm		MAN-TECH_120514A	24	R79960
Chloride	ND	mg/L		1		E300.0	05/14/12 15:40 / cmm		IC102-H_120514A	26	R79964
Sulfate	180	mg/L		1		E300.0	05/14/12 15:40 / cmm		IC102-H_120514A	26	R79964
Hardness as CaCO3	212	mg/L		1		A2340 B	05/24/12 08:36 / wjj		WATERCALC_120524A	4	R80170
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/17/12 03:08 / sld		ICPMS204-B_120516B	180	R80038
Arsenic	ND	mg/L		0.003		E200.8	05/17/12 03:08 / sld		ICPMS204-B_120516B	180	R80038
Cadmium	0.00017	mg/L		0.00008		E200.8	05/22/12 18:12 / dck		ICPMS204-B_120522A	83	R80136
Calcium	52	mg/L		1		E200.7	05/14/12 12:52 / sld		ICP2-HE_120514A	46	R79951
Copper	ND	mg/L		0.001		E200.8	05/17/12 03:08 / sld		ICPMS204-B_120516B	180	R80038
Iron	ND	mg/L		0.05		E200.8	05/17/12 03:08 / sld		ICPMS204-B_120516B	180	R80038
Lead	0.0025	mg/L		0.0005		E200.8	05/17/12 03:08 / sld		ICPMS204-B_120516B	180	R80038
Magnesium	22	mg/L		1		E200.8	05/22/12 18:12 / dck		ICPMS204-B_120522A	83	R80136
Manganese	0.021	mg/L		0.005		E200.8	05/17/12 03:08 / sld		ICPMS204-B_120516B	180	R80038
Potassium	ND	mg/L		1		E200.7	05/14/12 12:52 / sld		ICP2-HE_120514A	46	R79951
Sodium	2	mg/L		1		E200.7	05/14/12 12:52 / sld		ICP2-HE_120514A	46	R79951
Zinc	0.05	mg/L		0.01		E200.8	05/17/12 03:08 / sld		ICPMS204-B_120516B	180	R80038

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID TDMW-1
Lab ID: H12050222-007
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 05/09/12 17:50
DateReceived: 05/11/12
Report Date: 06/06/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.1	s.u.		0.1		A4500-H B	05/11/12 16:01 / cmm		PHSC_101-H_120511A	46	R79900
Conductivity @ 25 C	576	umhos/cm		1		A2510 B	05/11/12 16:01 / cmm		PHSC_101-H_120511A	47	R79900
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/14/12 15:12 / cmm	05/14/12 14:45	-124 (14410200)_120514A	10	16614
Solids, Total Dissolved TDS @ 180 C	379	mg/L		10		A2540 C	05/14/12 14:51 / cmm		-124 (14410200)_120514B	12	TDS120514A
INORGANICS											
Alkalinity, Total as CaCO3	61	mg/L		4		A2320 B	05/16/12 17:34 / cmm		MAN-TECH_120516B	18	R80023
Bicarbonate as HCO3	75	mg/L		4		A2320 B	05/16/12 17:34 / cmm		MAN-TECH_120516B	18	R80023
Carbonate as CO3	ND	mg/L		4		A2320 B	05/16/12 17:34 / cmm		MAN-TECH_120516B	18	R80023
Chloride	ND	mg/L		1		E300.0	05/14/12 15:53 / cmm		IC102-H_120514A	27	R79964
Sulfate	220	mg/L		1		E300.0	05/14/12 15:53 / cmm		IC102-H_120514A	27	R79964
Hardness as CaCO3	263	mg/L		1		A2340 B	05/24/12 08:36 / wjj		WATERCALC_120524A	5	R80170
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/17/12 03:12 / sld		ICPMS204-B_120516B	181	R80038
Arsenic	ND	mg/L		0.003		E200.8	05/17/12 03:12 / sld		ICPMS204-B_120516B	181	R80038
Cadmium	0.00119	mg/L		0.00008		E200.8	05/22/12 18:48 / dck		ICPMS204-B_120522A	91	R80136
Calcium	50	mg/L		1		E200.7	05/14/12 12:56 / sld		ICP2-HE_120514A	47	R79951
Copper	ND	mg/L		0.001		E200.8	05/17/12 03:12 / sld		ICPMS204-B_120516B	181	R80038
Iron	ND	mg/L		0.05		E200.8	05/17/12 03:12 / sld		ICPMS204-B_120516B	181	R80038
Lead	ND	mg/L		0.0005		E200.8	05/17/12 03:12 / sld		ICPMS204-B_120516B	181	R80038
Magnesium	38	mg/L		1		E200.8	05/22/12 18:48 / dck		ICPMS204-B_120522A	91	R80136
Manganese	0.028	mg/L		0.005		E200.8	05/17/12 03:12 / sld		ICPMS204-B_120516B	181	R80038
Potassium	ND	mg/L		1		E200.7	05/14/12 12:56 / sld		ICP2-HE_120514A	47	R79951
Sodium	1	mg/L		1		E200.7	05/14/12 12:56 / sld		ICP2-HE_120514A	47	R79951
Zinc	1.24	mg/L		0.01		E200.8	05/17/12 03:12 / sld		ICPMS204-B_120516B	181	R80038

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID TDMW-2S
Lab ID: H12050222-008
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 05/09/12 19:02
DateReceived: 05/11/12
Report Date: 06/06/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.0	s.u.		0.1		A4500-H B	05/11/12 16:04 / cmm		PHSC_101-H_120511A	48	R79900
Conductivity @ 25 C	2610	umhos/cm		1		A2510 B	05/11/12 16:04 / cmm		PHSC_101-H_120511A	49	R79900
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/14/12 15:12 / cmm	05/14/12 14:45	-124 (14410200)_120514A	11	16614
Solids, Total Dissolved TDS @ 180 C	2400	mg/L		10		A2540 C	05/14/12 14:54 / cmm		-124 (14410200)_120514B	13	TDS120514A
INORGANICS											
Alkalinity, Total as CaCO3	130	mg/L		4		A2320 B	05/16/12 17:41 / cmm		MAN-TECH_120516B	20	R80023
Bicarbonate as HCO3	160	mg/L		4		A2320 B	05/16/12 17:41 / cmm		MAN-TECH_120516B	20	R80023
Carbonate as CO3	ND	mg/L		4		A2320 B	05/16/12 17:41 / cmm		MAN-TECH_120516B	20	R80023
Chloride	ND	mg/L		1		E300.0	05/17/12 13:33 / cmm		IC102-H_120517A	21	R80063
Sulfate	1500	mg/L	D	10		E300.0	05/14/12 16:34 / cmm		IC102-H_120514A	30	R79964
Hardness as CaCO3	1480	mg/L		1		A2340 B	05/24/12 08:36 / wjj		WATERCALC_120524A	6	R80170
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/17/12 03:36 / sld		ICPMS204-B_120516B	186	R80038
Arsenic	ND	mg/L		0.003		E200.8	05/17/12 03:36 / sld		ICPMS204-B_120516B	186	R80038
Cadmium	0.0207	mg/L		0.00008		E200.8	05/22/12 18:53 / dck		ICPMS204-B_120522A	92	R80136
Calcium	243	mg/L		1		E200.8	05/22/12 18:53 / dck		ICPMS204-B_120522A	92	R80136
Copper	0.002	mg/L		0.001		E200.8	05/22/12 18:53 / dck		ICPMS204-B_120522A	92	R80136
Iron	0.12	mg/L		0.05		E200.8	05/17/12 03:36 / sld		ICPMS204-B_120516B	186	R80038
Lead	0.0007	mg/L		0.0005		E200.8	05/17/12 03:36 / sld		ICPMS204-B_120516B	186	R80038
Magnesium	230	mg/L		1		E200.8	05/22/12 18:53 / dck		ICPMS204-B_120522A	92	R80136
Manganese	58.6	mg/L		0.005		E200.7	05/14/12 13:00 / sld		ICP2-HE_120514A	48	R79951
Potassium	2	mg/L		1		E200.7	05/14/12 13:00 / sld		ICP2-HE_120514A	48	R79951
Sodium	2	mg/L		1		E200.7	05/14/12 13:00 / sld		ICP2-HE_120514A	48	R79951
Zinc	11.4	mg/L		0.01		E200.7	05/14/12 13:00 / sld		ICP2-HE_120514A	48	R79951

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID TDMW-2D
Lab ID: H12050222-009
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 05/09/12 18:30
DateReceived: 05/11/12
Report Date: 06/06/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.8	s.u.		0.1		A4500-H B	05/11/12 16:07 / cmm		PHSC_101-H_120511A	50	R79900
Conductivity @ 25 C	280	umhos/cm		1		A2510 B	05/11/12 16:07 / cmm		PHSC_101-H_120511A	51	R79900
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/14/12 15:13 / cmm	05/14/12 14:45	-124 (14410200)_120514A	12	16614
Solids, Total Dissolved TDS @ 180 C	159	mg/L		10		A2540 C	05/14/12 16:03 / cmm		-124 (14410200)_120514B	46	TDS120514A
INORGANICS											
Alkalinity, Total as CaCO3	110	mg/L		4		A2320 B	05/14/12 18:31 / cmm		MAN-TECH_120514A	30	R79960
Bicarbonate as HCO3	130	mg/L		4		A2320 B	05/14/12 18:31 / cmm		MAN-TECH_120514A	30	R79960
Carbonate as CO3	ND	mg/L		4		A2320 B	05/14/12 18:31 / cmm		MAN-TECH_120514A	30	R79960
Chloride	ND	mg/L		1		E300.0	05/14/12 17:15 / cmm		IC102-H_120514A	33	R79964
Sulfate	36	mg/L		1		E300.0	05/14/12 17:15 / cmm		IC102-H_120514A	33	R79964
Hardness as CaCO3	126	mg/L		1		A2340 B	05/24/12 08:36 / wjj		WATERCALC_120524A	7	R80170
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/17/12 03:40 / sld		ICPMS204-B_120516B	187	R80038
Arsenic	ND	mg/L		0.003		E200.8	05/17/12 03:40 / sld		ICPMS204-B_120516B	187	R80038
Cadmium	ND	mg/L		0.00008		E200.8	05/22/12 18:57 / dck		ICPMS204-B_120522A	93	R80136
Calcium	28	mg/L		1		E200.7	05/14/12 13:04 / sld		ICP2-HE_120514A	49	R79951
Copper	ND	mg/L		0.001		E200.8	05/17/12 03:40 / sld		ICPMS204-B_120516B	187	R80038
Iron	ND	mg/L		0.05		E200.8	05/17/12 03:40 / sld		ICPMS204-B_120516B	187	R80038
Lead	ND	mg/L		0.0005		E200.8	05/17/12 03:40 / sld		ICPMS204-B_120516B	187	R80038
Magnesium	14	mg/L		1		E200.7	05/14/12 13:04 / sld		ICP2-HE_120514A	49	R79951
Manganese	ND	mg/L		0.005		E200.8	05/17/12 03:40 / sld		ICPMS204-B_120516B	187	R80038
Potassium	ND	mg/L		1		E200.7	05/14/12 13:04 / sld		ICP2-HE_120514A	49	R79951
Sodium	1	mg/L		1		E200.7	05/14/12 13:04 / sld		ICP2-HE_120514A	49	R79951
Zinc	ND	mg/L		0.01		E200.8	05/17/12 03:40 / sld		ICPMS204-B_120516B	187	R80038

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

Client: MT DEQ-Site Response
Work Order: H12050222
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jun-12*

BatchID: 16614

Run ID :Run Order: **ACCU-124 (14410200)_120514A: 1** SampType: **Method Blank** Sample ID: **MB-16614** Method: **A2540 D**

Analysis Date: **05/14/12 15:10** Units: **mg/L** **Prep Info:** Prep Date: **5/14/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	2									

Associated samples: **H12050222-001A; H12050222-002A; H12050222-003A; H12050222-004A; H12050222-005A; H12050222-006A; H12050222-007A; H12050222-008A; H12050222-009A**

Run ID :Run Order: **ACCU-124 (14410200)_120514A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS-16614** Method: **A2540 D**

Analysis Date: **05/14/12 15:10** Units: **mg/L** **Prep Info:** Prep Date: **5/14/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	1870	10	2000		93	70	130				

Associated samples: **H12050222-001A; H12050222-002A; H12050222-003A; H12050222-004A; H12050222-005A; H12050222-006A; H12050222-007A; H12050222-008A; H12050222-009A**

Run ID :Run Order: **ACCU-124 (14410200)_120514A: 4** SampType: **Sample Duplicate** Sample ID: **H12050222-001ADUP** Method: **A2540 D**

Analysis Date: **05/14/12 15:11** Units: **mg/L** **Prep Info:** Prep Date: **5/14/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	10								5	

Associated samples: **H12050222-001A; H12050222-002A; H12050222-003A; H12050222-004A; H12050222-005A; H12050222-006A; H12050222-007A; H12050222-008A; H12050222-009A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050222
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jun-12*

BatchID: R79900

Run ID :Run Order: **PHSC_101-H_120511A: 3** SampType: **Initial Calibration Verification Standard** Sample ID: **SC 150** Method: **A2510 B**

Analysis Date: **05/11/12 08:59** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	149	1.0	150		99	90	110				

Associated samples: **H12050222-001A; H12050222-002A; H12050222-003A; H12050222-004A; H12050222-005A; H12050222-006A; H12050222-007A; H12050222-008A; H12050222-009A**

Run ID :Run Order: **PHSC_101-H_120511A: 4** SampType: **Initial Calibration Verification Standard** Sample ID: **SC 5000** Method: **A2510 B**

Analysis Date: **05/11/12 09:02** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	5210	1.0	5000		104	90	110				

Associated samples: **H12050222-001A; H12050222-002A; H12050222-003A; H12050222-004A; H12050222-005A; H12050222-006A; H12050222-007A; H12050222-008A; H12050222-009A**

Run ID :Run Order: **PHSC_101-H_120511A: 5** SampType: **Initial Calibration Verification Standard** Sample ID: **SC 20000** Method: **A2510 B**

Analysis Date: **05/11/12 09:04** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	20500	1.0	20000		102	90	110				

Associated samples: **H12050222-001A; H12050222-002A; H12050222-003A; H12050222-004A; H12050222-005A; H12050222-006A; H12050222-007A; H12050222-008A; H12050222-009A**

Run ID :Run Order: **PHSC_101-H_120511A: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **SC 2ND 1000** Method: **A2510 B**

Analysis Date: **05/11/12 09:07** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	1030	1.0	1000		103	90	110				

Associated samples: **H12050222-001A; H12050222-002A; H12050222-003A; H12050222-004A; H12050222-005A; H12050222-006A; H12050222-007A; H12050222-008A; H12050222-009A**

Run ID :Run Order: **PHSC_101-H_120511A: 28** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV - SC 1413** Method: **A2510 B**

Analysis Date: **05/11/12 10:57** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	1500	1.0	1413		106	90	110				

Associated samples: **H12050222-001A; H12050222-002A; H12050222-003A; H12050222-004A; H12050222-005A; H12050222-006A; H12050222-007A; H12050222-008A; H12050222-009A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050222
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jun-12*

BatchID: R79900

Run ID :Run Order: **PHSC_101-H_120511A: 35** SampType: **Sample Duplicate** Sample ID: **H12050222-001ADUP** Method: **A2510 B**

Analysis Date: **05/11/12 15:43** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	1.00	1.0						1	0.0	10	

Associated samples: **H12050222-001A; H12050222-002A; H12050222-003A; H12050222-004A; H12050222-005A; H12050222-006A; H12050222-007A; H12050222-008A; H12050222-009A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050222
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jun-12*

BatchID: R79900

Run ID :Run Order: **PHSC_101-H_120511A: 2** SampType: **Initial Calibration Verification Standard** Sample ID: **pH 7** Method: **A4500-H B**

Analysis Date: **05/11/12 08:57** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	6.99	0.10	7		100	98	102				

Associated samples: **H12050222-001A; H12050222-002A; H12050222-003A; H12050222-004A; H12050222-005A; H12050222-006A; H12050222-007A; H12050222-008A; H12050222-009A**

Run ID :Run Order: **PHSC_101-H_120511A: 27** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV - pH 7** Method: **A4500-H B**

Analysis Date: **05/11/12 10:54** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.0	0.10	7		100	98	102				

Associated samples: **H12050222-001A; H12050222-002A; H12050222-003A; H12050222-004A; H12050222-005A; H12050222-006A; H12050222-007A; H12050222-008A; H12050222-009A**

Run ID :Run Order: **PHSC_101-H_120511A: 34** SampType: **Sample Duplicate** Sample ID: **H12050222-001ADUP** Method: **A4500-H B**

Analysis Date: **05/11/12 15:43** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	5.04	0.10						5.13	1.8	3	

Associated samples: **H12050222-001A; H12050222-002A; H12050222-003A; H12050222-004A; H12050222-005A; H12050222-006A; H12050222-007A; H12050222-008A; H12050222-009A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050222
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jun-12*

BatchID: R79951

Run ID :Run Order: **ICP2-HE_120514A: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**

Analysis Date: **05/14/12 10:20** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	40.0	1.0	40		100	95	105				
Magnesium	39.1	1.0	40		98	95	105				
Manganese	3.96	0.010	4		99	95	105				
Potassium	39.4	1.0	40		99	95	105				
Sodium	39.9	1.0	40		100	95	105				
Zinc	0.792	0.010	0.8		99	95	105				

Associated samples: **H12050222-001B; H12050222-002B; H12050222-003B; H12050222-004B; H12050222-005B; H12050222-006B; H12050222-007B; H12050222-008B; H12050222-009B**

Run ID :Run Order: **ICP2-HE_120514A: 7** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV-1** Method: **E200.7**

Analysis Date: **05/14/12 10:24** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	25.4	1.0	25		102	95	105				
Magnesium	24.3	1.0	25		97	95	105				
Manganese	2.41	0.010	2.5		96	95	105				
Potassium	24.8	1.0	25		99	95	105				
Sodium	25.0	1.0	25		100	95	105				
Zinc	2.38	0.010	2.5		95	95	105				

Associated samples: **H12050222-001B; H12050222-002B; H12050222-003B; H12050222-004B; H12050222-005B; H12050222-006B; H12050222-007B; H12050222-008B; H12050222-009B**

Run ID :Run Order: **ICP2-HE_120514A: 10** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.7**

Analysis Date: **05/14/12 10:35** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	493	1.0	500		99	80	120				
Magnesium	502	1.0	500		100	80	120				
Manganese	-0.00639	0.010				0	0				
Potassium	-0.0560	1.0				0	0				
Sodium	0.0364	1.0				0	0				
Zinc	0.00436	0.010				0	0				

Associated samples: **H12050222-001B; H12050222-002B; H12050222-003B; H12050222-004B; H12050222-005B; H12050222-006B; H12050222-007B; H12050222-008B; H12050222-009B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050222
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jun-12*

BatchID: R79951

Run ID :Run Order: **ICP2-HE_120514A: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**

Analysis Date: **05/14/12 10:39** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	500	1.0	500		100	80	120				
Magnesium	501	1.0	500		100	80	120				
Manganese	0.461	0.010	0.5		92	80	120				
Potassium	21.4	1.0	20		107	80	120				
Sodium	21.6	1.0	20		108	80	120				
Zinc	0.979	0.010	1		98	80	120				

Associated samples: **H12050222-001B; H12050222-002B; H12050222-003B; H12050222-004B; H12050222-005B; H12050222-006B; H12050222-007B; H12050222-008B; H12050222-009B**

Run ID :Run Order: **ICP2-HE_120514A: 13** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.7**

Analysis Date: **05/14/12 10:47** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	0.03	0.008									
Magnesium	ND	0.003									
Manganese	ND	0.0004									
Potassium	ND	0.04									
Sodium	ND	0.01									
Zinc	ND	0.0008									

Associated samples: **H12050222-001B; H12050222-002B; H12050222-003B; H12050222-004B; H12050222-005B; H12050222-006B; H12050222-007B; H12050222-008B; H12050222-009B**

Run ID :Run Order: **ICP2-HE_120514A: 14** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.7**

Analysis Date: **05/14/12 10:51** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	50.0	1.0	50	0.03297	100	85	115				
Magnesium	47.6	1.0	50		95	85	115				
Manganese	4.69	0.010	5		94	85	115				
Potassium	46.4	1.0	50		93	85	115				
Sodium	47.4	1.0	50		95	85	115				
Zinc	0.917	0.010	1		92	85	115				

Associated samples: **H12050222-001B; H12050222-002B; H12050222-003B; H12050222-004B; H12050222-005B; H12050222-006B; H12050222-007B; H12050222-008B; H12050222-009B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050222
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jun-12*

BatchID: R79951

Run ID :Run Order: **ICP2-HE_120514A: 31** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV** Method: **E200.7**

Analysis Date: **05/14/12 11:56** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	25.6	1.0	25		103	90	110				
Magnesium	23.0	1.0	25		92	90	110				
Manganese	2.27	0.010	2.5		91	90	110				
Potassium	23.2	1.0	25		93	90	110				
Sodium	23.8	1.0	25		95	90	110				
Zinc	2.26	0.010	2.5		90	90	110				

Associated samples: **H12050222-001B; H12050222-002B; H12050222-003B; H12050222-004B**

Run ID :Run Order: **ICP2-HE_120514A: 39** SampType: **Sample Matrix Spike** Sample ID: **H12050222-002BMS2** Method: **E200.7**

Analysis Date: **05/14/12 12:27** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	49.3	1.0	50	0.1175	98	70	130				
Magnesium	44.4	1.0	50	0.02749	89	70	130				
Manganese	4.38	0.0010	5	0.00355	87	70	130				
Potassium	46.0	1.0	50		92	70	130				
Sodium	47.3	1.0	50	0.01621	95	70	130				
Zinc	0.877	0.010	1	0.00327	87	70	130				

Associated samples: **H12050222-001B; H12050222-002B; H12050222-003B; H12050222-004B; H12050222-005B; H12050222-006B; H12050222-007B; H12050222-008B; H12050222-009B**

Run ID :Run Order: **ICP2-HE_120514A: 40** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12050222-002BMSD2** Method: **E200.7**

Analysis Date: **05/14/12 12:30** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	50.2	1.0	50	0.1175	100	70	130	49.27	1.8	20	
Magnesium	45.1	1.0	50	0.02749	90	70	130	44.44	1.5	20	
Manganese	4.44	0.0010	5	0.00355	89	70	130	4.376	1.4	20	
Potassium	46.3	1.0	50		93	70	130	45.98	0.8	20	
Sodium	47.8	1.0	50	0.01621	96	70	130	47.35	1.0	20	
Zinc	0.901	0.010	1	0.00327	90	70	130	0.8773	2.7	20	

Associated samples: **H12050222-001B; H12050222-002B; H12050222-003B; H12050222-004B; H12050222-005B; H12050222-006B; H12050222-007B; H12050222-008B; H12050222-009B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050222
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jun-12*

BatchID: R79951

Run ID :Run Order: **ICP2-HE_120514A: 43** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV** Method: **E200.7**

Analysis Date: **05/14/12 12:41** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	26.1	1.0	25		104	90	110				
Magnesium	23.1	1.0	25		93	90	110				
Manganese	2.24	0.010	2.5		90	90	110				
Potassium	23.7	1.0	25		95	90	110				
Sodium	24.4	1.0	25		97	90	110				
Zinc	2.27	0.010	2.5		91	90	110				

Associated samples: **H12050222-005B; H12050222-006B; H12050222-007B; H12050222-008B; H12050222-009B**

Run ID :Run Order: **ICP2-HE_120514A: 54** SampType: **Sample Matrix Spike** Sample ID: **H12050224-003BMS2** Method: **E200.7**

Analysis Date: **05/14/12 13:23** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	82.6	1.0	50	33.34	99	70	130				
Magnesium	60.2	1.0	50	15.64	89	70	130				
Manganese	4.37	0.0010	5		87	70	130				
Potassium	48.2	1.0	50	1.1	94	70	130				
Sodium	50.8	1.0	50	2.287	97	70	130				
Zinc	0.879	0.010	1	0.00115	88	70	130				

Associated samples: **H12050222-001B; H12050222-002B; H12050222-003B; H12050222-004B; H12050222-005B; H12050222-006B; H12050222-007B; H12050222-008B; H12050222-009B**

Run ID :Run Order: **ICP2-HE_120514A: 57** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12050224-003BMSD2** Method: **E200.7**

Analysis Date: **05/14/12 13:34** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	81.2	1.0	50	33.34	96	70	130	82.59	1.7	20	
Magnesium	59.0	1.0	50	15.64	87	70	130	60.19	2.1	20	
Manganese	4.27	0.0010	5		85	70	130	4.371	2.3	20	
Potassium	45.8	1.0	50	1.1	89	70	130	48.15	5.0	20	
Sodium	48.4	1.0	50	2.287	92	70	130	50.83	4.9	20	
Zinc	0.857	0.010	1	0.00115	86	70	130	0.8793	2.5	20	

Associated samples: **H12050222-001B; H12050222-002B; H12050222-003B; H12050222-004B; H12050222-005B; H12050222-006B; H12050222-007B; H12050222-008B; H12050222-009B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050222
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jun-12*

BatchID: R79960

Run ID :Run Order: **MAN-TECH_120514A: 8** SampType: **Method Blank** Sample ID: **MBLK** Method: **A2320 B**
Analysis Date: **05/14/12 17:21** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	2	1									

Associated samples: **H12050222-001A; H12050222-002A; H12050222-003A; H12050222-004A; H12050222-005A; H12050222-006A; H12050222-009A**

Run ID :Run Order: **MAN-TECH_120514A: 10** SampType: **Laboratory Control Sample** Sample ID: **LCS-05022012** Method: **A2320 B**
Analysis Date: **05/14/12 17:29** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	640	4.0	600	2.22	106	90	110				

Associated samples: **H12050222-001A; H12050222-002A; H12050222-003A; H12050222-004A; H12050222-005A; H12050222-006A; H12050222-009A**

Run ID :Run Order: **MAN-TECH_120514A: 18** SampType: **Sample Duplicate** Sample ID: **H12050222-003ADUP** Method: **A2320 B**
Analysis Date: **05/14/12 17:51** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	40	4.0						39.97	0.4	10	
Bicarbonate as HCO3	49	4.0						48.76	0.4	10	
Carbonate as CO3	ND	4.0								10	

Associated samples: **H12050222-001A; H12050222-002A; H12050222-003A; H12050222-004A; H12050222-005A; H12050222-006A; H12050222-009A**

Run ID :Run Order: **MAN-TECH_120514A: 33** SampType: **Sample Matrix Spike** Sample ID: **H12050223-001AMS** Method: **A2320 B**
Analysis Date: **05/14/12 18:48** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	860	4.0	600	284.3	96	80	120				

Associated samples: **H12050222-001A; H12050222-002A; H12050222-003A; H12050222-004A; H12050222-005A; H12050222-006A; H12050222-009A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050222
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jun-12*

BatchID: R79964

Run ID :Run Order: **IC102-H_120514A: 13** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV051412-12** Method: **E300.0**

Analysis Date: **05/14/12 12:43** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	100	1.0	100		100	90	110				
Sulfate	400	1.0	400		101	90	110				

Associated samples: **H12050222-001A; H12050222-002A; H12050222-003A; H12050222-004A; H12050222-005A; H12050222-006A; H12050222-007A; H12050222-008A; H12050222-009A**

Run ID :Run Order: **IC102-H_120514A: 14** SampType: **Method Blank** Sample ID: **ICB051412-13** Method: **E300.0**

Analysis Date: **05/14/12 12:56** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.03									
Sulfate	ND	0.1									

Associated samples: **H12050222-001A; H12050222-002A; H12050222-003A; H12050222-004A; H12050222-005A; H12050222-006A; H12050222-007A; H12050222-008A; H12050222-009A**

Run ID :Run Order: **IC102-H_120514A: 15** SampType: **Laboratory Fortified Blank** Sample ID: **LFB051412-14** Method: **E300.0**

Analysis Date: **05/14/12 13:10** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	51	1.0	50		102	90	110				
Sulfate	210	1.1	200		103	90	110				

Associated samples: **H12050222-001A; H12050222-002A; H12050222-003A; H12050222-004A; H12050222-005A; H12050222-006A; H12050222-007A; H12050222-008A; H12050222-009A**

Run ID :Run Order: **IC102-H_120514A: 16** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV051412-15** Method: **E300.0**

Analysis Date: **05/14/12 13:24** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	98	1.0	100		98	90	110				
Sulfate	390	1.0	400		99	90	110				

Associated samples: **H12050222-001A; H12050222-002A; H12050222-003A; H12050222-004A; H12050222-005A; H12050222-006A; H12050222-007A; H12050222-008A**

Run ID :Run Order: **IC102-H_120514A: 28** SampType: **Sample Matrix Spike** Sample ID: **H12050222-007AMS** Method: **E300.0**

Analysis Date: **05/14/12 16:07** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	51	1.0	50	0.407	100	90	110				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050222
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jun-12*

BatchID: R79964

Run ID :Run Order: **IC102-H_120514A: 28** SampType: **Sample Matrix Spike** Sample ID: **H12050222-007AMS** Method: **E300.0**
Analysis Date: **05/14/12 16:07** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	430	1.1	200	222.9	102	90	110				

Associated samples: **H12050222-001A; H12050222-002A; H12050222-003A; H12050222-004A; H12050222-005A; H12050222-006A; H12050222-007A; H12050222-008A; H12050222-009A**

Run ID :Run Order: **IC102-H_120514A: 29** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12050222-007AMSD** Method: **E300.0**
Analysis Date: **05/14/12 16:20** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	50	1.0	50	0.407	99	90	110	50.62	1.2	20	
Sulfate	420	1.1	200	222.9	100	90	110	427.5	1.0	20	

Associated samples: **H12050222-001A; H12050222-002A; H12050222-003A; H12050222-004A; H12050222-005A; H12050222-006A; H12050222-007A; H12050222-008A; H12050222-009A**

Run ID :Run Order: **IC102-H_120514A: 31** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV051412-30** Method: **E300.0**
Analysis Date: **05/14/12 16:48** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	98	1.0	100		98	90	110				
Sulfate	390	1.0	400		99	90	110				

Associated samples: **H12050222-009A**

Run ID :Run Order: **IC102-H_120514A: 34** SampType: **Sample Matrix Spike** Sample ID: **H12050222-009AMS** Method: **E300.0**
Analysis Date: **05/14/12 17:28** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	50	1.0	50	0.373	99	90	110				
Sulfate	240	1.1	200	35.91	102	90	110				

Associated samples: **H12050222-001A; H12050222-002A; H12050222-003A; H12050222-004A; H12050222-005A; H12050222-006A; H12050222-007A; H12050222-008A; H12050222-009A**

Run ID :Run Order: **IC102-H_120514A: 35** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12050222-009AMSD** Method: **E300.0**
Analysis Date: **05/14/12 17:42** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	50	1.0	50	0.373	99	90	110	50.01	0.5	20	
Sulfate	240	1.1	200	35.91	101	90	110	239.1	0.6	20	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050222
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jun-12*

BatchID: R79964

Run ID :Run Order: **IC102-H_120514A: 35** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12050222-009AMSD** Method: **E300.0**

Analysis Date: **05/14/12 17:42** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12050222-001A; H12050222-002A; H12050222-003A; H12050222-004A; H12050222-005A; H12050222-006A; H12050222-007A; H12050222-008A; H12050222-009A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050222
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jun-12*

BatchID: R80023

Run ID :Run Order: **MAN-TECH_120516B: 8** SampType: **Method Blank** Sample ID: **MBLK** Method: **A2320 B**
Analysis Date: **05/16/12 16:57** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	2	1									

Associated samples: **H12050222-007A; H12050222-008A**

Run ID :Run Order: **MAN-TECH_120516B: 10** SampType: **Laboratory Control Sample** Sample ID: **LCS-05152012** Method: **A2320 B**
Analysis Date: **05/16/12 17:05** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	630	4.0	600	1.95	105	90	110				

Associated samples: **H12050222-007A; H12050222-008A**

Run ID :Run Order: **MAN-TECH_120516B: 14** SampType: **Sample Duplicate** Sample ID: **H12040492-001ADUP** Method: **A2320 B**
Analysis Date: **05/16/12 17:21** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	540	4.0						550.8	1.7	10	
Bicarbonate as HCO3	590	4.0						606.2	2.8	10	
Carbonate as CO3	35	4.0						32.34	8.5	10	

Associated samples: **H12050222-007A; H12050222-008A**

Run ID :Run Order: **MAN-TECH_120516B: 26** SampType: **Sample Matrix Spike** Sample ID: **H12050224-003AMS** Method: **A2320 B**
Analysis Date: **05/16/12 18:04** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	790	4.0	600	168.6	104	80	120				

Associated samples: **H12050222-007A; H12050222-008A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050222
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jun-12*

BatchID: R80038

Run ID :Run Order: **ICPMS204-B_120516B: 8** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **05/16/12 14:08** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.260	0.10	0.25		104	90	110				
Arsenic	0.0511	0.0050	0.05		102	90	110				
Copper	0.0529	0.010	0.05		106	90	110				
Iron	0.265	0.030	0.25		106	90	110				
Lead	0.0498	0.010	0.05		100	90	110				
Manganese	0.252	0.010	0.25		101	90	110				
Zinc	0.0532	0.010	0.05		106	90	110				

Associated samples: **H12050222-001B; H12050222-002B; H12050222-003B; H12050222-004B; H12050222-005B; H12050222-006B; H12050222-007B; H12050222-008B; H12050222-009B**

Run ID :Run Order: **ICPMS204-B_120516B: 9** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **05/16/12 14:13** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	38.4	0.10	40		96	70	130				
Arsenic	0.000272	0.0050									
Copper	0.000376	0.010									
Iron	95.4	0.030	100		95	70	130				
Lead	0.000144	0.010									
Manganese	0.000204	0.010									
Zinc	0.000975	0.010									

Associated samples: **H12050222-001B; H12050222-002B; H12050222-003B; H12050222-004B; H12050222-005B; H12050222-006B; H12050222-007B; H12050222-008B; H12050222-009B**

Run ID :Run Order: **ICPMS204-B_120516B: 10** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **05/16/12 14:17** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	39.0	0.10	40		98	70	130				
Arsenic	0.0102	0.0050	0.01		102	70	130				
Copper	0.0200	0.010	0.02		100	70	130				
Iron	95.9	0.030	100		96	70	130				
Lead	0.000125	0.010				0	0				
Manganese	0.0194	0.010	0.02		97	70	130				
Zinc	0.0107	0.010	0.01		107	70	130				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050222
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jun-12*

BatchID: R80038

Run ID :Run Order: **ICPMS204-B_120516B: 10** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**
Analysis Date: **05/16/12 14:17** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12050222-001B; H12050222-002B; H12050222-003B; H12050222-004B; H12050222-005B; H12050222-006B; H12050222-007B; H12050222-008B; H12050222-009B**

Run ID :Run Order: **ICPMS204-B_120516B: 23** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.8**
Analysis Date: **05/16/12 15:17** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	ND	0.0003									
Arsenic	ND	3E-05									
Copper	ND	3E-05									
Iron	ND	0.0002									
Lead	ND	1.0E-05									
Manganese	7E-05	1E-05									
Zinc	0.0003	0.0003									

Associated samples: **H12050222-001B; H12050222-002B; H12050222-003B; H12050222-004B; H12050222-005B; H12050222-006B; H12050222-007B; H12050222-008B; H12050222-009B**

Run ID :Run Order: **ICPMS204-B_120516B: 24** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**
Analysis Date: **05/16/12 15:21** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0478	0.10	0.05		96	85	115				
Arsenic	0.0478	0.0050	0.05		96	85	115				
Copper	0.0474	0.010	0.05		95	85	115				
Iron	4.77	0.030	5		95	85	115				
Lead	0.0480	0.010	0.05		96	85	115				
Manganese	0.0489	0.010	0.05	0.0000657	98	85	115				
Zinc	0.0501	0.010	0.05	0.0003007	100	85	115				

Associated samples: **H12050222-001B; H12050222-002B; H12050222-003B; H12050222-004B; H12050222-005B; H12050222-006B; H12050222-007B; H12050222-008B; H12050222-009B**

Run ID :Run Order: **ICPMS204-B_120516B: 152** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**
Analysis Date: **05/17/12 01:00** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.261	0.10	0.25		104	90	110				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050222
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jun-12*

BatchID: R80038

Run ID :Run Order: **ICPMS204-B_120516B: 152** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **05/17/12 01:00** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0506	0.0050	0.05		101	90	110				
Copper	0.0523	0.010	0.05		105	90	110				
Iron	0.263	0.030	0.25		105	90	110				
Lead	0.0508	0.010	0.05		102	90	110				
Manganese	0.263	0.010	0.25		105	90	110				
Zinc	0.0524	0.010	0.05		105	90	110				

Associated samples: **H12050222-001B; H12050222-002B; H12050222-003B; H12050222-004B; H12050222-005B; H12050222-006B; H12050222-007B; H12050222-008B; H12050222-009B**

Run ID :Run Order: **ICPMS204-B_120516B: 153** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **05/17/12 01:05** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	37.5	0.10	40		94	70	130				
Arsenic	0.000330	0.0050									
Copper	0.000115	0.010									
Iron	94.8	0.030	100		95	70	130				
Lead	0.000133	0.010									
Manganese	0.000158	0.010									
Zinc	0.00117	0.010									

Associated samples: **H12050222-001B; H12050222-002B; H12050222-003B; H12050222-004B; H12050222-005B; H12050222-006B; H12050222-007B; H12050222-008B; H12050222-009B**

Run ID :Run Order: **ICPMS204-B_120516B: 154** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **05/17/12 01:09** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	37.8	0.10	40		95	70	130				
Arsenic	0.0102	0.0050	0.01		102	70	130				
Copper	0.0195	0.010	0.02		98	70	130				
Iron	93.8	0.030	100		94	70	130				
Lead	0.000112	0.010				0	0				
Manganese	0.0191	0.010	0.02		96	70	130				
Zinc	0.0109	0.010	0.01		109	70	130				

Associated samples: **H12050222-001B; H12050222-002B; H12050222-003B; H12050222-004B; H12050222-005B; H12050222-006B; H12050222-007B; H12050222-008B; H12050222-009B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050222
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jun-12*

BatchID: R80038

Run ID :Run Order: **ICPMS204-B_120516B: 173** SampType: **Sample Matrix Spike** Sample ID: **H12050222-001BMS** Method: **E200.8**

Analysis Date: **05/17/12 02:35** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0460	0.030	0.05		92	70	130				
Arsenic	0.0464	0.0010	0.05		93	70	130				
Copper	0.0471	0.0050	0.05	0.0004278	93	70	130				
Iron	4.64	0.030	5	0.04069	92	70	130				
Lead	0.0484	0.0010	0.05	0.0000587	97	70	130				
Manganese	0.0481	0.0010	0.05	0.0005956	95	70	130				
Zinc	0.0489	0.010	0.05	0.006853	84	70	130				

Associated samples: **H12050222-001B; H12050222-002B; H12050222-003B; H12050222-004B; H12050222-005B; H12050222-006B; H12050222-007B; H12050222-008B; H12050222-009B**

Run ID :Run Order: **ICPMS204-B_120516B: 174** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12050222-001BMSD** Method: **E200.8**

Analysis Date: **05/17/12 02:40** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0462	0.030	0.05		93	70	130	0.04604	0.5	20	
Arsenic	0.0463	0.0010	0.05		93	70	130	0.04639	0.2	20	
Copper	0.0470	0.0050	0.05	0.0004278	93	70	130	0.04711	0.2	20	
Iron	4.59	0.030	5	0.04069	91	70	130	4.638	1.0	20	
Lead	0.0484	0.0010	0.05	0.0000587	97	70	130	0.04838	0.0	20	
Manganese	0.0484	0.0010	0.05	0.0005956	96	70	130	0.04806	0.6	20	
Zinc	0.0485	0.010	0.05	0.006853	83	70	130	0.04888	0.8	20	

Associated samples: **H12050222-001B; H12050222-002B; H12050222-003B; H12050222-004B; H12050222-005B; H12050222-006B; H12050222-007B; H12050222-008B; H12050222-009B**

Run ID :Run Order: **ICPMS204-B_120516B: 190** SampType: **Sample Matrix Spike** Sample ID: **H12050224-001BMS** Method: **E200.8**

Analysis Date: **05/17/12 03:54** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0456	0.030	0.05		91	70	130				
Arsenic	0.0454	0.0010	0.05		91	70	130				
Copper	0.0463	0.0050	0.05		93	70	130				
Iron	4.46	0.030	5	0.008713	89	70	130				
Lead	0.0478	0.0010	0.05	0.0000123	96	70	130				
Manganese	0.0466	0.0010	0.05	0.0002243	93	70	130				
Zinc	0.0480	0.010	0.05	0.001073	94	70	130				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050222
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jun-12*

BatchID: R80038

Run ID :Run Order: **ICPMS204-B_120516B: 190** SampType: **Sample Matrix Spike** Sample ID: **H12050224-001BMS** Method: **E200.8**

Analysis Date: **05/17/12 03:54** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12050222-001B; H12050222-002B; H12050222-003B; H12050222-004B; H12050222-005B; H12050222-006B; H12050222-007B; H12050222-008B; H12050222-009B**

Run ID :Run Order: **ICPMS204-B_120516B: 191** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12050224-001BMSD** Method: **E200.8**

Analysis Date: **05/17/12 03:59** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0461	0.030	0.05		92	70	130	0.04561	1.2	20	
Arsenic	0.0461	0.0010	0.05		92	70	130	0.0454	1.6	20	
Copper	0.0465	0.0050	0.05		93	70	130	0.04628	0.5	20	
Iron	4.46	0.030	5	0.008713	89	70	130	4.456	0.2	20	
Lead	0.0481	0.0010	0.05	0.0000123	96	70	130	0.04784	0.6	20	
Manganese	0.0475	0.0010	0.05	0.0002243	95	70	130	0.04659	2.0	20	
Zinc	0.0479	0.010	0.05	0.001073	94	70	130	0.04804	0.3	20	

Associated samples: **H12050222-001B; H12050222-002B; H12050222-003B; H12050222-004B; H12050222-005B; H12050222-006B; H12050222-007B; H12050222-008B; H12050222-009B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050222
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jun-12*

BatchID: R80063

Run ID :Run Order: **IC102-H_120517A: 13** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV051712-12** Method: **E300.0**
Analysis Date: **05/17/12 11:44** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	100	1.0	100		101	90	110				

Associated samples: **H12050222-008A**

Run ID :Run Order: **IC102-H_120517A: 14** SampType: **Method Blank** Sample ID: **ICB051712-13** Method: **E300.0**
Analysis Date: **05/17/12 11:58** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.03									

Associated samples: **H12050222-008A**

Run ID :Run Order: **IC102-H_120517A: 15** SampType: **Laboratory Fortified Blank** Sample ID: **LFB051712-14** Method: **E300.0**
Analysis Date: **05/17/12 12:12** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	51	1.0	50		102	90	110				

Associated samples: **H12050222-008A**

Run ID :Run Order: **IC102-H_120517A: 16** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV051712-15** Method: **E300.0**
Analysis Date: **05/17/12 12:25** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	99	1.0	100		99	90	110				

Associated samples: **H12050222-008A**

Run ID :Run Order: **IC102-H_120517A: 28** SampType: **Sample Matrix Spike** Sample ID: **H12050224-007AMS** Method: **E300.0**
Analysis Date: **05/17/12 15:08** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	49	1.0	50	0.813	97	90	110				

Associated samples: **H12050222-008A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050222
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jun-12*

BatchID: R80063

Run ID :Run Order: **IC102-H_120517A: 29** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12050224-007AMSD** Method: **E300.0**

Analysis Date: **05/17/12 15:22** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	50	1.0	50	0.813	98	90	110	49.26	1.5	20	

Associated samples: **H12050222-008A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050222
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jun-12*

BatchID: R80136

Run ID :Run Order: **ICPMS204-B_120522A: 8** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **05/22/12 12:20** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.0268	0.0010	0.025		107	90	110				
Calcium	2.65	0.50	2.5		106	90	110				
Copper	0.0514	0.010	0.05		103	90	110				
Iron	0.253	0.030	0.25		101	90	110				
Magnesium	2.50	0.50	2.5		100	90	110				
Manganese	0.262	0.010	0.25		105	90	110				
Zinc	0.0525	0.010	0.05		105	90	110				

Associated samples: **H12050222-001B; H12050222-002B; H12050222-003B; H12050222-004B; H12050222-005B; H12050222-006B; H12050222-007B; H12050222-008B; H12050222-009B**

Run ID :Run Order: **ICPMS204-B_120522A: 9** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **05/22/12 12:25** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.000792	0.0010									
Calcium	125	0.50	120		104	70	130				
Copper	-0.000187	0.010									
Iron	102	0.030	100		102	70	130				
Magnesium	41.4	0.50	40		103	70	130				
Manganese	0.000123	0.010									
Zinc	0.00113	0.010									

Associated samples: **H12050222-001B; H12050222-002B; H12050222-003B; H12050222-004B; H12050222-005B; H12050222-006B; H12050222-007B; H12050222-008B; H12050222-009B**

Run ID :Run Order: **ICPMS204-B_120522A: 10** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **05/22/12 12:29** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.0107	0.0010	0.01		107	70	130				
Calcium	122	0.50	120		102	70	130				
Copper	0.0206	0.010	0.02		103	70	130				
Iron	100	0.030	100		100	70	130				
Magnesium	41.3	0.50	40		103	70	130				
Manganese	0.0209	0.010	0.02		104	70	130				
Zinc	0.0115	0.010	0.01		115	70	130				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050222
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jun-12*

BatchID: R80136

Run ID :Run Order: **ICPMS204-B_120522A: 10** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**
Analysis Date: **05/22/12 12:29** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12050222-001B; H12050222-002B; H12050222-003B; H12050222-004B; H12050222-005B; H12050222-006B; H12050222-007B; H12050222-008B; H12050222-009B**

Run ID :Run Order: **ICPMS204-B_120522A: 18** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.8**
Analysis Date: **05/22/12 13:07** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	ND	1E-05									
Calcium	ND	0.003									
Copper	ND	3E-05									
Iron	0.0009	0.0002									
Magnesium	ND	0.0007									
Manganese	ND	1E-05									
Zinc	0.0007	0.0003									

Associated samples: **H12050222-001B; H12050222-002B; H12050222-003B; H12050222-004B; H12050222-005B; H12050222-006B; H12050222-007B; H12050222-008B; H12050222-009B**

Run ID :Run Order: **ICPMS204-B_120522A: 29** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**
Analysis Date: **05/22/12 13:59** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.0485	0.0010	0.05		97	85	115				
Calcium	48.2	0.50	50		96	85	115				
Copper	0.0458	0.010	0.05		92	85	115				
Iron	4.86	0.030	5	0.0008943	97	85	115				
Magnesium	47.7	0.50	50		95	85	115				
Manganese	0.0496	0.010	0.05		99	85	115				
Zinc	0.0484	0.010	0.05	0.0007222	95	85	115				

Associated samples: **H12050222-001B; H12050222-002B; H12050222-003B; H12050222-004B; H12050222-005B; H12050222-006B; H12050222-007B; H12050222-008B; H12050222-009B**

Run ID :Run Order: **ICPMS204-B_120522A: 56** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**
Analysis Date: **05/22/12 16:04** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.0261	0.0010	0.025		104	90	110				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050222
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jun-12*

BatchID: R80136

Run ID :Run Order: **ICPMS204-B_120522A: 56** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **05/22/12 16:04** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	2.66	0.50	2.5		106	90	110				
Copper	0.0518	0.010	0.05		104	90	110				
Iron	0.256	0.030	0.25		103	90	110				
Magnesium	2.51	0.50	2.5		100	90	110				
Manganese	0.253	0.010	0.25		101	90	110				
Zinc	0.0521	0.010	0.05		104	90	110				

Associated samples: **H12050222-001B; H12050222-002B; H12050222-003B; H12050222-004B; H12050222-005B; H12050222-006B; H12050222-007B; H12050222-008B; H12050222-009B**

Run ID :Run Order: **ICPMS204-B_120522A: 57** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **05/22/12 16:08** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.000820	0.0010									
Calcium	118	0.50	120		98	70	130				
Copper	0.000129	0.010									
Iron	101	0.030	100		101	70	130				
Magnesium	41.2	0.50	40		103	70	130				
Manganese	0.000150	0.010									
Zinc	0.00100	0.010									

Associated samples: **H12050222-001B; H12050222-002B; H12050222-003B; H12050222-004B; H12050222-005B; H12050222-006B; H12050222-007B; H12050222-008B; H12050222-009B**

Run ID :Run Order: **ICPMS204-B_120522A: 58** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **05/22/12 16:13** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.0108	0.0010	0.01		108	70	130				
Calcium	121	0.50	120		101	70	130				
Copper	0.0211	0.010	0.02		106	70	130				
Iron	101	0.030	100		101	70	130				
Magnesium	40.7	0.50	40		102	70	130				
Manganese	0.0205	0.010	0.02		102	70	130				
Zinc	0.0117	0.010	0.01		117	70	130				

Associated samples: **H12050222-001B; H12050222-002B; H12050222-003B; H12050222-004B; H12050222-005B; H12050222-006B; H12050222-007B; H12050222-008B; H12050222-009B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050222
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jun-12*

BatchID: R80136

Run ID :Run Order: **ICPMS204-B_120522A: 84** SampType: **Sample Matrix Spike** Sample ID: **H12050222-006BMS** Method: **E200.8**

Analysis Date: **05/22/12 18:16** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.0493	0.0010	0.05	0.0001655	98	70	130				
Calcium	95.0	1.0	50	49.95	90	70	130				
Copper	0.0478	0.0050	0.05	0.0003595	95	70	130				
Iron	4.99	0.030	5	0.03721	99	70	130				
Magnesium	70.7	1.0	50	22.41	97	70	130				
Manganese	0.0636	0.0010	0.05	0.0196	88	70	130				
Zinc	0.0954	0.010	0.05	0.0502	90	70	130				

Associated samples: **H12050222-001B; H12050222-002B; H12050222-003B; H12050222-004B; H12050222-005B; H12050222-006B; H12050222-007B; H12050222-008B; H12050222-009B**

Run ID :Run Order: **ICPMS204-B_120522A: 85** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12050222-006BMSD** Method: **E200.8**

Analysis Date: **05/22/12 18:21** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.0472	0.0010	0.05	0.0001655	94	70	130	0.04926	4.4	20	
Calcium	95.9	1.0	50	49.95	92	70	130	95.02	1.0	20	
Copper	0.0487	0.0050	0.05	0.0003595	97	70	130	0.04785	1.7	20	
Iron	4.95	0.030	5	0.03721	98	70	130	4.99	0.7	20	
Magnesium	70.6	1.0	50	22.41	96	70	130	70.68	0.2	20	
Manganese	0.0634	0.0010	0.05	0.0196	87	70	130	0.06365	0.5	20	
Zinc	0.0982	0.010	0.05	0.0502	96	70	130	0.09536	2.9	20	

Associated samples: **H12050222-001B; H12050222-002B; H12050222-003B; H12050222-004B; H12050222-005B; H12050222-006B; H12050222-007B; H12050222-008B; H12050222-009B**

Run ID :Run Order: **ICPMS204-B_120522A: 216** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **05/23/12 04:29** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.0266	0.0010	0.025		106	90	110				
Calcium	2.69	0.50	2.5		108	90	110				
Copper	0.0526	0.010	0.05		105	90	110				
Iron	0.258	0.030	0.25		103	90	110				
Magnesium	2.54	0.50	2.5		102	90	110				
Manganese	0.260	0.010	0.25		104	90	110				
Zinc	0.0525	0.010	0.05		105	90	110				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050222
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jun-12*

BatchID: R80136

Run ID :Run Order: **ICPMS204-B_120522A: 216** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **05/23/12 04:29** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12050222-001B; H12050222-002B; H12050222-003B; H12050222-004B; H12050222-005B; H12050222-006B; H12050222-007B; H12050222-008B; H12050222-009B**

Run ID :Run Order: **ICPMS204-B_120522A: 217** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **05/23/12 04:34** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.000701	0.0010									
Calcium	123	0.50	120		102	70	130				
Copper	0.000120	0.010									
Iron	100	0.030	100		100	70	130				
Magnesium	41.2	0.50	40		103	70	130				
Manganese	0.000100	0.010									
Zinc	0.00122	0.010									

Associated samples: **H12050222-001B; H12050222-002B; H12050222-003B; H12050222-004B; H12050222-005B; H12050222-006B; H12050222-007B; H12050222-008B; H12050222-009B**

Run ID :Run Order: **ICPMS204-B_120522A: 218** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **05/23/12 04:38** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.0107	0.0010	0.01		107	70	130				
Calcium	123	0.50	120		102	70	130				
Copper	0.0211	0.010	0.02		105	70	130				
Iron	101	0.030	100		101	70	130				
Magnesium	40.9	0.50	40		102	70	130				
Manganese	0.0209	0.010	0.02		105	70	130				
Zinc	0.0117	0.010	0.01		117	70	130				

Associated samples: **H12050222-001B; H12050222-002B; H12050222-003B; H12050222-004B; H12050222-005B; H12050222-006B; H12050222-007B; H12050222-008B; H12050222-009B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050222
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jun-12*

BatchID: TDS120514A

Run ID :Run Order: **ACCU-124 (14410200)_120514B: 1** SampType: **Method Blank** Sample ID: **MB-1_120514A** Method: **A2540 C**
Analysis Date: **05/14/12 14:48** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	8	3									

Associated samples: **H12050222-001A; H12050222-003A; H12050222-004A; H12050222-005A; H12050222-006A; H12050222-007A; H12050222-008A; H12050222-009A**

Run ID :Run Order: **ACCU-124 (14410200)_120514B: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS-2_120514A** Method: **A2540 C**
Analysis Date: **05/14/12 14:48** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	1900	10	2000	8	95	90	110				

Associated samples: **H12050222-001A; H12050222-003A; H12050222-004A; H12050222-005A; H12050222-006A; H12050222-007A; H12050222-008A; H12050222-009A**

Run ID :Run Order: **ACCU-124 (14410200)_120514B: 5** SampType: **Sample Duplicate** Sample ID: **H12050222-001A DUP** Method: **A2540 C**
Analysis Date: **05/14/12 14:49** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	12.0	10						8		5	

Associated samples: **H12050222-001A; H12050222-003A; H12050222-004A; H12050222-005A; H12050222-006A; H12050222-007A; H12050222-008A; H12050222-009A**

Run ID :Run Order: **ACCU-124 (14410200)_120514B: 7** SampType: **Sample Matrix Spike** Sample ID: **H12050222-002A MS** Method: **A2540 C**
Analysis Date: **05/14/12 14:49** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2010	10	2000	10	100	80	120				

Associated samples: **H12050222-001A; H12050222-003A; H12050222-004A; H12050222-005A; H12050222-006A; H12050222-007A; H12050222-008A; H12050222-009A**

Run ID :Run Order: **ACCU-124 (14410200)_120514B: 29** SampType: **Sample Matrix Spike** Sample ID: **H12050230-003A MS** Method: **A2540 C**
Analysis Date: **05/14/12 15:00** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2310	10	2000	397	96	80	120				

Associated samples: **H12050222-001A; H12050222-003A; H12050222-004A; H12050222-005A; H12050222-006A; H12050222-007A; H12050222-008A; H12050222-009A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12050222
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *06-Jun-12*

BatchID: TDS120530A

Run ID :Run Order: **ACCU-124 (14410200)_120530B: 21** SampType: **Method Blank** Sample ID: **MB-2_120530A** Method: **A2540 C**
Analysis Date: **05/30/12 19:22** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	ND	10									

Associated samples: **H12050222-002A**

Run ID :Run Order: **ACCU-124 (14410200)_120530B: 22** SampType: **Laboratory Control Sample** Sample ID: **LCS-3_120530A** Method: **A2540 C**
Analysis Date: **05/30/12 19:23** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	1960	10	2000		98	90	110				

Associated samples: **H12050222-002A**

Run ID :Run Order: **ACCU-124 (14410200)_120530B: 25** SampType: **Sample Duplicate** Sample ID: **H12050417-005A DUP** Method: **A2540 C**
Analysis Date: **05/30/12 19:23** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	152	10						140	8.2	5	R

Associated samples: **H12050222-002A**

Run ID :Run Order: **ACCU-124 (14410200)_120530B: 39** SampType: **Sample Duplicate** Sample ID: **H12050420-001A DUP** Method: **A2540 C**
Analysis Date: **05/30/12 19:28** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	742	10						743	0.1	5	

Associated samples: **H12050222-002A**

Run ID :Run Order: **ACCU-124 (14410200)_120530B: 41** SampType: **Sample Matrix Spike** Sample ID: **H12050420-002A MS** Method: **A2540 C**
Analysis Date: **05/30/12 19:29** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2850	10	2000	716	107	80	120				

Associated samples: **H12050222-002A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Workorder Receipt Checklist

H12050222

MT DEQ-Site Response

Login completed by: Tracy L. Lorash
Date Received: 5/11/2012

Reviewed by: BL2000\sdull
Received by: TLL

Reviewed Date: 5/16/2012
Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Container/Temp Blank temperature:	3.2°C On Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Contact and Corrective Action Comments:

Sample ID on COC is TDMW-4D - ID on bottles is MW-4D. ID on COC is TDMW-3D - ID on bottles is MW-3D. ID on COC is TDMW-6 - ID on bottles is MW-6. Logged in with ID from COC and emailed client. No collection time on metals bottles for MW-3D or MW-6 - took from COC. Bottle order and quote don't have alkalinity in them, but the parameter list that was included does. Emailed client. TI 5/11/12. Per Alan, the IDs should all be TDMW and yes we do want to run alkalinity on all these samples. It is a parameter that we added this year. TI 5/14/12.

Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT (Provide as much information as possible.)

Company Name:	Project Name, PWS, Permit, Etc.	Sample Origin	EPA/State Compliance:
MDEQ	VBMC Groundwater	State: MT	Yes ☐ No ☐
Report Mail Address:	**Contact Name:** Phone/Fax:	**Email:**	**Sampler: (Please Print)**
Quote H-645	Shellie Haaland 841-5033	shaaland@mt.gov	A. Greenbaum B. Mayer
Invoice Address:	**Invoice Contact & Phone:**	**Purchase Order:**	**Quote/Bottle Order:**

Page 39 of 40

Special Report/Formats:

☐ DW ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: _____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids
Vegetation Bioassay Other
DW - Drinking Water

ANALYSIS REQUESTED

See bottle order #9718

SEE ATTACHED

Standard Turnaround (TAT)

R U S H

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

Shipped by: Hand del.
Cooler ID(s): Y
Receipt Temp 3.2 °C
On Ice: (Y) N
Custody Seal On Bottle Y (N) On Cooler Y (N)
Intact Y N
Signature Match Y N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	SEE ATTACHED
1	TDMW-7	5/9/12	1226	W	X
2	TDMW-8		1270		
3	TDMW-5		1325		
4	TDMW-4D		1541		
5	TDMW-3D		1640		
6	TDMW-6		1650		
7	TDMW-1		1750		
8	TDMW-2S		1902		
9	TDMW-2D		1830		
10					

LABORATORY USE ONLY H12050222

Custody Record MUST be Signed

Relinquished by (print): Alan Greenbaum Date/Time: 5/11/12 936 Signature:
Relinquished by (print): Date/Time: Signature:
Received by (print): Date/Time: Signature:
Received by (print): Date/Time: Signature:
Received by Laboratory: Tracy Lovas Date/Time: 5/11/12 9:36 Signature:

Sample Disposal: Return to Client: _____ Lab Disposal: _____

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.
This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

Section 35 Quarterly													
	Quantity	Analysis											
Surface Water	7	[1]Disolved Metals	[2]Total Rec. Metals	[5]Cations	Chloride	Sulfate	Alkalinity	Hardness	Acidity	TDS	TSS	pH	EC
Groundwater	9	[3]Disolved Metals		[5]Cations	Chloride	Sulfate	Alkalinity	Hardness	Acidity	TDS	TSS	pH	EC
Sediment	6		[4]Total Rec. Metals										

[1]Aluminum

[2]Arsenic, cadmium, copper, iron, lead, manganese, and zinc

[3]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[4]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[5]Calcium, magnesium, potassium, sodium

UBMC Quarterly													
	Quantity	Analysis											
[6]Surface Water	11	[1]Disolved Metals	[2]Total Rec. Metals	[5]Cations	Chloride	Sulfate	Alkalinity	Hardness	Acidity	TDS	TSS	pH	EC
Groundwater	10	[3]Disolved Metals		[5]Cations	Chloride	Sulfate	Alkalinity	Hardness	Acidity	TDS	TSS	pH	EC
Sediment	9		[4]Total Rec. Metals										

[1]Aluminum

[2]Arsenic, cadmium, copper, iron, lead, manganese, and zinc

[3]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[4]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[5]Calcium, magnesium, potassium, sodium

[6]Additional surface water samples may be collected for seeps.

ANALYTICAL SUMMARY REPORT

April 17, 2012

MT DEQ-Site Response
PO Box 200901
Helena, MT 59620-0901

Workorder No.: H12030340 Quote ID: H645 - UBMC

Project Name: UBMC Surface Water and Sediment

Energy Laboratories Inc Helena MT received the following 32 samples for MT DEQ-Site Response on 3/27/2012 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H12030340-001	S35SW05	03/26/12 10:10	03/27/12	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Hardness as CaCO3 Anions by Ion Chromatography pH Metals Digestion by EPA 200.2 Preparation for TDS Preparation for TSS Solids, Total Dissolved Solids, Total Suspended
H12030340-002	S35SW07	03/26/12 9:00	03/27/12	Aqueous	Same As Above
H12030340-003	S35SW01	03/26/12 11:10	03/27/12	Aqueous	Same As Above
H12030340-004	S35SW06	03/26/12 11:10	03/27/12	Aqueous	Same As Above
H12030340-005	S35SW02	03/26/12 12:00	03/27/12	Aqueous	Same As Above
H12030340-006	S35SW04	03/26/12 13:45	03/27/12	Aqueous	Same As Above
H12030340-007	S35SW03	03/26/12 14:25	03/27/12	Aqueous	Same As Above
H12030340-008	UBMCBRSW25	03/26/12 15:10	03/27/12	Aqueous	Same As Above
H12030340-009	UBMCBRSW26	03/26/12 15:15	03/27/12	Aqueous	Same As Above
H12030340-010	UBMCBRSW22	03/26/12 15:50	03/27/12	Aqueous	Same As Above
H12030340-011	UBMCBRSW24	03/26/12 15:55	03/27/12	Aqueous	Same As Above
H12030340-012	UBMCBRSW01	03/26/12 16:50	03/27/12	Aqueous	Same As Above
H12030340-013	UBMCBRSW2	03/26/12 17:25	03/27/12	Aqueous	Same As Above
H12030340-014	UBMCBRSW38	03/27/12 8:50	03/27/12	Aqueous	Same As Above
H12030340-015	UBMCBRSW48	03/27/12 10:05	03/27/12	Aqueous	Same As Above
H12030340-016	UBMCBRSW23	03/27/12 10:30	03/27/12	Aqueous	Same As Above
H12030340-017	UBMCBRSW3A	03/27/12 10:55	03/27/12	Aqueous	Same As Above
H12030340-018	UBMCBRSW3B	03/27/12 11:15	03/27/12	Aqueous	Same As Above
H12030340-019	S35SD05	03/26/12 10:10	03/27/12	Sediment	Metals by ICP/ICPMS, Total Digestion, Total Metals
H12030340-020	S35SD06	03/26/12 11:10	03/27/12	Sediment	Same As Above
H12030340-021	S35SD01	03/26/12 11:10	03/27/12	Sediment	Same As Above

ANALYTICAL SUMMARY REPORT

H12030340-022	S35SD02	03/26/12 12:00 03/27/12	Sediment	Same As Above
H12030340-023	S35SD04	03/26/12 13:45 03/27/12	Sediment	Same As Above
H12030340-024	S35SD03	03/26/12 14:25 03/27/12	Sediment	Same As Above
H12030340-025	UBMCBRSD22	03/26/12 15:50 03/27/12	Sediment	Same As Above
H12030340-026	UBMCBRSD24	03/26/12 15:55 03/27/12	Sediment	Same As Above
H12030340-027	UBMCBRSD01	03/26/12 16:50 03/27/12	Sediment	Same As Above
H12030340-028	UBMCBRSD38	03/27/12 8:50 03/27/12	Sediment	Same As Above
H12030340-029	UBMCBRSD48	03/27/12 10:05 03/27/12	Sediment	Same As Above
H12030340-030	UBMCBRSD23	03/27/12 10:30 03/27/12	Sediment	Same As Above
H12030340-031	UBMCBRSD3A	03/27/12 10:55 03/27/12	Sediment	Same As Above
H12030340-032	UBMCBRSD3B	03/27/12 11:15 03/27/12	Sediment	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise reported.

Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID S35SW05
Lab ID: H12030340-001
Matrix: Aqueous

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 10:10 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.3	s.u.		0.1		A4500-H B	03/28/12 11:19 / cmm		PHSC_101-H_120328A	17	R78847
Conductivity @ 25 C	146	umhos/cm		1		A2510 B	03/28/12 11:19 / cmm		PHSC_101-H_120328A	18	R78847
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/28/12 14:10 / cmm	03/28/12 13:48	-124 (14410200)_120328A	11	16073
Solids, Total Dissolved TDS @ 180 C	98	mg/L		10		A2540 C	03/28/12 14:22 / cmm	03/28/12 13:55	J-124 (14410200)_120328B	9	16075
INORGANICS											
Alkalinity, Total as CaCO3	65	mg/L		4		A2320 B	03/29/12 15:28 / cmm		MAN-TECH_120329A	24	R78897
Bicarbonate as HCO3	79	mg/L		4		A2320 B	03/29/12 15:28 / cmm		MAN-TECH_120329A	24	R78897
Carbonate as CO3	ND	mg/L		4		A2320 B	03/29/12 15:28 / cmm		MAN-TECH_120329A	24	R78897
Chloride	2	mg/L		1		E300.0	03/28/12 20:58 / cmm		IC102-H_120328A	58	R78880
Sulfate	4	mg/L		1		E300.0	03/28/12 20:58 / cmm		IC102-H_120328A	58	R78880
Hardness as CaCO3	65	mg/L		1		A2340 B	04/02/12 08:47 / sld		WATERCALC_120402A	2	R78918
METALS, DISSOLVED											
Aluminum	0.21	mg/L		0.03		E200.7	03/28/12 12:18 / sld		ICP2-HE_120328B	41	R78872
Calcium	16	mg/L		1		E200.7	03/28/12 12:18 / sld		ICP2-HE_120328B	41	R78872
Magnesium	6	mg/L		1		E200.7	03/28/12 12:18 / sld		ICP2-HE_120328B	41	R78872
Potassium	1	mg/L		1		E200.7	03/28/12 12:18 / sld		ICP2-HE_120328B	41	R78872
Sodium	2	mg/L		1		E200.7	03/28/12 12:18 / sld		ICP2-HE_120328B	41	R78872
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	04/02/12 21:45 / dck	03/28/12 12:21	ICPMS204-B_120402A	94	16071
Cadmium	ND	mg/L		0.00008		E200.8	04/02/12 21:45 / dck	03/28/12 12:21	ICPMS204-B_120402A	94	16071
Copper	0.003	mg/L		0.001		E200.8	04/02/12 21:45 / dck	03/28/12 12:21	ICPMS204-B_120402A	94	16071
Iron	0.36	mg/L		0.03		E200.8	04/02/12 21:45 / dck	03/28/12 12:21	ICPMS204-B_120402A	94	16071
Lead	ND	mg/L		0.0005		E200.8	04/02/12 21:45 / dck	03/28/12 12:21	ICPMS204-B_120402A	94	16071
Manganese	0.023	mg/L		0.005		E200.8	04/02/12 21:45 / dck	03/28/12 12:21	ICPMS204-B_120402A	94	16071
Zinc	ND	mg/L		0.01		E200.8	04/02/12 21:45 / dck	03/28/12 12:21	ICPMS204-B_120402A	94	16071

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID S35SW07
Lab ID: H12030340-002
Matrix: Aqueous

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 09:00 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.5	s.u.		0.1		A4500-H B	03/28/12 11:21 / cmm		PHSC_101-H_120328A	19	R78847
Conductivity @ 25 C	1	umhos/cm		1		A2510 B	03/28/12 11:21 / cmm		PHSC_101-H_120328A	20	R78847
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/28/12 14:11 / cmm	03/28/12 13:48	124 (14410200)_120328A	12	16073
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	03/28/12 14:22 / cmm	03/28/12 13:55	124 (14410200)_120328B	10	16075
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	03/29/12 15:32 / cmm		MAN-TECH_120329A	26	R78897
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	03/29/12 15:32 / cmm		MAN-TECH_120329A	26	R78897
Carbonate as CO3	ND	mg/L		4		A2320 B	03/29/12 15:32 / cmm		MAN-TECH_120329A	26	R78897
Chloride	ND	mg/L		1		E300.0	03/28/12 21:12 / cmm		IC102-H_120328A	59	R78880
Sulfate	ND	mg/L		1		E300.0	03/28/12 21:12 / cmm		IC102-H_120328A	59	R78880
Hardness as CaCO3	ND	mg/L		1		A2340 B	04/02/12 08:47 / sld		WATERCALC_120402A	3	R78918
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	03/28/12 12:40 / sld		ICP2-HE_120328B	47	R78872
Calcium	ND	mg/L		1		E200.7	03/28/12 12:40 / sld		ICP2-HE_120328B	47	R78872
Magnesium	ND	mg/L		1		E200.7	03/28/12 12:40 / sld		ICP2-HE_120328B	47	R78872
Potassium	ND	mg/L		1		E200.7	03/28/12 12:40 / sld		ICP2-HE_120328B	47	R78872
Sodium	ND	mg/L		1		E200.7	03/28/12 12:40 / sld		ICP2-HE_120328B	47	R78872
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	04/02/12 22:27 / dck		ICPMS204-B_120402A	103	R78968
Cadmium	ND	mg/L		0.00008		E200.8	04/02/12 22:27 / dck		ICPMS204-B_120402A	103	R78968
Copper	ND	mg/L		0.001		E200.8	04/02/12 22:27 / dck		ICPMS204-B_120402A	103	R78968
Iron	ND	mg/L		0.03		E200.8	04/02/12 22:27 / dck		ICPMS204-B_120402A	103	R78968
Lead	ND	mg/L		0.0005		E200.8	04/02/12 22:27 / dck		ICPMS204-B_120402A	103	R78968
Manganese	ND	mg/L		0.005		E200.8	04/02/12 22:27 / dck		ICPMS204-B_120402A	103	R78968
Zinc	ND	mg/L		0.01		E200.8	04/02/12 22:27 / dck		ICPMS204-B_120402A	103	R78968

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID S35SW01
Lab ID: H12030340-003
Matrix: Aqueous

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 11:10 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.4	s.u.		0.1		A4500-H B	03/28/12 11:24 / cmm		PHSC_101-H_120328A	21	R78847
Conductivity @ 25 C	154	umhos/cm		1		A2510 B	03/28/12 11:24 / cmm		PHSC_101-H_120328A	22	R78847
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/28/12 14:11 / cmm	03/28/12 13:48	124 (14410200)_120328A	13	16073
Solids, Total Dissolved TDS @ 180 C	88	mg/L		10		A2540 C	03/28/12 14:22 / cmm	03/28/12 13:55	124 (14410200)_120328B	11	16075
INORGANICS											
Alkalinity, Total as CaCO3	77	mg/L		4		A2320 B	03/29/12 15:39 / cmm		MAN-TECH_120329A	28	R78897
Bicarbonate as HCO3	94	mg/L		4		A2320 B	03/29/12 15:39 / cmm		MAN-TECH_120329A	28	R78897
Carbonate as CO3	ND	mg/L		4		A2320 B	03/29/12 15:39 / cmm		MAN-TECH_120329A	28	R78897
Chloride	ND	mg/L		1		E300.0	03/28/12 21:25 / cmm		IC102-H_120328A	60	R78880
Sulfate	2	mg/L		1		E300.0	03/28/12 21:25 / cmm		IC102-H_120328A	60	R78880
Hardness as CaCO3	73	mg/L		1		A2340 B	04/02/12 08:47 / sld		WATERCALC_120402A	4	R78918
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	03/28/12 12:44 / sld		ICP2-HE_120328B	48	R78872
Calcium	19	mg/L		1		E200.7	03/28/12 12:44 / sld		ICP2-HE_120328B	48	R78872
Magnesium	7	mg/L		1		E200.7	03/28/12 12:44 / sld		ICP2-HE_120328B	48	R78872
Potassium	ND	mg/L		1		E200.7	03/28/12 12:44 / sld		ICP2-HE_120328B	48	R78872
Sodium	2	mg/L		1		E200.7	03/28/12 12:44 / sld		ICP2-HE_120328B	48	R78872
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	04/02/12 22:46 / dck	03/28/12 12:21	ICPMS204-B_120402A	107	16071
Cadmium	ND	mg/L		0.00008		E200.8	04/02/12 22:46 / dck	03/28/12 12:21	ICPMS204-B_120402A	107	16071
Copper	ND	mg/L		0.001		E200.8	04/02/12 22:46 / dck	03/28/12 12:21	ICPMS204-B_120402A	107	16071
Iron	0.31	mg/L		0.03		E200.8	04/02/12 22:46 / dck	03/28/12 12:21	ICPMS204-B_120402A	107	16071
Lead	ND	mg/L		0.0005		E200.8	04/02/12 22:46 / dck	03/28/12 12:21	ICPMS204-B_120402A	107	16071
Manganese	ND	mg/L		0.005		E200.8	04/02/12 22:46 / dck	03/28/12 12:21	ICPMS204-B_120402A	107	16071
Zinc	ND	mg/L		0.01		E200.8	04/02/12 22:46 / dck	03/28/12 12:21	ICPMS204-B_120402A	107	16071

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID S35SW06
Lab ID: H12030340-004
Matrix: Aqueous

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 11:10 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.4	s.u.		0.1		A4500-H B	03/28/12 11:26 / cmm		PHSC_101-H_120328A	23	R78847
Conductivity @ 25 C	155	umhos/cm		1		A2510 B	03/28/12 11:26 / cmm		PHSC_101-H_120328A	24	R78847
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/28/12 14:11 / cmm	03/28/12 13:48	124 (14410200)_120328A	14	16073
Solids, Total Dissolved TDS @ 180 C	78	mg/L		10		A2540 C	03/28/12 14:22 / cmm	03/28/12 13:55	124 (14410200)_120328B	12	16075
INORGANICS											
Alkalinity, Total as CaCO3	77	mg/L		4		A2320 B	03/29/12 15:46 / cmm		MAN-TECH_120329A	30	R78897
Bicarbonate as HCO3	94	mg/L		4		A2320 B	03/29/12 15:46 / cmm		MAN-TECH_120329A	30	R78897
Carbonate as CO3	ND	mg/L		4		A2320 B	03/29/12 15:46 / cmm		MAN-TECH_120329A	30	R78897
Chloride	ND	mg/L		1		E300.0	03/28/12 21:39 / cmm		IC102-H_120328A	61	R78880
Sulfate	2	mg/L		1		E300.0	03/28/12 21:39 / cmm		IC102-H_120328A	61	R78880
Hardness as CaCO3	72	mg/L		1		A2340 B	04/02/12 08:47 / sld		WATERCALC_120402A	5	R78918
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	03/28/12 12:47 / sld		ICP2-HE_120328B	49	R78872
Calcium	18	mg/L		1		E200.7	03/28/12 12:47 / sld		ICP2-HE_120328B	49	R78872
Magnesium	6	mg/L		1		E200.7	03/28/12 12:47 / sld		ICP2-HE_120328B	49	R78872
Potassium	ND	mg/L		1		E200.7	03/28/12 12:47 / sld		ICP2-HE_120328B	49	R78872
Sodium	2	mg/L		1		E200.7	03/28/12 12:47 / sld		ICP2-HE_120328B	49	R78872
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	04/02/12 22:50 / dck	03/28/12 12:21	ICPMS204-B_120402A	108	16071
Cadmium	ND	mg/L		0.00008		E200.8	04/02/12 22:50 / dck	03/28/12 12:21	ICPMS204-B_120402A	108	16071
Copper	ND	mg/L		0.001		E200.8	04/02/12 22:50 / dck	03/28/12 12:21	ICPMS204-B_120402A	108	16071
Iron	0.30	mg/L		0.03		E200.8	04/02/12 22:50 / dck	03/28/12 12:21	ICPMS204-B_120402A	108	16071
Lead	ND	mg/L		0.0005		E200.8	04/02/12 22:50 / dck	03/28/12 12:21	ICPMS204-B_120402A	108	16071
Manganese	ND	mg/L		0.005		E200.8	04/02/12 22:50 / dck	03/28/12 12:21	ICPMS204-B_120402A	108	16071
Zinc	ND	mg/L		0.01		E200.8	04/02/12 22:50 / dck	03/28/12 12:21	ICPMS204-B_120402A	108	16071

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID S35SW02
Lab ID: H12030340-005
Matrix: Aqueous

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 12:00 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.8	s.u.		0.1		A4500-H B	03/28/12 11:29 / cmm		PHSC_101-H_120328A	25	R78847
Conductivity @ 25 C	148	umhos/cm		1		A2510 B	03/28/12 11:29 / cmm		PHSC_101-H_120328A	26	R78847
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/28/12 14:12 / cmm	03/28/12 13:48	124 (14410200)_120328A	16	16073
Solids, Total Dissolved TDS @ 180 C	74	mg/L		10		A2540 C	03/28/12 14:23 / cmm	03/28/12 13:55	124 (14410200)_120328B	14	16075
INORGANICS											
Alkalinity, Total as CaCO3	69	mg/L		4		A2320 B	03/29/12 15:53 / cmm		MAN-TECH_120329A	32	R78897
Bicarbonate as HCO3	85	mg/L		4		A2320 B	03/29/12 15:53 / cmm		MAN-TECH_120329A	32	R78897
Carbonate as CO3	ND	mg/L		4		A2320 B	03/29/12 15:53 / cmm		MAN-TECH_120329A	32	R78897
Chloride	ND	mg/L		1		E300.0	03/28/12 21:52 / cmm		IC102-H_120328A	62	R78880
Sulfate	4	mg/L		1		E300.0	03/28/12 21:52 / cmm		IC102-H_120328A	62	R78880
Hardness as CaCO3	69	mg/L		1		A2340 B	04/02/12 08:47 / sld		WATERCALC_120402A	6	R78918
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	03/28/12 12:51 / sld		ICP2-HE_120328B	50	R78872
Calcium	17	mg/L		1		E200.7	03/28/12 12:51 / sld		ICP2-HE_120328B	50	R78872
Magnesium	7	mg/L		1		E200.7	03/28/12 12:51 / sld		ICP2-HE_120328B	50	R78872
Potassium	ND	mg/L		1		E200.7	03/28/12 12:51 / sld		ICP2-HE_120328B	50	R78872
Sodium	2	mg/L		1		E200.7	03/28/12 12:51 / sld		ICP2-HE_120328B	50	R78872
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	04/02/12 22:55 / dck	03/28/12 12:21	ICPMS204-B_120402A	109	16071
Cadmium	ND	mg/L		0.00008		E200.8	04/02/12 22:55 / dck	03/28/12 12:21	ICPMS204-B_120402A	109	16071
Copper	0.001	mg/L		0.001		E200.8	04/02/12 22:55 / dck	03/28/12 12:21	ICPMS204-B_120402A	109	16071
Iron	0.04	mg/L		0.03		E200.8	04/02/12 22:55 / dck	03/28/12 12:21	ICPMS204-B_120402A	109	16071
Lead	ND	mg/L		0.0005		E200.8	04/02/12 22:55 / dck	03/28/12 12:21	ICPMS204-B_120402A	109	16071
Manganese	ND	mg/L		0.005		E200.8	04/02/12 22:55 / dck	03/28/12 12:21	ICPMS204-B_120402A	109	16071
Zinc	ND	mg/L		0.01		E200.8	04/02/12 22:55 / dck	03/28/12 12:21	ICPMS204-B_120402A	109	16071

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID S35SW04
Lab ID: H12030340-006
Matrix: Aqueous

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 13:45 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.6	s.u.		0.1		A4500-H B	03/28/12 11:34 / cmm		PHSC_101-H_120328A	29	R78847
Conductivity @ 25 C	217	umhos/cm		1		A2510 B	03/28/12 11:34 / cmm		PHSC_101-H_120328A	30	R78847
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/28/12 14:12 / cmm	03/28/12 13:48	124 (14410200)_120328A	17	16073
Solids, Total Dissolved TDS @ 180 C	116	mg/L		10		A2540 C	03/28/12 14:23 / cmm	03/28/12 13:55	124 (14410200)_120328B	15	16075
INORGANICS											
Alkalinity, Total as CaCO3	70	mg/L		4		A2320 B	03/29/12 16:08 / cmm		MAN-TECH_120329A	36	R78897
Bicarbonate as HCO3	86	mg/L		4		A2320 B	03/29/12 16:08 / cmm		MAN-TECH_120329A	36	R78897
Carbonate as CO3	ND	mg/L		4		A2320 B	03/29/12 16:08 / cmm		MAN-TECH_120329A	36	R78897
Chloride	4	mg/L		1		E300.0	03/29/12 15:52 / cmm		IC102-H_120329A	24	R78898
Sulfate	26	mg/L		1		E300.0	03/29/12 15:52 / cmm		IC102-H_120329A	24	R78898
Hardness as CaCO3	99	mg/L		1		A2340 B	04/02/12 08:47 / sld		WATERCALC_120402A	7	R78918
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	03/28/12 12:55 / sld		ICP2-HE_120328B	51	R78872
Calcium	23	mg/L		1		E200.7	03/28/12 12:55 / sld		ICP2-HE_120328B	51	R78872
Magnesium	10	mg/L		1		E200.7	03/28/12 12:55 / sld		ICP2-HE_120328B	51	R78872
Potassium	ND	mg/L		1		E200.7	03/28/12 12:55 / sld		ICP2-HE_120328B	51	R78872
Sodium	3	mg/L		1		E200.7	03/28/12 12:55 / sld		ICP2-HE_120328B	51	R78872
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	04/02/12 23:18 / dck	03/28/12 12:21	ICPMS204-B_120402A	114	16071
Cadmium	0.00018	mg/L		0.00008		E200.8	04/02/12 23:18 / dck	03/28/12 12:21	ICPMS204-B_120402A	114	16071
Copper	0.002	mg/L		0.001		E200.8	04/02/12 23:18 / dck	03/28/12 12:21	ICPMS204-B_120402A	114	16071
Iron	0.19	mg/L		0.03		E200.8	04/02/12 23:18 / dck	03/28/12 12:21	ICPMS204-B_120402A	114	16071
Lead	ND	mg/L		0.0005		E200.8	04/02/12 23:18 / dck	03/28/12 12:21	ICPMS204-B_120402A	114	16071
Manganese	0.015	mg/L		0.005		E200.8	04/02/12 23:18 / dck	03/28/12 12:21	ICPMS204-B_120402A	114	16071
Zinc	0.11	mg/L		0.01		E200.8	04/02/12 23:18 / dck	03/28/12 12:21	ICPMS204-B_120402A	114	16071

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID S35SW03
Lab ID: H12030340-007
Matrix: Aqueous

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 14:25 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.6	s.u.		0.1		A4500-H B	03/28/12 11:36 / cmm		PHSC_101-H_120328A	31	R78847
Conductivity @ 25 C	217	umhos/cm		1		A2510 B	03/28/12 11:36 / cmm		PHSC_101-H_120328A	32	R78847
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/28/12 14:12 / cmm	03/28/12 13:48	124 (14410200)_120328A	18	16073
Solids, Total Dissolved TDS @ 180 C	110	mg/L		10		A2540 C	03/28/12 14:23 / cmm	03/28/12 13:55	124 (14410200)_120328B	16	16075
INORGANICS											
Alkalinity, Total as CaCO3	70	mg/L		4		A2320 B	03/29/12 16:15 / cmm		MAN-TECH_120329A	38	R78897
Bicarbonate as HCO3	85	mg/L		4		A2320 B	03/29/12 16:15 / cmm		MAN-TECH_120329A	38	R78897
Carbonate as CO3	ND	mg/L		4		A2320 B	03/29/12 16:15 / cmm		MAN-TECH_120329A	38	R78897
Chloride	4	mg/L		1		E300.0	03/29/12 16:05 / cmm		IC102-H_120329A	25	R78898
Sulfate	26	mg/L		1		E300.0	03/29/12 16:05 / cmm		IC102-H_120329A	25	R78898
Hardness as CaCO3	96	mg/L		1		A2340 B	04/02/12 08:47 / sld		WATERCALC_120402A	8	R78918
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	03/28/12 12:59 / sld		ICP2-HE_120328B	52	R78872
Calcium	22	mg/L		1		E200.7	03/28/12 12:59 / sld		ICP2-HE_120328B	52	R78872
Magnesium	10	mg/L		1		E200.7	03/28/12 12:59 / sld		ICP2-HE_120328B	52	R78872
Potassium	ND	mg/L		1		E200.7	03/28/12 12:59 / sld		ICP2-HE_120328B	52	R78872
Sodium	3	mg/L		1		E200.7	03/28/12 12:59 / sld		ICP2-HE_120328B	52	R78872
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	04/02/12 23:23 / dck		ICPMS204-B_120402A	115	R78968
Cadmium	0.00017	mg/L		0.00008		E200.8	04/02/12 23:23 / dck		ICPMS204-B_120402A	115	R78968
Copper	0.002	mg/L		0.001		E200.8	04/02/12 23:23 / dck		ICPMS204-B_120402A	115	R78968
Iron	0.20	mg/L		0.03		E200.8	04/02/12 23:23 / dck		ICPMS204-B_120402A	115	R78968
Lead	ND	mg/L		0.0005		E200.8	04/02/12 23:23 / dck		ICPMS204-B_120402A	115	R78968
Manganese	0.024	mg/L		0.005		E200.8	04/02/12 23:23 / dck		ICPMS204-B_120402A	115	R78968
Zinc	0.12	mg/L		0.01		E200.8	04/02/12 23:23 / dck		ICPMS204-B_120402A	115	R78968

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSW25
Lab ID: H12030340-008
Matrix: Aqueous

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 15:10 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.4	s.u.		0.1		A4500-H B	03/28/12 11:39 / cmm		PHSC_101-H_120328A	33	R78847
Conductivity @ 25 C	1	umhos/cm		1		A2510 B	03/28/12 11:39 / cmm		PHSC_101-H_120328A	34	R78847
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/28/12 14:12 / cmm	03/28/12 13:48	124 (14410200)_120328A	19	16073
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	03/28/12 14:24 / cmm	03/28/12 13:55	124 (14410200)_120328B	17	16075
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	03/29/12 16:19 / cmm		MAN-TECH_120329A	40	R78897
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	03/29/12 16:19 / cmm		MAN-TECH_120329A	40	R78897
Carbonate as CO3	ND	mg/L		4		A2320 B	03/29/12 16:19 / cmm		MAN-TECH_120329A	40	R78897
Chloride	ND	mg/L		1		E300.0	03/29/12 16:19 / cmm		IC102-H_120329A	26	R78898
Sulfate	ND	mg/L		1		E300.0	03/29/12 16:19 / cmm		IC102-H_120329A	26	R78898
Hardness as CaCO3	ND	mg/L		1		A2340 B	04/02/12 08:47 / sld		WATERCALC_120402A	9	R78918
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	03/28/12 13:02 / sld		ICP2-HE_120328B	53	R78872
Calcium	ND	mg/L		1		E200.7	03/28/12 13:02 / sld		ICP2-HE_120328B	53	R78872
Magnesium	ND	mg/L		1		E200.7	03/28/12 13:02 / sld		ICP2-HE_120328B	53	R78872
Potassium	ND	mg/L		1		E200.7	03/28/12 13:02 / sld		ICP2-HE_120328B	53	R78872
Sodium	ND	mg/L		1		E200.7	03/28/12 13:02 / sld		ICP2-HE_120328B	53	R78872
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	04/02/12 23:28 / dck		ICPMS204-B_120402A	116	R78968
Cadmium	ND	mg/L		0.00008		E200.8	04/02/12 23:28 / dck		ICPMS204-B_120402A	116	R78968
Copper	ND	mg/L		0.001		E200.8	04/02/12 23:28 / dck		ICPMS204-B_120402A	116	R78968
Iron	ND	mg/L		0.03		E200.8	04/02/12 23:28 / dck		ICPMS204-B_120402A	116	R78968
Lead	ND	mg/L		0.0005		E200.8	04/02/12 23:28 / dck		ICPMS204-B_120402A	116	R78968
Manganese	ND	mg/L		0.005		E200.8	04/02/12 23:28 / dck		ICPMS204-B_120402A	116	R78968
Zinc	ND	mg/L		0.01		E200.8	04/02/12 23:28 / dck		ICPMS204-B_120402A	116	R78968

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSW26
Lab ID: H12030340-009
Matrix: Aqueous

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 15:15 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.2	s.u.		0.1		A4500-H B	03/28/12 11:42 / cmm		PHSC_101-H_120328A	35	R78847
Conductivity @ 25 C	1	umhos/cm		1		A2510 B	03/28/12 11:42 / cmm		PHSC_101-H_120328A	36	R78847
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/28/12 14:13 / cmm	03/28/12 13:48	124 (14410200)_120328A	20	16073
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	03/28/12 14:24 / cmm	03/28/12 13:55	124 (14410200)_120328B	18	16075
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	03/29/12 16:23 / cmm		MAN-TECH_120329A	42	R78897
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	03/29/12 16:23 / cmm		MAN-TECH_120329A	42	R78897
Carbonate as CO3	ND	mg/L		4		A2320 B	03/29/12 16:23 / cmm		MAN-TECH_120329A	42	R78897
Chloride	ND	mg/L		1		E300.0	03/29/12 17:00 / cmm		IC102-H_120329A	29	R78898
Sulfate	ND	mg/L		1		E300.0	03/29/12 17:00 / cmm		IC102-H_120329A	29	R78898
Hardness as CaCO3	ND	mg/L		1		A2340 B	04/02/12 08:47 / sld		WATERCALC_120402A	10	R78918
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	03/28/12 13:06 / sld		ICP2-HE_120328B	54	R78872
Calcium	ND	mg/L		1		E200.7	03/28/12 13:06 / sld		ICP2-HE_120328B	54	R78872
Magnesium	ND	mg/L		1		E200.7	03/28/12 13:06 / sld		ICP2-HE_120328B	54	R78872
Potassium	ND	mg/L		1		E200.7	03/28/12 13:06 / sld		ICP2-HE_120328B	54	R78872
Sodium	ND	mg/L		1		E200.7	03/28/12 13:06 / sld		ICP2-HE_120328B	54	R78872
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	04/02/12 23:32 / dck		ICPMS204-B_120402A	117	R78968
Cadmium	ND	mg/L		0.00008		E200.8	04/02/12 23:32 / dck		ICPMS204-B_120402A	117	R78968
Copper	ND	mg/L		0.001		E200.8	04/02/12 23:32 / dck		ICPMS204-B_120402A	117	R78968
Iron	ND	mg/L		0.03		E200.8	04/02/12 23:32 / dck		ICPMS204-B_120402A	117	R78968
Lead	ND	mg/L		0.0005		E200.8	04/02/12 23:32 / dck		ICPMS204-B_120402A	117	R78968
Manganese	ND	mg/L		0.005		E200.8	04/02/12 23:32 / dck		ICPMS204-B_120402A	117	R78968
Zinc	ND	mg/L		0.01		E200.8	04/02/12 23:32 / dck		ICPMS204-B_120402A	117	R78968

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSW22
Lab ID: H12030340-010
Matrix: Aqueous

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 15:50 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.3	s.u.		0.1		A4500-H B	03/28/12 11:44 / cmm		PHSC_101-H_120328A	37	R78847
Conductivity @ 25 C	680	umhos/cm		1		A2510 B	03/28/12 11:44 / cmm		PHSC_101-H_120328A	38	R78847
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/28/12 14:14 / cmm	03/28/12 13:48	-124 (14410200)_120328A	21	16073
Solids, Total Dissolved TDS @ 180 C	420	mg/L		10		A2540 C	03/28/12 14:24 / cmm	03/28/12 13:55	-124 (14410200)_120328B	19	16075
INORGANICS											
Alkalinity, Total as CaCO3	95	mg/L		4		A2320 B	03/29/12 16:29 / cmm		MAN-TECH_120329A	44	R78897
Bicarbonate as HCO3	120	mg/L		4		A2320 B	03/29/12 16:29 / cmm		MAN-TECH_120329A	44	R78897
Carbonate as CO3	ND	mg/L		4		A2320 B	03/29/12 16:29 / cmm		MAN-TECH_120329A	44	R78897
Chloride	ND	mg/L		1		E300.0	03/29/12 17:13 / cmm		IC102-H_120329A	30	R78898
Sulfate	260	mg/L		1		E300.0	03/29/12 17:13 / cmm		IC102-H_120329A	30	R78898
Hardness as CaCO3	335	mg/L		1		A2340 B	04/02/12 08:47 / sld		WATERCALC_120402A	11	R78918
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	03/28/12 13:10 / sld		ICP2-HE_120328B	55	R78872
Calcium	91	mg/L		1		E200.7	03/28/12 13:10 / sld		ICP2-HE_120328B	55	R78872
Magnesium	26	mg/L		1		E200.7	03/28/12 13:10 / sld		ICP2-HE_120328B	55	R78872
Potassium	1	mg/L		1		E200.7	03/28/12 13:10 / sld		ICP2-HE_120328B	55	R78872
Sodium	2	mg/L		1		E200.7	03/28/12 13:10 / sld		ICP2-HE_120328B	55	R78872
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	04/02/12 23:37 / dck		ICPMS204-B_120402A	118	R78968
Cadmium	0.0154	mg/L		0.00008		E200.8	04/02/12 23:37 / dck		ICPMS204-B_120402A	118	R78968
Copper	0.023	mg/L		0.001		E200.8	04/02/12 23:37 / dck		ICPMS204-B_120402A	118	R78968
Iron	ND	mg/L		0.03		E200.8	04/02/12 23:37 / dck		ICPMS204-B_120402A	118	R78968
Lead	0.0059	mg/L		0.0005		E200.8	04/02/12 23:37 / dck		ICPMS204-B_120402A	118	R78968
Manganese	ND	mg/L		0.005		E200.8	04/02/12 23:37 / dck		ICPMS204-B_120402A	118	R78968
Zinc	3.45	mg/L		0.01		E200.8	04/02/12 23:37 / dck		ICPMS204-B_120402A	118	R78968

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSW24
Lab ID: H12030340-011
Matrix: Aqueous

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 15:55 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.3	s.u.		0.1		A4500-H B	03/28/12 11:47 / cmm		PHSC_101-H_120328A	39	R78847
Conductivity @ 25 C	679	umhos/cm		1		A2510 B	03/28/12 11:47 / cmm		PHSC_101-H_120328A	40	R78847
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/28/12 14:14 / cmm	03/28/12 13:48	124 (14410200)_120328A	22	16073
Solids, Total Dissolved TDS @ 180 C	442	mg/L		10		A2540 C	03/28/12 14:24 / cmm	03/28/12 13:55	124 (14410200)_120328B	20	16075
INORGANICS											
Alkalinity, Total as CaCO3	95	mg/L		4		A2320 B	03/29/12 16:43 / cmm		MAN-TECH_120329A	48	R78897
Bicarbonate as HCO3	120	mg/L		4		A2320 B	03/29/12 16:43 / cmm		MAN-TECH_120329A	48	R78897
Carbonate as CO3	ND	mg/L		4		A2320 B	03/29/12 16:43 / cmm		MAN-TECH_120329A	48	R78897
Chloride	ND	mg/L		1		E300.0	03/29/12 17:27 / cmm		IC102-H_120329A	31	R78898
Sulfate	260	mg/L		1		E300.0	03/29/12 17:27 / cmm		IC102-H_120329A	31	R78898
Hardness as CaCO3	347	mg/L		1		A2340 B	04/02/12 08:47 / sld		WATERCALC_120402A	12	R78918
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	03/28/12 13:14 / sld		ICP2-HE_120328B	56	R78872
Calcium	95	mg/L		1		E200.7	03/28/12 13:14 / sld		ICP2-HE_120328B	56	R78872
Magnesium	27	mg/L		1		E200.7	03/28/12 13:14 / sld		ICP2-HE_120328B	56	R78872
Potassium	1	mg/L		1		E200.7	03/28/12 13:14 / sld		ICP2-HE_120328B	56	R78872
Sodium	2	mg/L		1		E200.7	03/28/12 13:14 / sld		ICP2-HE_120328B	56	R78872
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	04/02/12 23:42 / dck		ICPMS204-B_120402A	119	R78968
Cadmium	0.0156	mg/L		0.00008		E200.8	04/02/12 23:42 / dck		ICPMS204-B_120402A	119	R78968
Copper	0.023	mg/L		0.001		E200.8	04/02/12 23:42 / dck		ICPMS204-B_120402A	119	R78968
Iron	ND	mg/L		0.03		E200.8	04/02/12 23:42 / dck		ICPMS204-B_120402A	119	R78968
Lead	0.0059	mg/L		0.0005		E200.8	04/02/12 23:42 / dck		ICPMS204-B_120402A	119	R78968
Manganese	ND	mg/L		0.005		E200.8	04/02/12 23:42 / dck		ICPMS204-B_120402A	119	R78968
Zinc	3.43	mg/L		0.01		E200.8	04/02/12 23:42 / dck		ICPMS204-B_120402A	119	R78968

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSW01
Lab ID: H12030340-012
Matrix: Aqueous

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 16:50 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.7	s.u.		0.1		A4500-H B	03/28/12 11:49 / cmm		PHSC_101-H_120328A	41	R78847
Conductivity @ 25 C	131	umhos/cm		1		A2510 B	03/28/12 11:49 / cmm		PHSC_101-H_120328A	42	R78847
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/28/12 14:14 / cmm	03/28/12 13:48	124 (14410200)_120328A	23	16073
Solids, Total Dissolved TDS @ 180 C	62	mg/L		10		A2540 C	03/28/12 14:24 / cmm	03/28/12 13:55	124 (14410200)_120328B	21	16075
INORGANICS											
Alkalinity, Total as CaCO3	65	mg/L		4		A2320 B	03/29/12 16:50 / cmm		MAN-TECH_120329A	50	R78897
Bicarbonate as HCO3	79	mg/L		4		A2320 B	03/29/12 16:50 / cmm		MAN-TECH_120329A	50	R78897
Carbonate as CO3	ND	mg/L		4		A2320 B	03/29/12 16:50 / cmm		MAN-TECH_120329A	50	R78897
Chloride	ND	mg/L		1		E300.0	03/29/12 17:40 / cmm		IC102-H_120329A	32	R78898
Sulfate	2	mg/L		1		E300.0	03/29/12 17:40 / cmm		IC102-H_120329A	32	R78898
Hardness as CaCO3	63	mg/L		1		A2340 B	04/02/12 08:47 / sld		WATERCALC_120402A	13	R78918
METALS, DISSOLVED											
Aluminum	0.19	mg/L		0.03		E200.7	03/28/12 13:36 / sld		ICP2-HE_120328B	62	R78872
Calcium	13	mg/L		1		E200.7	03/28/12 13:36 / sld		ICP2-HE_120328B	62	R78872
Magnesium	7	mg/L		1		E200.7	03/28/12 13:36 / sld		ICP2-HE_120328B	62	R78872
Potassium	ND	mg/L		1		E200.7	03/28/12 13:36 / sld		ICP2-HE_120328B	62	R78872
Sodium	1	mg/L		1		E200.7	03/28/12 13:36 / sld		ICP2-HE_120328B	62	R78872
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	04/02/12 23:46 / dck	03/28/12 12:21	ICPMS204-B_120402A	120	16071
Cadmium	ND	mg/L		0.00008		E200.8	04/02/12 23:46 / dck	03/28/12 12:21	ICPMS204-B_120402A	120	16071
Copper	0.002	mg/L		0.001		E200.8	04/02/12 23:46 / dck	03/28/12 12:21	ICPMS204-B_120402A	120	16071
Iron	0.25	mg/L		0.03		E200.8	04/02/12 23:46 / dck	03/28/12 12:21	ICPMS204-B_120402A	120	16071
Lead	ND	mg/L		0.0005		E200.8	04/02/12 23:46 / dck	03/28/12 12:21	ICPMS204-B_120402A	120	16071
Manganese	0.006	mg/L		0.005		E200.8	04/02/12 23:46 / dck	03/28/12 12:21	ICPMS204-B_120402A	120	16071
Zinc	ND	mg/L		0.01		E200.8	04/02/12 23:46 / dck	03/28/12 12:21	ICPMS204-B_120402A	120	16071

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSW2
Lab ID: H12030340-013
Matrix: Aqueous

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 17:25 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.7	s.u.		0.1		A4500-H B	03/28/12 11:52 / cmm		PHSC_101-H_120328A	43	R78847
Conductivity @ 25 C	440	umhos/cm		1		A2510 B	03/28/12 11:52 / cmm		PHSC_101-H_120328A	44	R78847
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/28/12 14:15 / cmm	03/28/12 13:48	124 (14410200)_120328A	24	16073
Solids, Total Dissolved TDS @ 180 C	282	mg/L		10		A2540 C	03/28/12 14:25 / cmm	03/28/12 13:55	124 (14410200)_120328B	22	16075
INORGANICS											
Alkalinity, Total as CaCO3	8	mg/L		4		A2320 B	03/29/12 16:55 / cmm		MAN-TECH_120329A	52	R78897
Bicarbonate as HCO3	10	mg/L		4		A2320 B	03/29/12 16:55 / cmm		MAN-TECH_120329A	52	R78897
Carbonate as CO3	ND	mg/L		4		A2320 B	03/29/12 16:55 / cmm		MAN-TECH_120329A	52	R78897
Chloride	ND	mg/L		1		E300.0	03/29/12 17:54 / cmm		IC102-H_120329A	33	R78898
Sulfate	190	mg/L		1		E300.0	03/29/12 17:54 / cmm		IC102-H_120329A	33	R78898
Hardness as CaCO3	193	mg/L		1		A2340 B	04/02/12 08:47 / sld		WATERCALC_120402A	14	R78918
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	03/28/12 13:40 / sld		ICP2-HE_120328B	63	R78872
Calcium	51	mg/L		1		E200.7	03/28/12 13:40 / sld		ICP2-HE_120328B	63	R78872
Magnesium	16	mg/L		1		E200.7	03/28/12 13:40 / sld		ICP2-HE_120328B	63	R78872
Potassium	ND	mg/L		1		E200.7	03/28/12 13:40 / sld		ICP2-HE_120328B	63	R78872
Sodium	ND	mg/L		1		E200.7	03/28/12 13:40 / sld		ICP2-HE_120328B	63	R78872
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	04/02/12 23:51 / dck	03/28/12 12:21	ICPMS204-B_120402A	121	16071
Cadmium	0.00537	mg/L		0.00008		E200.8	04/02/12 23:51 / dck	03/28/12 12:21	ICPMS204-B_120402A	121	16071
Copper	0.006	mg/L		0.001		E200.8	04/02/12 23:51 / dck	03/28/12 12:21	ICPMS204-B_120402A	121	16071
Iron	0.11	mg/L		0.03		E200.8	04/02/12 23:51 / dck	03/28/12 12:21	ICPMS204-B_120402A	121	16071
Lead	0.0219	mg/L		0.0005		E200.8	04/02/12 23:51 / dck	03/28/12 12:21	ICPMS204-B_120402A	121	16071
Manganese	1.72	mg/L		0.005		E200.8	04/02/12 23:51 / dck	03/28/12 12:21	ICPMS204-B_120402A	121	16071
Zinc	1.18	mg/L		0.01		E200.8	04/02/12 23:51 / dck	03/28/12 12:21	ICPMS204-B_120402A	121	16071

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSW38
Lab ID: H12030340-014
Matrix: Aqueous

Project: UBMC Surface Water and Sediment
Collection Date: 03/27/12 08:50 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.2	s.u.		0.1		A4500-H B	03/28/12 11:55 / cmm		PHSC_101-H_120328A	45	R78847
Conductivity @ 25 C	306	umhos/cm		1		A2510 B	03/28/12 11:55 / cmm		PHSC_101-H_120328A	46	R78847
Solids, Total Suspended TSS @ 105 C	24	mg/L		10		A2540 D	03/28/12 14:15 / cmm	03/28/12 13:50	124 (14410200)_120328A	27	16074
Solids, Total Dissolved TDS @ 180 C	172	mg/L		10		A2540 C	03/28/12 14:25 / cmm	03/28/12 13:55	124 (14410200)_120328B	23	16075
INORGANICS											
Alkalinity, Total as CaCO3	51	mg/L		4		A2320 B	03/29/12 17:01 / cmm		MAN-TECH_120329A	54	R78897
Bicarbonate as HCO3	63	mg/L		4		A2320 B	03/29/12 17:01 / cmm		MAN-TECH_120329A	54	R78897
Carbonate as CO3	ND	mg/L		4		A2320 B	03/29/12 17:01 / cmm		MAN-TECH_120329A	54	R78897
Chloride	ND	mg/L		1		E300.0	03/29/12 18:08 / cmm		IC102-H_120329A	34	R78898
Sulfate	91	mg/L		1		E300.0	03/29/12 18:08 / cmm		IC102-H_120329A	34	R78898
Hardness as CaCO3	130	mg/L		1		A2340 B	04/02/12 08:47 / sld		WATERCALC_120402A	15	R78918
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	03/28/12 13:43 / sld		ICP2-HE_120328B	64	R78872
Calcium	28	mg/L		1		E200.7	03/28/12 13:43 / sld		ICP2-HE_120328B	64	R78872
Magnesium	14	mg/L		1		E200.7	03/28/12 13:43 / sld		ICP2-HE_120328B	64	R78872
Potassium	ND	mg/L		1		E200.7	03/28/12 13:43 / sld		ICP2-HE_120328B	64	R78872
Sodium	1	mg/L		1		E200.7	03/28/12 13:43 / sld		ICP2-HE_120328B	64	R78872
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	04/02/12 23:56 / dck	03/28/12 12:21	ICPMS204-B_120402A	122	16071
Cadmium	0.0130	mg/L		0.00008		E200.8	04/02/12 23:56 / dck	03/28/12 12:21	ICPMS204-B_120402A	122	16071
Copper	0.118	mg/L		0.001		E200.8	04/02/12 23:56 / dck	03/28/12 12:21	ICPMS204-B_120402A	122	16071
Iron	5.88	mg/L		0.03		E200.8	04/02/12 23:56 / dck	03/28/12 12:21	ICPMS204-B_120402A	122	16071
Lead	0.0647	mg/L		0.0005		E200.8	04/02/12 23:56 / dck	03/28/12 12:21	ICPMS204-B_120402A	122	16071
Manganese	1.66	mg/L		0.005		E200.8	04/02/12 23:56 / dck	03/28/12 12:21	ICPMS204-B_120402A	122	16071
Zinc	2.64	mg/L		0.01		E200.8	04/02/12 23:56 / dck	03/28/12 12:21	ICPMS204-B_120402A	122	16071

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSW48
Lab ID: H12030340-015
Matrix: Aqueous

Project: UBMC Surface Water and Sediment
Collection Date: 03/27/12 10:05 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.7	s.u.		0.1		A4500-H B	03/28/12 11:57 / cmm		PHSC_101-H_120328A	47	R78847
Conductivity @ 25 C	301	umhos/cm		1		A2510 B	03/28/12 11:57 / cmm		PHSC_101-H_120328A	48	R78847
Solids, Total Suspended TSS @ 105 C	30	mg/L		10		A2540 D	03/28/12 14:16 / cmm	03/28/12 13:50	124 (14410200)_120328A	28	16074
Solids, Total Dissolved TDS @ 180 C	166	mg/L		10		A2540 C	03/28/12 14:25 / cmm	03/28/12 13:55	124 (14410200)_120328B	24	16075
INORGANICS											
Alkalinity, Total as CaCO3	43	mg/L		4		A2320 B	03/29/12 17:08 / cmm		MAN-TECH_120329A	56	R78897
Bicarbonate as HCO3	52	mg/L		4		A2320 B	03/29/12 17:08 / cmm		MAN-TECH_120329A	56	R78897
Carbonate as CO3	ND	mg/L		4		A2320 B	03/29/12 17:08 / cmm		MAN-TECH_120329A	56	R78897
Chloride	ND	mg/L		1		E300.0	03/29/12 18:48 / cmm		IC102-H_120329A	37	R78898
Sulfate	94	mg/L		1		E300.0	03/29/12 18:48 / cmm		IC102-H_120329A	37	R78898
Hardness as CaCO3	130	mg/L		1		A2340 B	04/02/12 08:47 / sld		WATERCALC_120402A	16	R78918
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	03/28/12 13:47 / sld		ICP2-HE_120328B	65	R78872
Calcium	28	mg/L		1		E200.7	03/28/12 13:47 / sld		ICP2-HE_120328B	65	R78872
Magnesium	15	mg/L		1		E200.7	03/28/12 13:47 / sld		ICP2-HE_120328B	65	R78872
Potassium	ND	mg/L		1		E200.7	03/28/12 13:47 / sld		ICP2-HE_120328B	65	R78872
Sodium	1	mg/L		1		E200.7	03/28/12 13:47 / sld		ICP2-HE_120328B	65	R78872
METALS, TOTAL RECOVERABLE											
Arsenic	0.004	mg/L		0.003		E200.8	04/03/12 00:19 / dck	03/28/12 12:21	ICPMS204-B_120402A	127	16071
Cadmium	0.0103	mg/L		0.00008		E200.8	04/03/12 00:19 / dck	03/28/12 12:21	ICPMS204-B_120402A	127	16071
Copper	0.120	mg/L		0.001		E200.8	04/03/12 00:19 / dck	03/28/12 12:21	ICPMS204-B_120402A	127	16071
Iron	6.77	mg/L		0.03		E200.8	04/03/12 00:19 / dck	03/28/12 12:21	ICPMS204-B_120402A	127	16071
Lead	0.0619	mg/L		0.0005		E200.8	04/03/12 00:19 / dck	03/28/12 12:21	ICPMS204-B_120402A	127	16071
Manganese	1.57	mg/L		0.005		E200.8	04/03/12 00:19 / dck	03/28/12 12:21	ICPMS204-B_120402A	127	16071
Zinc	2.30	mg/L		0.01		E200.8	04/03/12 00:19 / dck	03/28/12 12:21	ICPMS204-B_120402A	127	16071

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSW23
Lab ID: H12030340-016
Matrix: Aqueous

Project: UBMC Surface Water and Sediment
Collection Date: 03/27/12 10:30 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.4	s.u.		0.1		A4500-H B	03/28/12 12:46 / cmm		PHSC_101-H_120328A	61	R78847
Conductivity @ 25 C	270	umhos/cm		1		A2510 B	03/28/12 12:46 / cmm		PHSC_101-H_120328A	62	R78847
Solids, Total Suspended TSS @ 105 C	10	mg/L		10		A2540 D	03/28/12 14:16 / cmm	03/28/12 13:50	124 (14410200)_120328A	29	16074
Solids, Total Dissolved TDS @ 180 C	154	mg/L		10		A2540 C	03/28/12 14:25 / cmm	03/28/12 13:55	124 (14410200)_120328B	25	16075
INORGANICS											
Alkalinity, Total as CaCO3	61	mg/L		4		A2320 B	03/30/12 11:53 / cmm		MAN-TECH_120330A	12	R78916
Bicarbonate as HCO3	74	mg/L		4		A2320 B	03/30/12 11:53 / cmm		MAN-TECH_120330A	12	R78916
Carbonate as CO3	ND	mg/L		4		A2320 B	03/30/12 11:53 / cmm		MAN-TECH_120330A	12	R78916
Chloride	ND	mg/L		1		E300.0	03/29/12 19:02 / cmm		IC102-H_120329A	38	R78898
Sulfate	63	mg/L		1		E300.0	03/29/12 19:02 / cmm		IC102-H_120329A	38	R78898
Hardness as CaCO3	117	mg/L		1		A2340 B	04/02/12 08:47 / sld		WATERCALC_120402A	17	R78918
METALS, DISSOLVED											
Aluminum	0.13	mg/L		0.03		E200.7	03/28/12 13:51 / sld		ICP2-HE_120328B	66	R78872
Calcium	25	mg/L		1		E200.7	03/28/12 13:51 / sld		ICP2-HE_120328B	66	R78872
Magnesium	13	mg/L		1		E200.7	03/28/12 13:51 / sld		ICP2-HE_120328B	66	R78872
Potassium	ND	mg/L		1		E200.7	03/28/12 13:51 / sld		ICP2-HE_120328B	66	R78872
Sodium	1	mg/L		1		E200.7	03/28/12 13:51 / sld		ICP2-HE_120328B	66	R78872
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	04/03/12 00:24 / dck	03/28/12 12:21	ICPMS204-B_120402A	128	16071
Cadmium	0.00790	mg/L		0.00008		E200.8	04/03/12 00:24 / dck	03/28/12 12:21	ICPMS204-B_120402A	128	16071
Copper	0.031	mg/L		0.001		E200.8	04/03/12 00:24 / dck	03/28/12 12:21	ICPMS204-B_120402A	128	16071
Iron	0.64	mg/L		0.03		E200.8	04/03/12 00:24 / dck	03/28/12 12:21	ICPMS204-B_120402A	128	16071
Lead	0.0360	mg/L		0.0005		E200.8	04/03/12 00:24 / dck	03/28/12 12:21	ICPMS204-B_120402A	128	16071
Manganese	0.595	mg/L		0.005		E200.8	04/03/12 00:24 / dck	03/28/12 12:21	ICPMS204-B_120402A	128	16071
Zinc	1.91	mg/L		0.01		E200.8	04/03/12 00:24 / dck	03/28/12 12:21	ICPMS204-B_120402A	128	16071

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSW3A
Lab ID: H12030340-017
Matrix: Aqueous

Project: UBMC Surface Water and Sediment
Collection Date: 03/27/12 10:55 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.3	s.u.		0.1		A4500-H B	03/28/12 12:51 / cmm		PHSC_101-H_120328A	65	R78847
Conductivity @ 25 C	448	umhos/cm		1		A2510 B	03/28/12 12:51 / cmm		PHSC_101-H_120328A	66	R78847
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/28/12 14:16 / cmm	03/28/12 13:50	124 (14410200)_120328A	30	16074
Solids, Total Dissolved TDS @ 180 C	260	mg/L		10		A2540 C	03/28/12 14:26 / cmm	03/28/12 13:57	124 (14410200)_120328B	28	16076
INORGANICS											
Alkalinity, Total as CaCO3	100	mg/L		4		A2320 B	03/30/12 12:00 / cmm		MAN-TECH_120330A	14	R78916
Bicarbonate as HCO3	120	mg/L		4		A2320 B	03/30/12 12:00 / cmm		MAN-TECH_120330A	14	R78916
Carbonate as CO3	ND	mg/L		4		A2320 B	03/30/12 12:00 / cmm		MAN-TECH_120330A	14	R78916
Chloride	ND	mg/L		1		E300.0	03/29/12 19:16 / cmm		IC102-H_120329A	39	R78898
Sulfate	120	mg/L		1		E300.0	03/29/12 19:16 / cmm		IC102-H_120329A	39	R78898
Hardness as CaCO3	210	mg/L		1		A2340 B	04/02/12 08:47 / sld		WATERCALC_120402A	18	R78918
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	03/28/12 13:54 / sld		ICP2-HE_120328B	67	R78872
Calcium	46	mg/L		1		E200.7	03/28/12 13:54 / sld		ICP2-HE_120328B	67	R78872
Magnesium	23	mg/L		1		E200.7	03/28/12 13:54 / sld		ICP2-HE_120328B	67	R78872
Potassium	ND	mg/L		1		E200.7	03/28/12 13:54 / sld		ICP2-HE_120328B	67	R78872
Sodium	2	mg/L		1		E200.7	03/28/12 13:54 / sld		ICP2-HE_120328B	67	R78872
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	04/03/12 00:28 / dck		ICPMS204-B_120402A	129	R78968
Cadmium	0.00426	mg/L		0.00008		E200.8	04/03/12 00:28 / dck		ICPMS204-B_120402A	129	R78968
Copper	0.022	mg/L		0.001		E200.8	04/03/12 00:28 / dck		ICPMS204-B_120402A	129	R78968
Iron	0.44	mg/L		0.03		E200.8	04/03/12 00:28 / dck		ICPMS204-B_120402A	129	R78968
Lead	0.0032	mg/L		0.0005		E200.8	04/03/12 00:28 / dck		ICPMS204-B_120402A	129	R78968
Manganese	1.50	mg/L		0.005		E200.8	04/03/12 00:28 / dck		ICPMS204-B_120402A	129	R78968
Zinc	1.36	mg/L		0.01		E200.8	04/03/12 00:28 / dck		ICPMS204-B_120402A	129	R78968

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSW3B
Lab ID: H12030340-018
Matrix: Aqueous

Project: UBMC Surface Water and Sediment
Collection Date: 03/27/12 11:15 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.0	s.u.		0.1		A4500-H B	03/28/12 12:53 / cmm		PHSC_101-H_120328A	67	R78847
Conductivity @ 25 C	526	umhos/cm		1		A2510 B	03/28/12 12:53 / cmm		PHSC_101-H_120328A	68	R78847
Solids, Total Suspended TSS @ 105 C	62	mg/L		10		A2540 D	03/28/12 14:16 / cmm	03/28/12 13:50	-124 (14410200)_120328A	32	16074
Solids, Total Dissolved TDS @ 180 C	324	mg/L		10		A2540 C	03/28/12 14:26 / cmm	03/28/12 13:57	-124 (14410200)_120328B	30	16076
INORGANICS											
Alkalinity, Total as CaCO3	110	mg/L		4		A2320 B	03/30/12 12:06 / cmm		MAN-TECH_120330A	16	R78916
Bicarbonate as HCO3	130	mg/L		4		A2320 B	03/30/12 12:06 / cmm		MAN-TECH_120330A	16	R78916
Carbonate as CO3	ND	mg/L		4		A2320 B	03/30/12 12:06 / cmm		MAN-TECH_120330A	16	R78916
Chloride	ND	mg/L		1		E300.0	03/29/12 19:56 / cmm		IC102-H_120329A	42	R78898
Sulfate	160	mg/L		1		E300.0	03/29/12 19:56 / cmm		IC102-H_120329A	42	R78898
Hardness as CaCO3	240	mg/L		1		A2340 B	04/02/12 08:47 / sld		WATERCALC_120402A	19	R78918
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	03/28/12 13:58 / sld		ICP2-HE_120328B	68	R78872
Calcium	54	mg/L		1		E200.7	03/28/12 13:58 / sld		ICP2-HE_120328B	68	R78872
Magnesium	28	mg/L		1		E200.8	04/03/12 18:23 / dck		ICPMS204-B_120402A	331	R78968
Potassium	ND	mg/L		1		E200.7	03/28/12 13:58 / sld		ICP2-HE_120328B	68	R78872
Sodium	2	mg/L		1		E200.7	03/28/12 13:58 / sld		ICP2-HE_120328B	68	R78872
METALS, TOTAL RECOVERABLE											
Arsenic	0.012	mg/L		0.003		E200.8	04/03/12 00:33 / dck	03/28/12 12:21	ICPMS204-B_120402A	130	16071
Cadmium	0.00363	mg/L		0.00008		E200.8	04/03/12 00:33 / dck	03/28/12 12:21	ICPMS204-B_120402A	130	16071
Copper	0.033	mg/L		0.001		E200.8	04/03/12 00:33 / dck	03/28/12 12:21	ICPMS204-B_120402A	130	16071
Iron	3.70	mg/L		0.03		E200.8	04/03/12 00:33 / dck	03/28/12 12:21	ICPMS204-B_120402A	130	16071
Lead	0.129	mg/L		0.0005		E200.8	04/03/12 00:33 / dck	03/28/12 12:21	ICPMS204-B_120402A	130	16071
Manganese	2.01	mg/L		0.005		E200.8	04/03/12 00:33 / dck	03/28/12 12:21	ICPMS204-B_120402A	130	16071
Zinc	1.56	mg/L		0.01		E200.8	04/03/12 00:33 / dck	03/28/12 12:21	ICPMS204-B_120402A	130	16071

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID S35SD05
Lab ID: H12030340-019
Matrix: Sediment

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 10:10 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	4660	mg/kg		5		SW6010B	04/06/12 08:02 / sld	04/02/12 14:34	ICP2-HE_120405B	204	16117
Arsenic	6	mg/kg		5		SW6010B	04/10/12 19:58 / sld	04/02/12 14:34	ICP2-HE_120410C	130	16117
Cadmium	ND	mg/kg		1		SW6010B	04/06/12 08:02 / sld	04/02/12 14:34	ICP2-HE_120405B	204	16117
Copper	68	mg/kg		5		SW6010B	04/06/12 08:02 / sld	04/02/12 14:34	ICP2-HE_120405B	204	16117
Iron	24600	mg/kg		5		SW6010B	04/10/12 19:58 / sld	04/02/12 14:34	ICP2-HE_120410C	130	16117
Lead	5	mg/kg		5		SW6010B	04/11/12 18:49 / sld	04/02/12 14:34	ICP2-HE_120411C	96	16117
Manganese	401	mg/kg		5		SW6010B	04/06/12 08:02 / sld	04/02/12 14:34	ICP2-HE_120405B	204	16117
Zinc	35	mg/kg		5		SW6010B	04/06/12 08:02 / sld	04/02/12 14:34	ICP2-HE_120405B	204	16117

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID S35SD06
Lab ID: H12030340-020
Matrix: Sediment

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 11:10 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	11500	mg/kg		5		SW6010B	04/06/12 08:05 / sld	04/02/12 14:34	ICP2-HE_120405B : 205		16117
Arsenic	14	mg/kg		5		SW6010B	04/06/12 08:05 / sld	04/02/12 14:34	ICP2-HE_120405B : 205		16117
Cadmium	ND	mg/kg		1		SW6010B	04/06/12 08:05 / sld	04/02/12 14:34	ICP2-HE_120405B : 205		16117
Copper	51	mg/kg		5		SW6010B	04/06/12 08:05 / sld	04/02/12 14:34	ICP2-HE_120405B : 205		16117
Iron	17800	mg/kg		5		SW6010B	04/06/12 08:05 / sld	04/02/12 14:34	ICP2-HE_120405B : 205		16117
Lead	21	mg/kg		5		SW6010B	04/10/12 20:02 / sld	04/02/12 14:34	ICP2-HE_120410C : 131		16117
Manganese	1860	mg/kg		5		SW6010B	04/06/12 08:05 / sld	04/02/12 14:34	ICP2-HE_120405B : 205		16117
Zinc	64	mg/kg		5		SW6010B	04/06/12 08:05 / sld	04/02/12 14:34	ICP2-HE_120405B : 205		16117

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID S35SD01
Lab ID: H12030340-021
Matrix: Sediment

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 11:10 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	11300	mg/kg		5		SW6010B	04/06/12 08:09 / sld	04/02/12 14:34	ICP2-HE_120405B : 206		16117
Arsenic	14	mg/kg		5		SW6010B	04/06/12 08:09 / sld	04/02/12 14:34	ICP2-HE_120405B : 206		16117
Cadmium	ND	mg/kg		1		SW6010B	04/06/12 08:09 / sld	04/02/12 14:34	ICP2-HE_120405B : 206		16117
Copper	48	mg/kg		5		SW6010B	04/06/12 08:09 / sld	04/02/12 14:34	ICP2-HE_120405B : 206		16117
Iron	17600	mg/kg		5		SW6010B	04/06/12 08:09 / sld	04/02/12 14:34	ICP2-HE_120405B : 206		16117
Lead	14	mg/kg		5		SW6010B	04/10/12 20:05 / sld	04/02/12 14:34	ICP2-HE_120410C : 132		16117
Manganese	2550	mg/kg		5		SW6010B	04/06/12 08:09 / sld	04/02/12 14:34	ICP2-HE_120405B : 206		16117
Zinc	68	mg/kg		5		SW6010B	04/06/12 08:09 / sld	04/02/12 14:34	ICP2-HE_120405B : 206		16117

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID S35SD02
Lab ID: H12030340-022
Matrix: Sediment

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 12:00 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	4790	mg/kg		5		SW6010B	04/06/12 08:13 / sld	04/02/12 14:34	ICP2-HE_120405B : 207		16117
Arsenic	ND	mg/kg		5		SW6010B	04/06/12 08:13 / sld	04/02/12 14:34	ICP2-HE_120405B : 207		16117
Cadmium	ND	mg/kg		1		SW6010B	04/06/12 08:13 / sld	04/02/12 14:34	ICP2-HE_120405B : 207		16117
Copper	63	mg/kg		5		SW6010B	04/06/12 08:13 / sld	04/02/12 14:34	ICP2-HE_120405B : 207		16117
Iron	2980	mg/kg		5		SW6010B	04/06/12 08:13 / sld	04/02/12 14:34	ICP2-HE_120405B : 207		16117
Lead	8	mg/kg		5		SW6010B	04/10/12 20:09 / sld	04/02/12 14:34	ICP2-HE_120410C : 133		16117
Manganese	21	mg/kg		5		SW6010B	04/06/12 08:13 / sld	04/02/12 14:34	ICP2-HE_120405B : 207		16117
Zinc	19	mg/kg		5		SW6010B	04/06/12 08:13 / sld	04/02/12 14:34	ICP2-HE_120405B : 207		16117

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID S35SD04
Lab ID: H12030340-023
Matrix: Sediment

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 13:45 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	4430	mg/kg		5		SW6010B	04/06/12 08:16 / sld	04/02/12 14:34	ICP2-HE_120405B : 208		16117
Arsenic	7	mg/kg		5		SW6010B	04/06/12 08:16 / sld	04/02/12 14:34	ICP2-HE_120405B : 208		16117
Cadmium	1	mg/kg		1		SW6010B	04/06/12 08:16 / sld	04/02/12 14:34	ICP2-HE_120405B : 208		16117
Copper	25	mg/kg		5		SW6010B	04/06/12 08:16 / sld	04/02/12 14:34	ICP2-HE_120405B : 208		16117
Iron	13700	mg/kg		5		SW6010B	04/10/12 20:13 / sld	04/02/12 14:34	ICP2-HE_120410C : 134		16117
Lead	20	mg/kg		5		SW6010B	04/06/12 08:16 / sld	04/02/12 14:34	ICP2-HE_120405B : 208		16117
Manganese	877	mg/kg		5		SW6010B	04/06/12 08:16 / sld	04/02/12 14:34	ICP2-HE_120405B : 208		16117
Zinc	555	mg/kg		5		SW6010B	04/06/12 08:16 / sld	04/02/12 14:34	ICP2-HE_120405B : 208		16117

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID S35SD03
Lab ID: H12030340-024
Matrix: Sediment

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 14:25 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	5640	mg/kg		5		SW6010B	04/06/12 08:20 / sld	04/02/12 14:34	ICP2-HE_120405B : 209		16117
Arsenic	10	mg/kg		5		SW6010B	04/06/12 08:20 / sld	04/02/12 14:34	ICP2-HE_120405B : 209		16117
Cadmium	1	mg/kg		1		SW6010B	04/06/12 08:20 / sld	04/02/12 14:34	ICP2-HE_120405B : 209		16117
Copper	33	mg/kg		5		SW6010B	04/06/12 08:20 / sld	04/02/12 14:34	ICP2-HE_120405B : 209		16117
Iron	15300	mg/kg		5		SW6010B	04/10/12 20:24 / sld	04/02/12 14:34	ICP2-HE_120410C : 137		16117
Lead	57	mg/kg		5		SW6010B	04/06/12 08:20 / sld	04/02/12 14:34	ICP2-HE_120405B : 209		16117
Manganese	888	mg/kg		5		SW6010B	04/06/12 08:20 / sld	04/02/12 14:34	ICP2-HE_120405B : 209		16117
Zinc	375	mg/kg		5		SW6010B	04/06/12 08:20 / sld	04/02/12 14:34	ICP2-HE_120405B : 209		16117

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSD22
Lab ID: H12030340-025
Matrix: Sediment

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 15:50 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	8620	mg/kg		5		SW6010B	04/06/12 08:24 / sld	04/02/12 14:34	ICP2-HE_120405B : 210		16117
Arsenic	58	mg/kg		5		SW6010B	04/06/12 08:24 / sld	04/02/12 14:34	ICP2-HE_120405B : 210		16117
Cadmium	53	mg/kg		1		SW6010B	04/06/12 08:24 / sld	04/02/12 14:34	ICP2-HE_120405B : 210		16117
Copper	1550	mg/kg		5		SW6010B	04/06/12 08:24 / sld	04/02/12 14:34	ICP2-HE_120405B : 210		16117
Iron	29100	mg/kg		5		SW6010B	04/10/12 20:27 / sld	04/02/12 14:34	ICP2-HE_120410C : 138		16117
Lead	5480	mg/kg		5		SW6010B	04/06/12 08:24 / sld	04/02/12 14:34	ICP2-HE_120405B : 210		16117
Manganese	13200	mg/kg		5		SW6010B	04/06/12 08:24 / sld	04/02/12 14:34	ICP2-HE_120405B : 210		16117
Zinc	6420	mg/kg		5		SW6010B	04/06/12 08:24 / sld	04/02/12 14:34	ICP2-HE_120405B : 210		16117

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSD24
Lab ID: H12030340-026
Matrix: Sediment

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 15:55 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	6980	mg/kg		5		SW6010B	04/06/12 08:28 / sld	04/02/12 14:34	ICP2-HE_120405B : 211		16117
Arsenic	66	mg/kg		5		SW6010B	04/06/12 08:28 / sld	04/02/12 14:34	ICP2-HE_120405B : 211		16117
Cadmium	64	mg/kg		1		SW6010B	04/06/12 08:28 / sld	04/02/12 14:34	ICP2-HE_120405B : 211		16117
Copper	1690	mg/kg		5		SW6010B	04/06/12 08:28 / sld	04/02/12 14:34	ICP2-HE_120405B : 211		16117
Iron	28600	mg/kg		5		SW6010B	04/10/12 20:31 / sld	04/02/12 14:34	ICP2-HE_120410C : 139		16117
Lead	5970	mg/kg		5		SW6010B	04/06/12 08:28 / sld	04/02/12 14:34	ICP2-HE_120405B : 211		16117
Manganese	15000	mg/kg		5		SW6010B	04/06/12 08:28 / sld	04/02/12 14:34	ICP2-HE_120405B : 211		16117
Zinc	7400	mg/kg		5		SW6010B	04/06/12 08:28 / sld	04/02/12 14:34	ICP2-HE_120405B : 211		16117

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSD01
Lab ID: H12030340-027
Matrix: Sediment

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 16:50 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	6110	mg/kg		5		SW6010B	04/06/12 08:31 / sld	04/02/12 14:34	ICP2-HE_120405B : 212		16117
Arsenic	10	mg/kg		5		SW6010B	04/06/12 08:31 / sld	04/02/12 14:34	ICP2-HE_120405B : 212		16117
Cadmium	ND	mg/kg		1		SW6010B	04/06/12 08:31 / sld	04/02/12 14:34	ICP2-HE_120405B : 212		16117
Copper	13	mg/kg		5		SW6010B	04/06/12 08:31 / sld	04/02/12 14:34	ICP2-HE_120405B : 212		16117
Iron	13500	mg/kg		5		SW6010B	04/10/12 20:35 / sld	04/02/12 14:34	ICP2-HE_120410C : 140		16117
Lead	19	mg/kg		5		SW6010B	04/06/12 08:31 / sld	04/02/12 14:34	ICP2-HE_120405B : 212		16117
Manganese	349	mg/kg		5		SW6010B	04/06/12 08:31 / sld	04/02/12 14:34	ICP2-HE_120405B : 212		16117
Zinc	92	mg/kg		5		SW6010B	04/06/12 08:31 / sld	04/02/12 14:34	ICP2-HE_120405B : 212		16117

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSD38
Lab ID: H12030340-028
Matrix: Sediment

Project: UBMC Surface Water and Sediment
Collection Date: 03/27/12 08:50 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	6690	mg/kg		5		SW6010B	04/06/12 08:35 / sld	04/02/12 14:34	ICP2-HE_120405B : 213		16117
Arsenic	52	mg/kg		5		SW6010B	04/06/12 08:35 / sld	04/02/12 14:34	ICP2-HE_120405B : 213		16117
Cadmium	22	mg/kg		1		SW6010B	04/06/12 08:35 / sld	04/02/12 14:34	ICP2-HE_120405B : 213		16117
Copper	512	mg/kg		5		SW6010B	04/06/12 08:35 / sld	04/02/12 14:34	ICP2-HE_120405B : 213		16117
Iron	33000	mg/kg		5		SW6010B	04/10/12 20:38 / sld	04/02/12 14:34	ICP2-HE_120410C : 141		16117
Lead	1780	mg/kg		5		SW6010B	04/06/12 08:35 / sld	04/02/12 14:34	ICP2-HE_120405B : 213		16117
Manganese	4230	mg/kg		5		SW6010B	04/06/12 08:35 / sld	04/02/12 14:34	ICP2-HE_120405B : 213		16117
Zinc	3860	mg/kg		5		SW6010B	04/06/12 08:35 / sld	04/02/12 14:34	ICP2-HE_120405B : 213		16117

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSD48
Lab ID: H12030340-029
Matrix: Sediment

Project: UBMC Surface Water and Sediment
Collection Date: 03/27/12 10:05 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	6530	mg/kg		5		SW6010B	04/06/12 08:46 / sld	04/02/12 14:34	ICP2-HE_120405B : 216		16117
Arsenic	84	mg/kg		5		SW6010B	04/06/12 08:46 / sld	04/02/12 14:34	ICP2-HE_120405B : 216		16117
Cadmium	35	mg/kg		1		SW6010B	04/06/12 08:46 / sld	04/02/12 14:34	ICP2-HE_120405B : 216		16117
Copper	692	mg/kg		5		SW6010B	04/06/12 08:46 / sld	04/02/12 14:34	ICP2-HE_120405B : 216		16117
Iron	44500	mg/kg		5		SW6010B	04/10/12 20:42 / sld	04/02/12 14:34	ICP2-HE_120410C : 142		16117
Lead	9090	mg/kg		5		SW6010B	04/06/12 08:46 / sld	04/02/12 14:34	ICP2-HE_120405B : 216		16117
Manganese	4810	mg/kg		5		SW6010B	04/06/12 08:46 / sld	04/02/12 14:34	ICP2-HE_120405B : 216		16117
Zinc	6260	mg/kg		5		SW6010B	04/06/12 08:46 / sld	04/02/12 14:34	ICP2-HE_120405B : 216		16117

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSD23
Lab ID: H12030340-030
Matrix: Sediment

Project: UBMC Surface Water and Sediment
Collection Date: 03/27/12 10:30 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	2130	mg/kg		5		SW6010B	04/06/12 08:50 / sld	04/02/12 14:34	ICP2-HE_120405B : 217		16117
Arsenic	26	mg/kg		5		SW6010B	04/06/12 08:50 / sld	04/02/12 14:34	ICP2-HE_120405B : 217		16117
Cadmium	4	mg/kg		1		SW6010B	04/06/12 08:50 / sld	04/02/12 14:34	ICP2-HE_120405B : 217		16117
Copper	190	mg/kg		5		SW6010B	04/06/12 08:50 / sld	04/02/12 14:34	ICP2-HE_120405B : 217		16117
Iron	8660	mg/kg		5		SW6010B	04/06/12 08:50 / sld	04/02/12 14:34	ICP2-HE_120405B : 217		16117
Lead	380	mg/kg		5		SW6010B	04/06/12 08:50 / sld	04/02/12 14:34	ICP2-HE_120405B : 217		16117
Manganese	394	mg/kg		5		SW6010B	04/06/12 08:50 / sld	04/02/12 14:34	ICP2-HE_120405B : 217		16117
Zinc	1120	mg/kg		5		SW6010B	04/06/12 08:50 / sld	04/02/12 14:34	ICP2-HE_120405B : 217		16117

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSD3A
Lab ID: H12030340-031
Matrix: Sediment

Project: UBMC Surface Water and Sediment
Collection Date: 03/27/12 10:55 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	3760	mg/kg		5		SW6010B	04/06/12 08:53 / sld	04/02/12 14:34	ICP2-HE_120405B : 218		16117
Arsenic	34	mg/kg		5		SW6010B	04/06/12 08:53 / sld	04/02/12 14:34	ICP2-HE_120405B : 218		16117
Cadmium	19	mg/kg		1		SW6010B	04/06/12 08:53 / sld	04/02/12 14:34	ICP2-HE_120405B : 218		16117
Copper	588	mg/kg		5		SW6010B	04/06/12 08:53 / sld	04/02/12 14:34	ICP2-HE_120405B : 218		16117
Iron	15000	mg/kg		5		SW6010B	04/10/12 20:46 / sld	04/02/12 14:34	ICP2-HE_120410C : 143		16117
Lead	286	mg/kg		5		SW6010B	04/06/12 08:53 / sld	04/02/12 14:34	ICP2-HE_120405B : 218		16117
Manganese	20400	mg/kg		5		SW6010B	04/06/12 08:53 / sld	04/02/12 14:34	ICP2-HE_120405B : 218		16117
Zinc	4010	mg/kg		5		SW6010B	04/06/12 08:53 / sld	04/02/12 14:34	ICP2-HE_120405B : 218		16117

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSD3B
Lab ID: H12030340-032
Matrix: Sediment

Project: UBMC Surface Water and Sediment
Collection Date: 03/27/12 11:15 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	4440	mg/kg		5		SW6010B	04/06/12 08:57 / sld	04/02/12 14:34	ICP2-HE_120405B : 219		16117
Arsenic	5	mg/kg		5		SW6010B	04/06/12 08:57 / sld	04/02/12 14:34	ICP2-HE_120405B : 219		16117
Cadmium	ND	mg/kg		1		SW6010B	04/06/12 08:57 / sld	04/02/12 14:34	ICP2-HE_120405B : 219		16117
Copper	31	mg/kg		5		SW6010B	04/06/12 08:57 / sld	04/02/12 14:34	ICP2-HE_120405B : 219		16117
Iron	8970	mg/kg		5		SW6010B	04/06/12 08:57 / sld	04/02/12 14:34	ICP2-HE_120405B : 219		16117
Lead	22	mg/kg		5		SW6010B	04/06/12 08:57 / sld	04/02/12 14:34	ICP2-HE_120405B : 219		16117
Manganese	555	mg/kg		5		SW6010B	04/06/12 08:57 / sld	04/02/12 14:34	ICP2-HE_120405B : 219		16117
Zinc	101	mg/kg		5		SW6010B	04/06/12 08:57 / sld	04/02/12 14:34	ICP2-HE_120405B : 219		16117

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: 16071

Run ID :Run Order: **ICPMS204-B_120402A: 79** SampType: **Method Blank** Sample ID: **MB-16071** Method: **E200.8**

Analysis Date: **04/02/12 20:35** Units: **mg/L** **Prep Info:** Prep Date: **3/28/2012** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0001	5E-05									
Cadmium	ND	2E-05									
Copper	ND	0.0004									
Iron	0.005	0.0006									
Lead	ND	2E-05									
Manganese	ND	6E-05									
Zinc	0.003	0.0003									

Associated samples: **H12030340-001C; H12030340-003C; H12030340-004C; H12030340-005C; H12030340-006C; H12030340-012C; H12030340-013C; H12030340-014C; H12030340-015C; H12030340-016C; H12030340-018C**

Run ID :Run Order: **ICPMS204-B_120402A: 80** SampType: **Laboratory Control Sample** Sample ID: **LCS-16071** Method: **E200.8**

Analysis Date: **04/02/12 20:40** Units: **mg/L** **Prep Info:** Prep Date: **3/28/2012** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.510	0.0010	0.5	0.0001254	102	85	115				
Cadmium	0.265	0.0010	0.25		106	85	115				
Copper	0.512	0.0050	0.5		102	85	115				
Iron	2.52	0.030	2.5	0.005099	101	85	115				
Lead	0.536	0.0010	0.5		107	85	115				
Manganese	2.51	0.0010	2.5		100	85	115				
Zinc	0.509	0.010	0.5	0.002527	101	85	115				

Associated samples: **H12030340-001C; H12030340-003C; H12030340-004C; H12030340-005C; H12030340-006C; H12030340-012C; H12030340-013C; H12030340-014C; H12030340-015C; H12030340-016C; H12030340-018C**

Run ID :Run Order: **ICPMS204-B_120402A: 95** SampType: **Sample Matrix Spike** Sample ID: **H12030340-001CMS3** Method: **E200.8**

Analysis Date: **04/02/12 21:50** Units: **mg/L** **Prep Info:** Prep Date: **3/28/2012** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.510	0.0010	0.5	0.0006482	102	70	130				
Cadmium	0.263	0.0010	0.25		105	70	130				
Copper	0.514	0.0050	0.5	0.00254	102	70	130				
Iron	2.89	0.030	2.5	0.3573	101	70	130				
Lead	0.548	0.0010	0.5	0.0001873	110	70	130				
Manganese	2.57	0.0010	2.5	0.02279	102	70	130				
Zinc	0.504	0.010	0.5	0.004048	100	70	130				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: 16071

Run ID :Run Order: **ICPMS204-B_120402A: 95** SampType: **Sample Matrix Spike** Sample ID: **H12030340-001CMS3** Method: **E200.8**
Analysis Date: **04/02/12 21:50** Units: **mg/L** **Prep Info:** Prep Date: **3/28/2012** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12030340-001C; H12030340-003C; H12030340-004C; H12030340-005C; H12030340-006C; H12030340-012C; H12030340-013C; H12030340-014C; H12030340-015C; H12030340-016C; H12030340-018C**

Run ID :Run Order: **ICPMS204-B_120402A: 96** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12030340-001CMSD3** Method: **E200.8**
Analysis Date: **04/02/12 21:54** Units: **mg/L** **Prep Info:** Prep Date: **3/28/2012** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.508	0.0010	0.5	0.0006482	102	70	130	0.5098	0.3	20	
Cadmium	0.264	0.0010	0.25		105	70	130	0.263	0.3	20	
Copper	0.505	0.0050	0.5	0.00254	100	70	130	0.5136	1.7	20	
Iron	2.92	0.030	2.5	0.3573	102	70	130	2.89	0.9	20	
Lead	0.541	0.0010	0.5	0.0001873	108	70	130	0.5477	1.2	20	
Manganese	2.58	0.0010	2.5	0.02279	102	70	130	2.574	0.4	20	
Zinc	0.498	0.010	0.5	0.004048	99	70	130	0.5044	1.3	20	

Associated samples: **H12030340-001C; H12030340-003C; H12030340-004C; H12030340-005C; H12030340-006C; H12030340-012C; H12030340-013C; H12030340-014C; H12030340-015C; H12030340-016C; H12030340-018C**

Run ID :Run Order: **ICPMS204-B_120402A: 245** SampType: **Sample Matrix Spike** Sample ID: **H12030333-002DMS3** Method: **E200.8**
Analysis Date: **04/03/12 09:33** Units: **mg/L** **Prep Info:** Prep Date: **3/28/2012** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	1.03	0.0010	1	0.000557	103	70	130				
Cadmium	0.493	0.0010	0.5	0.000794	98	70	130				
Copper	0.983	0.0050	1	0.007354	98	70	130				
Iron	6.12	0.030	5	0.9708	103	70	130				
Lead	1.18	0.0010	1	0.01776	116	70	130				
Manganese	5.26	0.0010	5	0.02666	105	70	130				
Zinc	1.12	0.010	1	0.1471	97	70	130				

Associated samples: **H12030340-001C; H12030340-003C; H12030340-004C; H12030340-005C; H12030340-006C; H12030340-012C; H12030340-013C; H12030340-014C; H12030340-015C; H12030340-016C; H12030340-018C**

Run ID :Run Order: **ICPMS204-B_120402A: 250** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12030333-002DMSD3** Method: **E200.8**
Analysis Date: **04/03/12 09:59** Units: **mg/L** **Prep Info:** Prep Date: **3/28/2012** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	1.02	0.0010	1	0.000557	102	70	130	1.027	1.1	20	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: 16071

Run ID :Run Order: **ICPMS204-B_120402A: 250** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12030333-002DMSD3** Method: **E200.8**

Analysis Date: **04/03/12 09:59** Units: **mg/L** **Prep Info:** Prep Date: **3/28/2012** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.487	0.0010	0.5	0.000794	**97**	70	130	0.4932	**1.3**	20	
Copper	0.967	0.0050	1	0.007354	**96**	70	130	0.9832	**1.7**	20	
Iron	6.02	0.030	5	0.9708	**101**	70	130	6.124	**1.7**	20	
Lead	1.18	0.0010	1	0.01776	**116**	70	130	1.179	**0.1**	20	
Manganese	5.27	0.0010	5	0.02666	**105**	70	130	5.264	**0.1**	20	
Zinc	1.11	0.010	1	0.1471	**96**	70	130	1.117	**0.8**	20	

Associated samples: **H12030340-001C; H12030340-003C; H12030340-004C; H12030340-005C; H12030340-006C; H12030340-012C; H12030340-013C; H12030340-014C; H12030340-015C; H12030340-016C; H12030340-018C**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: 16073

Run ID :Run Order: **ACCU-124 (14410200)_120328A: 1** SampType: **Method Blank** Sample ID: **MB-16073** Method: **A2540 D**

Analysis Date: **03/28/12 14:08** Units: **mg/L** **Prep Info:** Prep Date: **3/28/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	2									

Associated samples: **H12030340-001A; H12030340-002A; H12030340-003A; H12030340-004A; H12030340-005A; H12030340-006A; H12030340-007A; H12030340-008A; H12030340-009A; H12030340-010A; H12030340-011A; H12030340-012A; H12030340-013A**

Run ID :Run Order: **ACCU-124 (14410200)_120328A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS-16073** Method: **A2540 D**

Analysis Date: **03/28/12 14:08** Units: **mg/L** **Prep Info:** Prep Date: **3/28/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	1870	10	2000		94	70	130				

Associated samples: **H12030340-001A; H12030340-002A; H12030340-003A; H12030340-004A; H12030340-005A; H12030340-006A; H12030340-007A; H12030340-008A; H12030340-009A; H12030340-010A; H12030340-011A; H12030340-012A; H12030340-013A**

Run ID :Run Order: **ACCU-124 (14410200)_120328A: 7** SampType: **Sample Duplicate** Sample ID: **H12030338-001ADUP** Method: **A2540 D**

Analysis Date: **03/28/12 14:09** Units: **mg/L** **Prep Info:** Prep Date: **3/28/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	114	10						112	1.8	5	

Associated samples: **H12030340-001A; H12030340-002A; H12030340-003A; H12030340-004A; H12030340-005A; H12030340-006A; H12030340-007A; H12030340-008A; H12030340-009A; H12030340-010A; H12030340-011A; H12030340-012A; H12030340-013A**

Run ID :Run Order: **ACCU-124 (14410200)_120328A: 15** SampType: **Sample Duplicate** Sample ID: **H12030340-004ADUP** Method: **A2540 D**

Analysis Date: **03/28/12 14:11** Units: **mg/L** **Prep Info:** Prep Date: **3/28/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	10								5	

Associated samples: **H12030340-001A; H12030340-002A; H12030340-003A; H12030340-004A; H12030340-005A; H12030340-006A; H12030340-007A; H12030340-008A; H12030340-009A; H12030340-010A; H12030340-011A; H12030340-012A; H12030340-013A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: 16074

Run ID :Run Order: **ACCU-124 (14410200)_120328A: 25** SampType: **Method Blank** Sample ID: **MB-16074** Method: **A2540 D**
Analysis Date: **03/28/12 14:15** Units: **mg/L** **Prep Info:** Prep Date: **3/28/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	2									

Associated samples: **H12030340-014A; H12030340-015A; H12030340-016A; H12030340-017A; H12030340-018A**

Run ID :Run Order: **ACCU-124 (14410200)_120328A: 26** SampType: **Laboratory Control Sample** Sample ID: **LCS-16074** Method: **A2540 D**
Analysis Date: **03/28/12 14:15** Units: **mg/L** **Prep Info:** Prep Date: **3/28/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	1870	10	2000		94	70	130				

Associated samples: **H12030340-014A; H12030340-015A; H12030340-016A; H12030340-017A; H12030340-018A**

Run ID :Run Order: **ACCU-124 (14410200)_120328A: 31** SampType: **Sample Duplicate** Sample ID: **H12030340-017ADUP** Method: **A2540 D**
Analysis Date: **03/28/12 14:16** Units: **mg/L** **Prep Info:** Prep Date: **3/28/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	8.00	10						8		5	

Associated samples: **H12030340-014A; H12030340-015A; H12030340-016A; H12030340-017A; H12030340-018A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: 16075

Run ID :Run Order: **ACCU-124 (14410200)_120328B: 1** SampType: **Method Blank** Sample ID: **MB-16075** Method: **A2540 C**
Analysis Date: **03/28/12 14:20** Units: **mg/L** **Prep Info:** Prep Date: **3/28/2012** Prep Method: **A2540 C**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	3	3									

Associated samples: **H12030340-001A; H12030340-002A; H12030340-003A; H12030340-004A; H12030340-005A; H12030340-006A; H12030340-007A; H12030340-008A; H12030340-009A; H12030340-010A; H12030340-011A; H12030340-012A; H12030340-013A; H12030340-014A; H12030340-015A; H12030340-016A**

Run ID :Run Order: **ACCU-124 (14410200)_120328B: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS-16075** Method: **A2540 C**
Analysis Date: **03/28/12 14:20** Units: **mg/L** **Prep Info:** Prep Date: **3/28/2012** Prep Method: **A2540 C**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	1950	10	2000	3	98	90	110				

Associated samples: **H12030340-001A; H12030340-002A; H12030340-003A; H12030340-004A; H12030340-005A; H12030340-006A; H12030340-007A; H12030340-008A; H12030340-009A; H12030340-010A; H12030340-011A; H12030340-012A; H12030340-013A; H12030340-014A; H12030340-015A; H12030340-016A**

Run ID :Run Order: **ACCU-124 (14410200)_120328B: 4** SampType: **Sample Duplicate** Sample ID: **H12030338-001ADUP** Method: **A2540 C**
Analysis Date: **03/28/12 14:20** Units: **mg/L** **Prep Info:** Prep Date: **3/28/2012** Prep Method: **A2540 C**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	658	10						690	4.7	5	

Associated samples: **H12030340-001A; H12030340-002A; H12030340-003A; H12030340-004A; H12030340-005A; H12030340-006A; H12030340-007A; H12030340-008A; H12030340-009A; H12030340-010A; H12030340-011A; H12030340-012A; H12030340-013A; H12030340-014A; H12030340-015A; H12030340-016A**

Run ID :Run Order: **ACCU-124 (14410200)_120328B: 6** SampType: **Sample Matrix Spike** Sample ID: **H12030338-003AMS** Method: **A2540 C**
Analysis Date: **03/28/12 14:21** Units: **mg/L** **Prep Info:** Prep Date: **3/28/2012** Prep Method: **A2540 C**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2790	10	2000	762	102	80	120				

Associated samples: **H12030340-001A; H12030340-002A; H12030340-003A; H12030340-004A; H12030340-005A; H12030340-006A; H12030340-007A; H12030340-008A; H12030340-009A; H12030340-010A; H12030340-011A; H12030340-012A; H12030340-013A; H12030340-014A; H12030340-015A; H12030340-016A**

Run ID :Run Order: **ACCU-124 (14410200)_120328B: 13** SampType: **Sample Duplicate** Sample ID: **H12030340-004ADUP** Method: **A2540 C**
Analysis Date: **03/28/12 14:22** Units: **mg/L** **Prep Info:** Prep Date: **3/28/2012** Prep Method: **A2540 C**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	78.0	10						78	0.0	5	

Associated samples: **H12030340-001A; H12030340-002A; H12030340-003A; H12030340-004A; H12030340-005A; H12030340-006A; H12030340-007A; H12030340-008A; H12030340-009A; H12030340-010A; H12030340-011A; H12030340-012A; H12030340-013A; H12030340-014A; H12030340-015A; H12030340-016A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: 16076

Run ID :Run Order: **ACCU-124 (14410200)_120328B: 26** SampType: **Method Blank** Sample ID: **MB-16076** Method: **A2540 C**
Analysis Date: **03/28/12 14:25** Units: **mg/L** **Prep Info:** Prep Date: **3/28/2012** Prep Method: **A2540 C**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	ND	3									

Associated samples: **H12030340-017A; H12030340-018A**

Run ID :Run Order: **ACCU-124 (14410200)_120328B: 27** SampType: **Laboratory Control Sample** Sample ID: **LCS-16076** Method: **A2540 C**
Analysis Date: **03/28/12 14:26** Units: **mg/L** **Prep Info:** Prep Date: **3/28/2012** Prep Method: **A2540 C**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	1950	10	2000		97	90	110				

Associated samples: **H12030340-017A; H12030340-018A**

Run ID :Run Order: **ACCU-124 (14410200)_120328B: 29** SampType: **Sample Duplicate** Sample ID: **H12030340-017ADUP** Method: **A2540 C**
Analysis Date: **03/28/12 14:26** Units: **mg/L** **Prep Info:** Prep Date: **3/28/2012** Prep Method: **A2540 C**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	264	10						260	1.5	5	

Associated samples: **H12030340-017A; H12030340-018A**

Run ID :Run Order: **ACCU-124 (14410200)_120328B: 31** SampType: **Sample Matrix Spike** Sample ID: **H12030340-018AMS** Method: **A2540 C**
Analysis Date: **03/28/12 14:27** Units: **mg/L** **Prep Info:** Prep Date: **3/28/2012** Prep Method: **A2540 C**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2230	10	2000	324	95	80	120				

Associated samples: **H12030340-017A; H12030340-018A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: 16117

Run ID :Run Order: **ICP2-HE_120405B: 199** SampType: **Method Blank** Sample ID: **MB-16117** Method: **SW6010B**
Analysis Date: **04/06/12 07:43** Units: **mg/kg** **Prep Info:** Prep Date: **4/2/2012** Prep Method: **SW3050 B**

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	ND	0.7									
Arsenic	0.7	0.3									
Cadmium	ND	0.02									
Copper	ND	0.1									
Iron	1	0.3									
Lead	ND	0.6									

Associated samples: **H12030340-019A; H12030340-020A; H12030340-021A; H12030340-022A; H12030340-023A; H12030340-024A; H12030340-025A; H12030340-026A; H12030340-027A; H12030340-028A; H12030340-029A; H12030340-030A; H12030340-031A; H12030340-032A**

Run ID :Run Order: **ICP2-HE_120405B: 200** SampType: **Laboratory Fortified Blank** Sample ID: **LFB-16117** Method: **SW6010B**
Analysis Date: **04/06/12 07:47** Units: **mg/kg** **Prep Info:** Prep Date: **4/2/2012** Prep Method: **SW3050 B**

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	250	5.0	250		100	80	120				
Arsenic	47.8	1.0	50	0.699	94	80	120				
Cadmium	23.8	1.0	25		95	80	120				
Copper	49.2	1.0	50		98	80	120				
Iron	244	5.0	250	1.327	97	80	120				
Lead	48.0	1.0	50		96	80	120				

Associated samples: **H12030340-019A; H12030340-020A; H12030340-021A; H12030340-022A; H12030340-023A; H12030340-024A; H12030340-025A; H12030340-026A; H12030340-027A; H12030340-028A; H12030340-029A; H12030340-030A; H12030340-031A; H12030340-032A**

Run ID :Run Order: **ICP2-HE_120405B: 201** SampType: **Laboratory Control Sample** Sample ID: **LCS-16117** Method: **SW6010B**
Analysis Date: **04/06/12 07:51** Units: **mg/kg** **Prep Info:** Prep Date: **4/2/2012** Prep Method: **SW3050 B**

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	13300	5.0	14610		91	50.7	131.3				
Arsenic	275	1.5	341	0.699	81	72.3	106.4				
Cadmium	116	1.0	136.2		85	73	105.1				
Copper	245	1.0	278.3		88	77.5	109.6				
Iron	20100	5.0	22860	1.327	88	39.6	138.3				
Lead	176	3.1	185.9		95	75.9	108.6				

Associated samples: **H12030340-019A; H12030340-020A; H12030340-021A; H12030340-022A; H12030340-023A; H12030340-024A; H12030340-025A; H12030340-026A; H12030340-027A; H12030340-028A; H12030340-029A; H12030340-030A; H12030340-031A; H12030340-032A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: 16117

Run ID :Run Order: **ICP2-HE_120405B: 222** SampType: **Sample Matrix Spike** Sample ID: **H12030340-032AMS** Method: **SW6010B**

Analysis Date: **04/06/12 09:09** Units: **mg/kg** **Prep Info:** Prep Date: **4/2/2012** Prep Method: **SW3050 B**

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	5310	5.0	113.2	4444		75	125				A
Arsenic	26.5	1.0	22.64	5.356	93	75	125				
Cadmium	10.2	1.0	11.32	0.2849	87	75	125				
Copper	44.4	1.0	22.64	30.7	61	75	125				S
Iron	9490	5.0	113.2	8970		75	125				A
Lead	47.2	1.4	22.64	22.27	110	75	125				

Associated samples: **H12030340-019A; H12030340-020A; H12030340-021A; H12030340-022A; H12030340-023A; H12030340-024A; H12030340-025A; H12030340-026A; H12030340-027A; H12030340-028A; H12030340-029A; H12030340-030A; H12030340-031A; H12030340-032A**

Run ID :Run Order: **ICP2-HE_120405B: 223** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12030340-032AMSD** Method: **SW6010B**

Analysis Date: **04/06/12 09:13** Units: **mg/kg** **Prep Info:** Prep Date: **4/2/2012** Prep Method: **SW3050 B**

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	6000	5.0	113.6	4444		75	125	5309	12	20	A
Arsenic	29.2	1.0	22.73	5.356	105	75	125	26.51	9.5	20	
Cadmium	10.7	1.0	11.36	0.2849	92	75	125	10.15	5.3	20	
Copper	54.2	1.0	22.73	30.7	103	75	125	44.41	20	20	
Iron	10700	5.0	113.6	8970		75	125	9491	12	20	A
Lead	57.7	1.4	22.73	22.27	156	75	125	47.25	20	20	S

Associated samples: **H12030340-019A; H12030340-020A; H12030340-021A; H12030340-022A; H12030340-023A; H12030340-024A; H12030340-025A; H12030340-026A; H12030340-027A; H12030340-028A; H12030340-029A; H12030340-030A; H12030340-031A; H12030340-032A**

Run ID :Run Order: **ICP2-HE_120410C: 129** SampType: **Method Blank** Sample ID: **MB-16117** Method: **SW6010B**

Analysis Date: **04/10/12 19:54** Units: **mg/kg** **Prep Info:** Prep Date: **4/2/2012** Prep Method: **SW3050 B**

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	ND	0.7									
Arsenic	ND	0.3									
Cadmium	0.03	0.02									
Copper	0.4	0.1									
Iron	1	0.3									
Lead	1	0.6									
Manganese	0.2	0.03									
Zinc	0.3	0.07									

Associated samples: **H12030340-019A; H12030340-020A; H12030340-021A; H12030340-022A; H12030340-023A; H12030340-024A; H12030340-025A; H12030340-026A; H12030340-027A; H12030340-028A; H12030340-029A; H12030340-030A; H12030340-031A; H12030340-032A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: 16117

Run ID :Run Order: **ICP2-HE_120410C: 156** SampType: **Sample Matrix Spike** Sample ID: **H12030340-032AMS** Method: **SW6010B**

Analysis Date: **04/10/12 21:35** Units: **mg/kg** **Prep Info:** Prep Date: **4/2/2012** Prep Method: **SW3050 B**

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	5420	5.0	113.2	4554		75	125				A
Arsenic	27.0	1.0	22.64	3.65	103	75	125				
Cadmium	10.3	1.0	11.32	0.3456	88	75	125				
Copper	45.1	1.0	22.64	31.77	59	75	125				S
Iron	9910	5.0	113.2	9052		75	125				A
Lead	45.5	1.4	22.64	23.46	97	75	125				
Manganese	592	1.0	113.2	569.3		75	125				A
Zinc	129	1.0	22.64	105.2		75	125				A

Associated samples: **H12030340-019A; H12030340-020A; H12030340-021A; H12030340-022A; H12030340-023A; H12030340-024A; H12030340-025A; H12030340-026A; H12030340-027A; H12030340-028A; H12030340-029A; H12030340-030A; H12030340-031A; H12030340-032A**

Run ID :Run Order: **ICP2-HE_120410C: 157** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12030340-032AMSD** Method: **SW6010B**

Analysis Date: **04/10/12 21:38** Units: **mg/kg** **Prep Info:** Prep Date: **4/2/2012** Prep Method: **SW3050 B**

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	6110	5.0	113.6	4554		75	125	5416	12	20	A
Arsenic	29.5	1.0	22.73	3.65	114	75	125	26.97	9.0	20	
Cadmium	11.0	1.0	11.36	0.3456	94	75	125	10.32	6.5	20	
Copper	55.2	1.0	22.73	31.77	103	75	125	45.05	20	20	R
Iron	11200	5.0	113.6	9052		75	125	9909	12	20	A
Lead	58.8	1.4	22.73	23.46	155	75	125	45.53	25	20	SR
Manganese	1100	1.0	113.6	569.3		75	125	592.2	60	20	AR
Zinc	207	1.0	22.73	105.2		75	125	128.8	47	20	AR

Associated samples: **H12030340-019A; H12030340-020A; H12030340-021A; H12030340-022A; H12030340-023A; H12030340-024A; H12030340-025A; H12030340-026A; H12030340-027A; H12030340-028A; H12030340-029A; H12030340-030A; H12030340-031A; H12030340-032A**

Run ID :Run Order: **ICP2-HE_120411C: 95** SampType: **Method Blank** Sample ID: **MB-16117** Method: **SW6010B**

Analysis Date: **04/11/12 18:45** Units: **mg/kg** **Prep Info:** Prep Date: **4/2/2012** Prep Method: **SW3050 B**

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	ND	0.7									
Arsenic	ND	0.3									
Cadmium	ND	0.02									
Copper	0.2	0.1									
Iron	1.0	0.3									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 16117

Date: *17-Apr-12*

Run ID :Run Order: **ICP2-HE_120411C: 95** SampType: **Method Blank** Sample ID: **MB-16117** Method: **SW6010B**

Analysis Date: **04/11/12 18:45** Units: **mg/kg** **Prep Info:** Prep Date: **4/2/2012** Prep Method: **SW3050 B**

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	0.6									
Manganese	0.2	0.03									
Zinc	0.2	0.07									

Associated samples: **H12030340-019A; H12030340-020A; H12030340-021A; H12030340-022A; H12030340-023A; H12030340-024A; H12030340-025A; H12030340-026A; H12030340-027A; H12030340-028A; H12030340-029A; H12030340-030A; H12030340-031A; H12030340-032A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78847

Run ID :Run Order: **PHSC_101-H_120328A: 2** SampType: **Initial Calibration Verification Standard** Sample ID: **SC 150** Method: **A2510 B**

Analysis Date: **03/28/12 09:33** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	158	1.0	150		105	90	110				

Associated samples: **H12030340-001A; H12030340-002A; H12030340-003A; H12030340-004A; H12030340-005A; H12030340-006A; H12030340-007A; H12030340-008A; H12030340-009A; H12030340-010A; H12030340-011A; H12030340-012A; H12030340-013A; H12030340-014A; H12030340-015A; H12030340-016A; H12030340-017A; H12030340-018A**

Run ID :Run Order: **PHSC_101-H_120328A: 3** SampType: **Initial Calibration Verification Standard** Sample ID: **SC 5000** Method: **A2510 B**

Analysis Date: **03/28/12 09:37** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	5100	1.0	5000		102	90	110				

Associated samples: **H12030340-001A; H12030340-002A; H12030340-003A; H12030340-004A; H12030340-005A; H12030340-006A; H12030340-007A; H12030340-008A; H12030340-009A; H12030340-010A; H12030340-011A; H12030340-012A; H12030340-013A; H12030340-014A; H12030340-015A; H12030340-016A; H12030340-017A; H12030340-018A**

Run ID :Run Order: **PHSC_101-H_120328A: 4** SampType: **Initial Calibration Verification Standard** Sample ID: **SC 20000** Method: **A2510 B**

Analysis Date: **03/28/12 09:39** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	20500	1.0	20000		102	90	110				

Associated samples: **H12030340-001A; H12030340-002A; H12030340-003A; H12030340-004A; H12030340-005A; H12030340-006A; H12030340-007A; H12030340-008A; H12030340-009A; H12030340-010A; H12030340-011A; H12030340-012A; H12030340-013A; H12030340-014A; H12030340-015A; H12030340-016A; H12030340-017A; H12030340-018A**

Run ID :Run Order: **PHSC_101-H_120328A: 5** SampType: **Initial Calibration Verification Standard** Sample ID: **SC 2nd 1000** Method: **A2510 B**

Analysis Date: **03/28/12 09:41** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	1030	1.0	1000		103	90	110				

Associated samples: **H12030340-001A; H12030340-002A; H12030340-003A; H12030340-004A; H12030340-005A; H12030340-006A; H12030340-007A; H12030340-008A; H12030340-009A; H12030340-010A; H12030340-011A; H12030340-012A; H12030340-013A; H12030340-014A; H12030340-015A; H12030340-016A; H12030340-017A; H12030340-018A**

Run ID :Run Order: **PHSC_101-H_120328A: 28** SampType: **Sample Duplicate** Sample ID: **H12030340-005ADUP** Method: **A2510 B**

Analysis Date: **03/28/12 11:31** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	149	1.0						148	0.7	10	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78847

Run ID :Run Order: **PHSC_101-H_120328A: 28** SampType: **Sample Duplicate** Sample ID: **H12030340-005ADUP** Method: **A2510 B**
Analysis Date: **03/28/12 11:31** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12030340-001A; H12030340-002A; H12030340-003A; H12030340-004A; H12030340-005A; H12030340-006A; H12030340-007A; H12030340-008A; H12030340-009A; H12030340-010A; H12030340-011A; H12030340-012A; H12030340-013A; H12030340-014A; H12030340-015A; H12030340-016A; H12030340-017A; H12030340-018A**

Run ID :Run Order: **PHSC_101-H_120328A: 50** SampType: **Sample Duplicate** Sample ID: **H12030340-015ADUP** Method: **A2510 B**
Analysis Date: **03/28/12 11:59** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	301	1.0						301	0.0	10	

Associated samples: **H12030340-001A; H12030340-002A; H12030340-003A; H12030340-004A; H12030340-005A; H12030340-006A; H12030340-007A; H12030340-008A; H12030340-009A; H12030340-010A; H12030340-011A; H12030340-012A; H12030340-013A; H12030340-014A; H12030340-015A; H12030340-016A; H12030340-017A; H12030340-018A**

Run ID :Run Order: **PHSC_101-H_120328A: 59** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV - SC 1413** Method: **A2510 B**
Analysis Date: **03/28/12 12:40** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	1480	1.0	1413		105	90	110				

Associated samples: **H12030340-016A; H12030340-017A; H12030340-018A**

Run ID :Run Order: **PHSC_101-H_120328A: 64** SampType: **Sample Duplicate** Sample ID: **H12030340-016ADUP** Method: **A2510 B**
Analysis Date: **03/28/12 12:48** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	270	1.0						271	0.0	10	

Associated samples: **H12030340-001A; H12030340-002A; H12030340-003A; H12030340-004A; H12030340-005A; H12030340-006A; H12030340-007A; H12030340-008A; H12030340-009A; H12030340-010A; H12030340-011A; H12030340-012A; H12030340-013A; H12030340-014A; H12030340-015A; H12030340-016A; H12030340-017A; H12030340-018A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78847

Run ID :Run Order: **PHSC_101-H_120328A: 1** SampType: **Initial Calibration Verification Standard** Sample ID: **pH 7** Method: **A4500-H B**
Analysis Date: **03/28/12 09:30** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	6.55	0.10	7		94	98	102				S

Associated samples: **H12030340-001A; H12030340-002A; H12030340-003A; H12030340-004A; H12030340-005A; H12030340-006A; H12030340-007A; H12030340-008A; H12030340-009A; H12030340-010A; H12030340-011A; H12030340-012A; H12030340-013A; H12030340-014A; H12030340-015A; H12030340-016A; H12030340-017A; H12030340-018A**

Run ID :Run Order: **PHSC_101-H_120328A: 27** SampType: **Sample Duplicate** Sample ID: **H12030340-005ADUP** Method: **A4500-H B**
Analysis Date: **03/28/12 11:31** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	6.76	0.10						6.75	0.1	3	

Associated samples: **H12030340-001A; H12030340-002A; H12030340-003A; H12030340-004A; H12030340-005A; H12030340-006A; H12030340-007A; H12030340-008A; H12030340-009A; H12030340-010A; H12030340-011A; H12030340-012A; H12030340-013A; H12030340-014A; H12030340-015A; H12030340-016A; H12030340-017A; H12030340-018A**

Run ID :Run Order: **PHSC_101-H_120328A: 49** SampType: **Sample Duplicate** Sample ID: **H12030340-015ADUP** Method: **A4500-H B**
Analysis Date: **03/28/12 11:59** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	6.70	0.10						6.7	0.0	3	

Associated samples: **H12030340-001A; H12030340-002A; H12030340-003A; H12030340-004A; H12030340-005A; H12030340-006A; H12030340-007A; H12030340-008A; H12030340-009A; H12030340-010A; H12030340-011A; H12030340-012A; H12030340-013A; H12030340-014A; H12030340-015A; H12030340-016A; H12030340-017A; H12030340-018A**

Run ID :Run Order: **PHSC_101-H_120328A: 58** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV - pH 7** Method: **A4500-H B**
Analysis Date: **03/28/12 12:30** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.05	0.10	7		101	98	102				

Associated samples: **H12030340-016A; H12030340-017A; H12030340-018A**

Run ID :Run Order: **PHSC_101-H_120328A: 63** SampType: **Sample Duplicate** Sample ID: **H12030340-016ADUP** Method: **A4500-H B**
Analysis Date: **03/28/12 12:48** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.48	0.10						7.42	0.0	3	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R78847

Date: *17-Apr-12*

Run ID :Run Order: **PHSC_101-H_120328A: 63** SampType: **Sample Duplicate** Sample ID: **H12030340-016ADUP** Method: **A4500-H B**

Analysis Date: **03/28/12 12:48** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12030340-001A; H12030340-002A; H12030340-003A; H12030340-004A; H12030340-005A; H12030340-006A; H12030340-007A; H12030340-008A; H12030340-009A; H12030340-010A; H12030340-011A; H12030340-012A; H12030340-013A; H12030340-014A; H12030340-015A; H12030340-016A; H12030340-017A; H12030340-018A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78872

Run ID :Run Order: **ICP2-HE_120328B: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**

Analysis Date: **03/28/12 10:02** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	3.99	0.10	4		100	95	105				
Calcium	39.7	1.0	40		99	95	105				
Magnesium	39.8	1.0	40		99	95	105				
Potassium	39.0	1.0	40		97	95	105				
Sodium	39.2	1.0	40		98	95	105				

Associated samples: **H12030340-001B; H12030340-002B; H12030340-003B; H12030340-004B; H12030340-005B; H12030340-006B; H12030340-007B; H12030340-008B; H12030340-009B; H12030340-010B; H12030340-011B; H12030340-012B; H12030340-013B; H12030340-014B; H12030340-015B; H12030340-016B; H12030340-017B; H12030340-018B**

Run ID :Run Order: **ICP2-HE_120328B: 7** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV-1** Method: **E200.7**

Analysis Date: **03/28/12 10:06** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	2.50	0.10	2.5		100	95	105				
Calcium	24.7	1.0	25		99	95	105				
Magnesium	24.2	1.0	25		97	95	105				
Potassium	24.0	1.0	25		96	95	105				
Sodium	24.0	1.0	25		96	95	105				

Associated samples: **H12030340-001B; H12030340-002B; H12030340-003B; H12030340-004B; H12030340-005B; H12030340-006B; H12030340-007B; H12030340-008B; H12030340-009B; H12030340-010B; H12030340-011B; H12030340-012B; H12030340-013B; H12030340-014B; H12030340-015B; H12030340-016B; H12030340-017B; H12030340-018B**

Run ID :Run Order: **ICP2-HE_120328B: 10** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.7**

Analysis Date: **03/28/12 10:17** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	500	0.10	500		100	80	120				
Calcium	463	1.0	500		93	80	120				
Magnesium	486	1.0	500		97	80	120				
Potassium	-0.0847	1.0				0	0				
Sodium	0.0402	1.0				0	0				

Associated samples: **H12030340-001B; H12030340-002B; H12030340-003B; H12030340-004B; H12030340-005B; H12030340-006B; H12030340-007B; H12030340-008B; H12030340-009B; H12030340-010B; H12030340-011B; H12030340-012B; H12030340-013B; H12030340-014B; H12030340-015B; H12030340-016B; H12030340-017B; H12030340-018B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78872

Run ID :Run Order: **ICP2-HE_120328B: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**

Analysis Date: **03/28/12 10:21** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	493	0.10	500		99	80	120				
Calcium	453	1.0	500		91	80	120				
Magnesium	480	1.0	500		96	80	120				
Potassium	20.5	1.0	20		102	80	120				
Sodium	20.4	1.0	20		102	80	120				

Associated samples: **H12030340-001B; H12030340-002B; H12030340-003B; H12030340-004B; H12030340-005B; H12030340-006B; H12030340-007B; H12030340-008B; H12030340-009B; H12030340-010B; H12030340-011B; H12030340-012B; H12030340-013B; H12030340-014B; H12030340-015B; H12030340-016B; H12030340-017B; H12030340-018B**

Run ID :Run Order: **ICP2-HE_120328B: 13** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.7**

Analysis Date: **03/28/12 10:29** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	ND	0.002									
Calcium	0.04	0.008									
Magnesium	ND	0.003									
Potassium	ND	0.04									
Sodium	ND	0.01									

Associated samples: **H12030340-001B; H12030340-002B; H12030340-003B; H12030340-004B; H12030340-005B; H12030340-006B; H12030340-007B; H12030340-008B; H12030340-009B; H12030340-010B; H12030340-011B; H12030340-012B; H12030340-013B; H12030340-014B; H12030340-015B; H12030340-016B; H12030340-017B; H12030340-018B**

Run ID :Run Order: **ICP2-HE_120328B: 14** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.7**

Analysis Date: **03/28/12 10:33** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	4.86	0.10	5		97	85	115				
Calcium	48.8	1.0	50	0.04405	98	85	115				
Magnesium	47.3	1.0	50		95	85	115				
Potassium	48.0	1.0	50		96	85	115				
Sodium	48.5	1.0	50		97	85	115				

Associated samples: **H12030340-001B; H12030340-002B; H12030340-003B; H12030340-004B; H12030340-005B; H12030340-006B; H12030340-007B; H12030340-008B; H12030340-009B; H12030340-010B; H12030340-011B; H12030340-012B; H12030340-013B; H12030340-014B; H12030340-015B; H12030340-016B; H12030340-017B; H12030340-018B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78872

Run ID :Run Order: **ICP2-HE_120328B: 39** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV** Method: **E200.7**

Analysis Date: **03/28/12 12:10** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	2.48	0.10	2.5		99	90	110				
Calcium	25.4	1.0	25		102	90	110				
Magnesium	23.6	1.0	25		94	90	110				
Potassium	24.6	1.0	25		98	90	110				
Sodium	24.8	1.0	25		99	90	110				

Associated samples: **H12030340-001B**

Run ID :Run Order: **ICP2-HE_120328B: 43** SampType: **Sample Matrix Spike** Sample ID: **H12030340-001BMS2** Method: **E200.7**

Analysis Date: **03/28/12 12:25** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	5.06	0.030	5	0.213	97	70	130				
Calcium	64.5	1.0	50	15.81	97	70	130				
Magnesium	51.7	1.0	50	6.105	91	70	130				
Potassium	50.0	1.0	50	1.274	97	70	130				
Sodium	51.1	1.0	50	1.776	99	70	130				

Associated samples: **H12030340-001B; H12030340-002B; H12030340-003B; H12030340-004B; H12030340-005B; H12030340-006B; H12030340-007B; H12030340-008B; H12030340-009B; H12030340-010B; H12030340-011B; H12030340-012B; H12030340-013B; H12030340-014B; H12030340-015B; H12030340-016B; H12030340-017B; H12030340-018B**

Run ID :Run Order: **ICP2-HE_120328B: 44** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12030340-001BMSD2** Method: **E200.7**

Analysis Date: **03/28/12 12:29** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	5.17	0.030	5	0.213	99	70	130	5.063	2.1	20	
Calcium	65.9	1.0	50	15.81	100	70	130	64.49	2.1	20	
Magnesium	52.9	1.0	50	6.105	94	70	130	51.67	2.3	20	
Potassium	49.9	1.0	50	1.274	97	70	130	50.01	0.1	20	
Sodium	51.1	1.0	50	1.776	99	70	130	51.12	0.0	20	

Associated samples: **H12030340-001B; H12030340-002B; H12030340-003B; H12030340-004B; H12030340-005B; H12030340-006B; H12030340-007B; H12030340-008B; H12030340-009B; H12030340-010B; H12030340-011B; H12030340-012B; H12030340-013B; H12030340-014B; H12030340-015B; H12030340-016B; H12030340-017B; H12030340-018B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78872

Run ID :Run Order: **ICP2-HE_120328B: 45** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV** Method: **E200.7**

Analysis Date: **03/28/12 12:32** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	2.51	0.10	2.5		100	90	110				
Calcium	25.8	1.0	25		103	90	110				
Magnesium	23.7	1.0	25		95	90	110				
Potassium	24.8	1.0	25		99	90	110				
Sodium	25.1	1.0	25		100	90	110				

Associated samples: **H12030340-002B; H12030340-003B; H12030340-004B; H12030340-005B; H12030340-006B; H12030340-007B; H12030340-008B; H12030340-009B; H12030340-010B; H12030340-011B**

Run ID :Run Order: **ICP2-HE_120328B: 57** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV** Method: **E200.7**

Analysis Date: **03/28/12 13:18** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	2.48	0.10	2.5		99	90	110				
Calcium	25.0	1.0	25		100	90	110				
Magnesium	23.8	1.0	25		95	90	110				
Potassium	23.9	1.0	25		95	90	110				
Sodium	24.0	1.0	25		96	90	110				

Associated samples: **H12030340-012B; H12030340-013B; H12030340-014B; H12030340-015B; H12030340-016B; H12030340-017B; H12030340-018B**

Run ID :Run Order: **ICP2-HE_120328B: 60** SampType: **Sample Matrix Spike** Sample ID: **H12030340-011BMS2** Method: **E200.7**

Analysis Date: **03/28/12 13:29** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	4.87	0.030	5		97	70	130				
Calcium	140	1.0	50	94.69	92	70	130				
Magnesium	72.8	1.0	50	26.94	92	70	130				
Potassium	49.5	1.0	50	1.203	97	70	130				
Sodium	50.5	1.0	50	1.604	98	70	130				

Associated samples: **H12030340-001B; H12030340-002B; H12030340-003B; H12030340-004B; H12030340-005B; H12030340-006B; H12030340-007B; H12030340-008B; H12030340-009B; H12030340-010B; H12030340-011B; H12030340-012B; H12030340-013B; H12030340-014B; H12030340-015B; H12030340-016B; H12030340-017B; H12030340-018B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78872

Run ID :Run Order: **ICP2-HE_120328B: 61** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12030340-011BMSD2** Method: **E200.7**

Analysis Date: **03/28/12 13:32** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	4.75	0.030	5		95	70	130	4.868	2.4	20	
Calcium	141	1.0	50	94.69	92	70	130	140.5	0.1	20	
Magnesium	73.8	1.0	50	26.94	94	70	130	72.85	1.3	20	
Potassium	49.9	1.0	50	1.203	97	70	130	49.48	0.8	20	
Sodium	50.8	1.0	50	1.604	98	70	130	50.51	0.7	20	

Associated samples: **H12030340-001B; H12030340-002B; H12030340-003B; H12030340-004B; H12030340-005B; H12030340-006B; H12030340-007B; H12030340-008B; H12030340-009B; H12030340-010B; H12030340-011B; H12030340-012B; H12030340-013B; H12030340-014B; H12030340-015B; H12030340-016B; H12030340-017B; H12030340-018B**

Run ID :Run Order: **ICP2-HE_120328B: 101** SampType: **Serial Dilution** Sample ID: **H12030307-001DDIL** Method: **E200.7**

Analysis Date: **03/28/12 16:28** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	44.3	1.0				0	0	44.45	0.4	10	
Magnesium	12.1	1.0				0	0	12.41	2.2	10	
Potassium	6.69	1.0				0	0	7.384	9.9	10	
Sodium	18.6	1.0				0	0	18.89	1.7	10	

Associated samples: **H12030340-001B; H12030340-002B; H12030340-003B; H12030340-004B; H12030340-005B; H12030340-006B; H12030340-007B; H12030340-008B; H12030340-009B; H12030340-010B; H12030340-011B; H12030340-012B; H12030340-013B; H12030340-014B; H12030340-015B; H12030340-016B; H12030340-017B; H12030340-018B**

Run ID :Run Order: **ICP2-HE_120328B: 126** SampType: **Serial Dilution** Sample ID: **H12030308-005CDIL** Method: **E200.7**

Analysis Date: **03/28/12 18:02** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	ND	0.040				0	0			10	
Calcium	0.206	1.0				0	0	0.0482		10	N
Magnesium	0.216	1.0				0	0	0.05558		10	N
Potassium	ND	1.0				0	0			10	
Sodium	ND	1.0				0	0			10	

Associated samples: **H12030340-001B; H12030340-002B; H12030340-003B; H12030340-004B; H12030340-005B; H12030340-006B; H12030340-007B; H12030340-008B; H12030340-009B; H12030340-010B; H12030340-011B; H12030340-012B; H12030340-013B; H12030340-014B; H12030340-015B; H12030340-016B; H12030340-017B; H12030340-018B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78880

Run ID :Run Order: **IC102-H_120328A: 16** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV032812-12** Method: **E300.0**
Analysis Date: **03/28/12 11:27** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	100	1.0	100		103	90	110				
Sulfate	410	1.0	400		102	90	110				

Associated samples: **H12030340-001A; H12030340-002A; H12030340-003A; H12030340-004A; H12030340-005A**

Run ID :Run Order: **IC102-H_120328A: 17** SampType: **Method Blank** Sample ID: **ICB032812-13** Method: **E300.0**
Analysis Date: **03/28/12 11:40** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.02									
Sulfate	0.2	0.02									

Associated samples: **H12030340-001A; H12030340-002A; H12030340-003A; H12030340-004A; H12030340-005A**

Run ID :Run Order: **IC102-H_120328A: 18** SampType: **Laboratory Fortified Blank** Sample ID: **LFB032812-14** Method: **E300.0**
Analysis Date: **03/28/12 11:54** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	53	1.0	50		105	90	110				
Sulfate	210	1.1	200	0.161	104	90	110				

Associated samples: **H12030340-001A; H12030340-002A; H12030340-003A; H12030340-004A; H12030340-005A**

Run ID :Run Order: **IC102-H_120328A: 49** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV032812-40** Method: **E300.0**
Analysis Date: **03/28/12 18:56** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	99	1.0	100		99	90	110				
Sulfate	390	1.0	400		98	90	110				

Associated samples: **H12030340-001A; H12030340-002A; H12030340-003A; H12030340-004A; H12030340-005A**

Run ID :Run Order: **IC102-H_120328A: 53** SampType: **Sample Matrix Spike** Sample ID: **H12030338-001AMS** Method: **E300.0**
Analysis Date: **03/28/12 19:50** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	110	1.0	100	6.151	105	90	110				
Sulfate	650	2.3	400	231.2	104	90	110				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78880

Run ID :Run Order: **IC102-H_120328A: 53** SampType: **Sample Matrix Spike** Sample ID: **H12030338-001AMS** Method: **E300.0**
Analysis Date: **03/28/12 19:50** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12030340-001A; H12030340-002A; H12030340-003A; H12030340-004A; H12030340-005A**

Run ID :Run Order: **IC102-H_120328A: 54** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12030338-001AMSD** Method: **E300.0**
Analysis Date: **03/28/12 20:04** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	110	1.0	100	6.151	105	90	110	111.3	0.2	20	
Sulfate	630	2.3	400	231.2	100	90	110	646.5	2.3	20	

Associated samples: **H12030340-001A; H12030340-002A; H12030340-003A; H12030340-004A; H12030340-005A**

Run ID :Run Order: **IC102-H_120328A: 66** SampType: **Sample Matrix Spike** Sample ID: **H12030218-001AMS** Method: **E300.0**
Analysis Date: **03/28/12 22:47** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2300	2.8	500	1875	81	90	110				S
Sulfate	8500	11	2000	6773	86	90	110				S

Associated samples: **H12030340-001A; H12030340-002A; H12030340-003A; H12030340-004A; H12030340-005A**

Run ID :Run Order: **IC102-H_120328A: 67** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12030218-001AMSD** Method: **E300.0**
Analysis Date: **03/28/12 23:00** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2300	2.8	500	1875	86	90	110	2282	1.1	20	S
Sulfate	8600	11	2000	6773	90	90	110	8486	1.0	20	

Associated samples: **H12030340-001A; H12030340-002A; H12030340-003A; H12030340-004A; H12030340-005A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78897

Run ID :Run Order: **MAN-TECH_120329A: 8** SampType: **Method Blank** Sample ID: **MBLK** Method: **A2320 B**
Analysis Date: **03/29/12 14:17** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	1	1									

Associated samples: **H12030340-001A; H12030340-002A; H12030340-003A; H12030340-004A; H12030340-005A; H12030340-006A; H12030340-007A; H12030340-008A; H12030340-009A; H12030340-010A; H12030340-011A; H12030340-012A; H12030340-013A; H12030340-014A; H12030340-015A**

Run ID :Run Order: **MAN-TECH_120329A: 10** SampType: **Laboratory Control Sample** Sample ID: **LCS-03292012** Method: **A2320 B**
Analysis Date: **03/29/12 14:25** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	620	4.0	600	1.39	103	90	110				

Associated samples: **H12030340-001A; H12030340-002A; H12030340-003A; H12030340-004A; H12030340-005A; H12030340-006A; H12030340-007A; H12030340-008A; H12030340-009A; H12030340-010A; H12030340-011A; H12030340-012A; H12030340-013A; H12030340-014A; H12030340-015A**

Run ID :Run Order: **MAN-TECH_120329A: 22** SampType: **Sample Duplicate** Sample ID: **H12030333-002ADUP** Method: **A2320 B**
Analysis Date: **03/29/12 15:22** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	1700	4.0						1698	0.2	10	
Bicarbonate as HCO3	1900	4.0						1907	0.2	10	
Carbonate as CO3	81	4.0						80.66	0.0	10	

Associated samples: **H12030340-001A; H12030340-002A; H12030340-003A; H12030340-004A; H12030340-005A; H12030340-006A; H12030340-007A; H12030340-008A; H12030340-009A; H12030340-010A; H12030340-011A; H12030340-012A; H12030340-013A; H12030340-014A; H12030340-015A**

Run ID :Run Order: **MAN-TECH_120329A: 34** SampType: **Sample Matrix Spike** Sample ID: **H12030340-005AMS** Method: **A2320 B**
Analysis Date: **03/29/12 16:01** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	630	4.0	600	69.42	94	80	120				

Associated samples: **H12030340-001A; H12030340-002A; H12030340-003A; H12030340-004A; H12030340-005A; H12030340-006A; H12030340-007A; H12030340-008A; H12030340-009A; H12030340-010A; H12030340-011A; H12030340-012A; H12030340-013A; H12030340-014A; H12030340-015A**

Run ID :Run Order: **MAN-TECH_120329A: 46** SampType: **Sample Duplicate** Sample ID: **H12030340-010ADUP** Method: **A2320 B**
Analysis Date: **03/29/12 16:36** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	95	4.0						94.83	0.2	10	
Bicarbonate as HCO3	120	4.0						115.7	0.2	10	
Carbonate as CO3	ND	4.0								10	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78897

Run ID :Run Order: **MAN-TECH_120329A: 46** SampType: **Sample Duplicate** Sample ID: **H12030340-010ADUP** Method: **A2320 B**

Analysis Date: **03/29/12 16:36** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12030340-001A; H12030340-002A; H12030340-003A; H12030340-004A; H12030340-005A; H12030340-006A; H12030340-007A; H12030340-008A; H12030340-009A; H12030340-010A; H12030340-011A; H12030340-012A; H12030340-013A; H12030340-014A; H12030340-015A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78898

Run ID :Run Order: **IC102-H_120329A: 16** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV032912-12** Method: **E300.0**
Analysis Date: **03/29/12 14:03** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	100	1.0	100		101	90	110				
Sulfate	400	1.0	400		99	90	110				

Associated samples: **H12030340-006A; H12030340-007A; H12030340-008A; H12030340-009A; H12030340-010A; H12030340-011A; H12030340-012A; H12030340-013A; H12030340-014A; H12030340-015A; H12030340-016A; H12030340-017A; H12030340-018A**

Run ID :Run Order: **IC102-H_120329A: 17** SampType: **Method Blank** Sample ID: **ICB032912-13** Method: **E300.0**
Analysis Date: **03/29/12 14:16** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.02									
Sulfate	ND	0.02									

Associated samples: **H12030340-006A; H12030340-007A; H12030340-008A; H12030340-009A; H12030340-010A; H12030340-011A; H12030340-012A; H12030340-013A; H12030340-014A; H12030340-015A; H12030340-016A; H12030340-017A; H12030340-018A**

Run ID :Run Order: **IC102-H_120329A: 18** SampType: **Laboratory Fortified Blank** Sample ID: **LFB032912-14** Method: **E300.0**
Analysis Date: **03/29/12 14:30** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	52	1.0	50		105	90	110				
Sulfate	200	1.1	200		102	90	110				

Associated samples: **H12030340-006A; H12030340-007A; H12030340-008A; H12030340-009A; H12030340-010A; H12030340-011A; H12030340-012A; H12030340-013A; H12030340-014A; H12030340-015A; H12030340-016A; H12030340-017A; H12030340-018A**

Run ID :Run Order: **IC102-H_120329A: 19** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV032912-15** Method: **E300.0**
Analysis Date: **03/29/12 14:44** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	100	1.0	100		103	90	110				
Sulfate	410	1.0	400		101	90	110				

Associated samples: **H12030340-006A; H12030340-007A; H12030340-008A; H12030340-009A; H12030340-010A; H12030340-011A; H12030340-012A; H12030340-013A; H12030340-014A**

Run ID :Run Order: **IC102-H_120329A: 27** SampType: **Sample Matrix Spike** Sample ID: **H12030340-008AMS** Method: **E300.0**
Analysis Date: **03/29/12 16:32** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	52	1.0	50		104	90	110				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78898

Run ID :Run Order: **IC102-H_120329A: 27** SampType: **Sample Matrix Spike** Sample ID: **H12030340-008AMS** Method: **E300.0**
Analysis Date: **03/29/12 16:32** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	200	1.1	200		101	90	110				

Associated samples: **H12030340-006A; H12030340-007A; H12030340-008A; H12030340-009A; H12030340-010A; H12030340-011A; H12030340-012A; H12030340-013A; H12030340-014A; H12030340-015A; H12030340-016A; H12030340-017A; H12030340-018A**

Run ID :Run Order: **IC102-H_120329A: 28** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12030340-008AMSD** Method: **E300.0**
Analysis Date: **03/29/12 16:46** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	52	1.0	50		105	90	110	51.84	1.2	20	
Sulfate	200	1.1	200		102	90	110	202.2	1.2	20	

Associated samples: **H12030340-006A; H12030340-007A; H12030340-008A; H12030340-009A; H12030340-010A; H12030340-011A; H12030340-012A; H12030340-013A; H12030340-014A; H12030340-015A; H12030340-016A; H12030340-017A; H12030340-018A**

Run ID :Run Order: **IC102-H_120329A: 35** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV032912-30** Method: **E300.0**
Analysis Date: **03/29/12 18:21** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	100	1.0	100		104	90	110				
Sulfate	410	1.0	400		102	90	110				

Associated samples: **H12030340-015A; H12030340-016A; H12030340-017A; H12030340-018A**

Run ID :Run Order: **IC102-H_120329A: 40** SampType: **Sample Matrix Spike** Sample ID: **H12030340-017AMS** Method: **E300.0**
Analysis Date: **03/29/12 19:29** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	52	1.0	50	0.574	104	90	110				
Sulfate	330	1.1	200	122.1	104	90	110				

Associated samples: **H12030340-006A; H12030340-007A; H12030340-008A; H12030340-009A; H12030340-010A; H12030340-011A; H12030340-012A; H12030340-013A; H12030340-014A; H12030340-015A; H12030340-016A; H12030340-017A; H12030340-018A**

Run ID :Run Order: **IC102-H_120329A: 41** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12030340-017AMSD** Method: **E300.0**
Analysis Date: **03/29/12 19:43** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	53	1.0	50	0.574	105	90	110	52.43	1.2	20	
Sulfate	330	1.1	200	122.1	106	90	110	330.9	1.1	20	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78898

Run ID :Run Order: **IC102-H_120329A: 41** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12030340-017AMSD** Method: **E300.0**

Analysis Date: **03/29/12 19:43** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12030340-006A; H12030340-007A; H12030340-008A; H12030340-009A; H12030340-010A; H12030340-011A; H12030340-012A; H12030340-013A; H12030340-014A; H12030340-015A; H12030340-016A; H12030340-017A; H12030340-018A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78916

Run ID :Run Order: **MAN-TECH_120330A: 8** SampType: **Method Blank** Sample ID: **MBLK** Method: **A2320 B**
Analysis Date: **03/30/12 11:39** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	1	1									

Associated samples: **H12030340-016A; H12030340-017A; H12030340-018A**

Run ID :Run Order: **MAN-TECH_120330A: 10** SampType: **Laboratory Control Sample** Sample ID: **LCS-03292012** Method: **A2320 B**
Analysis Date: **03/30/12 11:46** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	620	4.0	600	1.42	102	90	110				

Associated samples: **H12030340-016A; H12030340-017A; H12030340-018A**

Run ID :Run Order: **MAN-TECH_120330A: 18** SampType: **Sample Duplicate** Sample ID: **H12030340-018ADUP** Method: **A2320 B**
Analysis Date: **03/30/12 12:14** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	110	4.0						109.4	0.6	10	
Bicarbonate as HCO3	130	4.0						133.4	0.6	10	
Carbonate as CO3	ND	4.0								10	

Associated samples: **H12030340-016A; H12030340-017A; H12030340-018A**

Run ID :Run Order: **MAN-TECH_120330A: 32** SampType: **Sample Matrix Spike** Sample ID: **H12030349-006AMS** Method: **A2320 B**
Analysis Date: **03/30/12 13:13** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	1600	4.0	600	1205	73	80	120				S

Associated samples: **H12030340-016A; H12030340-017A; H12030340-018A**

Run ID :Run Order: **MAN-TECH_120330A: 40** SampType: **Sample Duplicate** Sample ID: **H12030371-003ADUP** Method: **A2320 B**
Analysis Date: **03/30/12 13:40** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	84	4.0						83.95	0.1	10	
Bicarbonate as HCO3	100	4.0						102.4	0.1	10	
Carbonate as CO3	ND	4.0								10	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78916

Run ID :Run Order: **MAN-TECH_120330A: 40** SampType: **Sample Duplicate** Sample ID: **H12030371-003ADUP** Method: **A2320 B**

Analysis Date: **03/30/12 13:40** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12030340-016A; H12030340-017A; H12030340-018A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78968

Run ID :Run Order: **ICPMS204-B_120402A: 8** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **04/02/12 13:52** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0487	0.0050	0.05		97	90	110				
Cadmium	0.0264	0.0010	0.025		106	90	110				
Copper	0.0513	0.010	0.05		103	90	110				
Iron	0.268	0.030	0.25		107	90	110				
Lead	0.0494	0.010	0.05		99	90	110				
Manganese	0.254	0.010	0.25		102	90	110				
Zinc	0.0511	0.010	0.05		102	90	110				

Associated samples: **H12030340-001C; H12030340-002C; H12030340-003C; H12030340-004C; H12030340-005C; H12030340-006C; H12030340-007C; H12030340-008C; H12030340-009C; H12030340-010C; H12030340-011C; H12030340-012C; H12030340-013C; H12030340-014C; H12030340-015C; H12030340-016C; H12030340-017C; H12030340-018B; H12030340-018C**

Run ID :Run Order: **ICPMS204-B_120402A: 9** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **04/02/12 13:57** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.00219	0.0050									
Cadmium	0.00114	0.0010									
Copper	0.000146	0.010									
Iron	104	0.030	100		104	70	130				
Lead	0.000172	0.010									
Manganese	0.000167	0.010									
Zinc	0.00144	0.010									

Associated samples: **H12030340-001C; H12030340-002C; H12030340-003C; H12030340-004C; H12030340-005C; H12030340-006C; H12030340-007C; H12030340-008C; H12030340-009C; H12030340-010C; H12030340-011C; H12030340-012C; H12030340-013C; H12030340-014C; H12030340-015C; H12030340-016C; H12030340-017C; H12030340-018B; H12030340-018C**

Run ID :Run Order: **ICPMS204-B_120402A: 10** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **04/02/12 14:02** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0112	0.0050	0.01		112	70	130				
Cadmium	0.0110	0.0010	0.01		110	70	130				
Copper	0.0205	0.010	0.02		103	70	130				
Iron	103	0.030	100		103	70	130				
Lead	0.000147	0.010				0	0				
Manganese	0.0202	0.010	0.02		101	70	130				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78968

Run ID :Run Order: **ICPMS204-B_120402A: 10** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **04/02/12 14:02** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zinc	0.0116	0.010	0.01		116	70	130				

Associated samples: **H12030340-001C; H12030340-002C; H12030340-003C; H12030340-004C; H12030340-005C; H12030340-006C; H12030340-007C; H12030340-008C; H12030340-009C; H12030340-010C; H12030340-011C; H12030340-012C; H12030340-013C; H12030340-014C; H12030340-015C; H12030340-016C; H12030340-017C; H12030340-018B; H12030340-018C**

Run ID :Run Order: **ICPMS204-B_120402A: 21** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.8**

Analysis Date: **04/02/12 16:03** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	7E-05	3E-05									
Cadmium	ND	1E-05									
Copper	ND	3E-05									
Iron	0.0010	0.0002									
Lead	ND	1.0E-05									
Manganese	6E-05	1E-05									
Zinc	0.001	0.0003									

Associated samples: **H12030340-002C; H12030340-007C; H12030340-008C; H12030340-009C; H12030340-010C; H12030340-011C; H12030340-017C; H12030340-018B**

Run ID :Run Order: **ICPMS204-B_120402A: 29** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**

Analysis Date: **04/02/12 16:40** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0486	0.0050	0.05	0.0000654	97	85	115				
Cadmium	0.0470	0.0010	0.05		94	85	115				
Copper	0.0460	0.010	0.05		92	85	115				
Iron	4.98	0.030	5	0.0009885	100	85	115				
Lead	0.0477	0.010	0.05		95	85	115				
Manganese	0.0476	0.010	0.05	0.0000605	95	85	115				
Zinc	0.0471	0.010	0.05	0.001083	92	85	115				

Associated samples: **H12030340-002C; H12030340-007C; H12030340-008C; H12030340-009C; H12030340-010C; H12030340-011C; H12030340-017C; H12030340-018B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78968

Run ID :Run Order: **ICPMS204-B_120402A: 67** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **04/02/12 19:39** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0492	0.0050	0.05		98	90	110				
Cadmium	0.0264	0.0010	0.025		106	90	110				
Copper	0.0514	0.010	0.05		103	90	110				
Iron	0.264	0.030	0.25		105	90	110				
Lead	0.0504	0.010	0.05		101	90	110				
Manganese	0.259	0.010	0.25		103	90	110				
Zinc	0.0516	0.010	0.05		103	90	110				

Associated samples: **H12030340-001C; H12030340-002C; H12030340-003C; H12030340-004C; H12030340-005C; H12030340-006C; H12030340-007C; H12030340-008C; H12030340-009C; H12030340-010C; H12030340-011C; H12030340-012C; H12030340-013C; H12030340-014C; H12030340-015C; H12030340-016C; H12030340-017C; H12030340-018B; H12030340-018C**

Run ID :Run Order: **ICPMS204-B_120402A: 68** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **04/02/12 19:44** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.000851	0.0050									
Cadmium	0.00106	0.0010									
Copper	0.000189	0.010									
Iron	96.4	0.030	100		96	70	130				
Lead	0.000152	0.010									
Manganese	0.000189	0.010									
Zinc	0.00127	0.010									

Associated samples: **H12030340-001C; H12030340-002C; H12030340-003C; H12030340-004C; H12030340-005C; H12030340-006C; H12030340-007C; H12030340-008C; H12030340-009C; H12030340-010C; H12030340-011C; H12030340-012C; H12030340-013C; H12030340-014C; H12030340-015C; H12030340-016C; H12030340-017C; H12030340-018B; H12030340-018C**

Run ID :Run Order: **ICPMS204-B_120402A: 69** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **04/02/12 19:48** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0104	0.0050	0.01		104	70	130				
Cadmium	0.0105	0.0010	0.01		105	70	130				
Copper	0.0194	0.010	0.02		97	70	130				
Iron	98.9	0.030	100		99	70	130				
Lead	0.000126	0.010				0	0				
Manganese	0.0196	0.010	0.02		98	70	130				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78968

Run ID :Run Order: **ICPMS204-B_120402A: 69** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **04/02/12 19:48** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zinc	0.0107	0.010	0.01		107	70	130				

Associated samples: **H12030340-001C; H12030340-002C; H12030340-003C; H12030340-004C; H12030340-005C; H12030340-006C; H12030340-007C; H12030340-008C; H12030340-009C; H12030340-010C; H12030340-011C; H12030340-012C; H12030340-013C; H12030340-014C; H12030340-015C; H12030340-016C; H12030340-017C; H12030340-018B; H12030340-018C**

Run ID :Run Order: **ICPMS204-B_120402A: 104** SampType: **Sample Matrix Spike** Sample ID: **H12030340-002CMS** Method: **E200.8**

Analysis Date: **04/02/12 22:32** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0484	0.0010	0.05		97	70	130				
Cadmium	0.0481	0.0010	0.05		96	70	130				
Copper	0.0480	0.0050	0.05		96	70	130				
Iron	4.86	0.030	5	0.001493	97	70	130				
Lead	0.0500	0.0010	0.05	0.0000645	100	70	130				
Manganese	0.0496	0.0010	0.05	0.0004193	98	70	130				
Zinc	0.0496	0.010	0.05	0.001954	95	70	130				

Associated samples: **H12030340-002C; H12030340-007C; H12030340-008C; H12030340-009C; H12030340-010C; H12030340-011C; H12030340-017C; H12030340-018B**

Run ID :Run Order: **ICPMS204-B_120402A: 105** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12030340-002CMSD** Method: **E200.8**

Analysis Date: **04/02/12 22:36** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0479	0.0010	0.05		96	70	130	0.04837	1.0	20	
Cadmium	0.0481	0.0010	0.05		96	70	130	0.0481	0.0	20	
Copper	0.0472	0.0050	0.05		94	70	130	0.04802	1.7	20	
Iron	4.79	0.030	5	0.001493	96	70	130	4.856	1.4	20	
Lead	0.0503	0.0010	0.05	0.0000645	100	70	130	0.04998	0.6	20	
Manganese	0.0500	0.0010	0.05	0.0004193	99	70	130	0.04965	0.7	20	
Zinc	0.0494	0.010	0.05	0.001954	95	70	130	0.04959	0.3	20	

Associated samples: **H12030340-002C; H12030340-007C; H12030340-008C; H12030340-009C; H12030340-010C; H12030340-011C; H12030340-017C; H12030340-018B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78968

Run ID :Run Order: **ICPMS204-B_120402A: 132** SampType: **Sample Matrix Spike** Sample ID: **H12030341-001BMS** Method: **E200.8**

Analysis Date: **04/03/12 00:42** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0490	0.0010	0.05	0.0007844	96	70	130				
Cadmium	0.0453	0.0010	0.05	0.0000553	91	70	130				
Copper	0.0485	0.0050	0.05	0.001761	93	70	130				
Iron	4.93	0.030	5	0.03316	98	70	130				
Lead	0.0488	0.0010	0.05	0.0001917	97	70	130				
Manganese	0.0607	0.0010	0.05	0.01482	92	70	130				
Zinc	0.0485	0.010	0.05	0.004231	89	70	130				

Associated samples: **H12030340-002C; H12030340-007C; H12030340-008C; H12030340-009C; H12030340-010C; H12030340-011C; H12030340-017C; H12030340-018B**

Run ID :Run Order: **ICPMS204-B_120402A: 133** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12030341-001BMSD** Method: **E200.8**

Analysis Date: **04/03/12 00:47** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0496	0.0010	0.05	0.0007844	98	70	130	0.04903	1.1	20	
Cadmium	0.0456	0.0010	0.05	0.0000553	91	70	130	0.04533	0.7	20	
Copper	0.0489	0.0050	0.05	0.001761	94	70	130	0.04849	0.9	20	
Iron	4.96	0.030	5	0.03316	98	70	130	4.926	0.6	20	
Lead	0.0483	0.0010	0.05	0.0001917	96	70	130	0.04875	1.0	20	
Manganese	0.0610	0.0010	0.05	0.01482	92	70	130	0.06067	0.5	20	
Zinc	0.0501	0.010	0.05	0.004231	92	70	130	0.04855	3.1	20	

Associated samples: **H12030340-002C; H12030340-007C; H12030340-008C; H12030340-009C; H12030340-010C; H12030340-011C; H12030340-017C; H12030340-018B**

Run ID :Run Order: **ICPMS204-B_120402A: 177** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **04/03/12 04:14** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0499	0.0050	0.05		100	90	110				
Cadmium	0.0260	0.0010	0.025		104	90	110				
Copper	0.0520	0.010	0.05		104	90	110				
Iron	0.259	0.030	0.25		104	90	110				
Lead	0.0495	0.010	0.05		99	90	110				
Manganese	0.260	0.010	0.25		104	90	110				
Zinc	0.0526	0.010	0.05		105	90	110				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78968

Run ID :Run Order: **ICPMS204-B_120402A: 177** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **04/03/12 04:14** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12030340-001C; H12030340-002C; H12030340-003C; H12030340-004C; H12030340-005C; H12030340-006C; H12030340-007C; H12030340-008C; H12030340-009C; H12030340-010C; H12030340-011C; H12030340-012C; H12030340-013C; H12030340-014C; H12030340-015C; H12030340-016C; H12030340-017C; H12030340-018B; H12030340-018C**

Run ID :Run Order: **ICPMS204-B_120402A: 178** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **04/03/12 04:18** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.000507	0.0050									
Cadmium	0.000989	0.0010									
Copper	0.000184	0.010									
Iron	97.7	0.030	100		98	70	130				
Lead	0.000156	0.010									
Manganese	0.000165	0.010									
Zinc	0.00130	0.010									

Associated samples: **H12030340-001C; H12030340-002C; H12030340-003C; H12030340-004C; H12030340-005C; H12030340-006C; H12030340-007C; H12030340-008C; H12030340-009C; H12030340-010C; H12030340-011C; H12030340-012C; H12030340-013C; H12030340-014C; H12030340-015C; H12030340-016C; H12030340-017C; H12030340-018B; H12030340-018C**

Run ID :Run Order: **ICPMS204-B_120402A: 179** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **04/03/12 04:23** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0104	0.0050	0.01		104	70	130				
Cadmium	0.0103	0.0010	0.01		103	70	130				
Copper	0.0198	0.010	0.02		99	70	130				
Iron	96.8	0.030	100		97	70	130				
Lead	0.000129	0.010				0	0				
Manganese	0.0191	0.010	0.02		96	70	130				
Zinc	0.0112	0.010	0.01		112	70	130				

Associated samples: **H12030340-001C; H12030340-002C; H12030340-003C; H12030340-004C; H12030340-005C; H12030340-006C; H12030340-007C; H12030340-008C; H12030340-009C; H12030340-010C; H12030340-011C; H12030340-012C; H12030340-013C; H12030340-014C; H12030340-015C; H12030340-016C; H12030340-017C; H12030340-018B; H12030340-018C**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78968

Run ID :Run Order: **ICPMS204-B_120402A: 281** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **04/03/12 13:55** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0493	0.0050	0.05		99	90	110				
Cadmium	0.0258	0.0010	0.025		103	90	110				
Copper	0.0516	0.010	0.05		103	90	110				
Iron	0.256	0.030	0.25		103	90	110				
Lead	0.0494	0.010	0.05		99	90	110				
Manganese	0.260	0.010	0.25		104	90	110				
Zinc	0.0512	0.010	0.05		102	90	110				

Associated samples: **H12030340-001C; H12030340-002C; H12030340-003C; H12030340-004C; H12030340-005C; H12030340-006C; H12030340-007C; H12030340-008C; H12030340-009C; H12030340-010C; H12030340-011C; H12030340-012C; H12030340-013C; H12030340-014C; H12030340-015C; H12030340-016C; H12030340-017C; H12030340-018B; H12030340-018C**

Run ID :Run Order: **ICPMS204-B_120402A: 282** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **04/03/12 14:00** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.000794	0.0050									
Cadmium	0.00101	0.0010									
Copper	0.000275	0.010									
Iron	98.9	0.030	100		99	70	130				
Lead	0.000218	0.010									
Manganese	0.000376	0.010									
Zinc	0.00124	0.010									

Associated samples: **H12030340-001C; H12030340-002C; H12030340-003C; H12030340-004C; H12030340-005C; H12030340-006C; H12030340-007C; H12030340-008C; H12030340-009C; H12030340-010C; H12030340-011C; H12030340-012C; H12030340-013C; H12030340-014C; H12030340-015C; H12030340-016C; H12030340-017C; H12030340-018B; H12030340-018C**

Run ID :Run Order: **ICPMS204-B_120402A: 283** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **04/03/12 14:04** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0104	0.0050	0.01		104	70	130				
Cadmium	0.0104	0.0010	0.01		104	70	130				
Copper	0.0196	0.010	0.02		98	70	130				
Iron	100	0.030	100		100	70	130				
Lead	0.000141	0.010				0	0				
Manganese	0.0193	0.010	0.02		96	70	130				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78968

Run ID :Run Order: **ICPMS204-B_120402A: 283** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **04/03/12 14:04** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zinc	0.0110	0.010	0.01		110	70	130				

Associated samples: **H12030340-001C; H12030340-002C; H12030340-003C; H12030340-004C; H12030340-005C; H12030340-006C; H12030340-007C; H12030340-008C; H12030340-009C; H12030340-010C; H12030340-011C; H12030340-012C; H12030340-013C; H12030340-014C; H12030340-015C; H12030340-016C; H12030340-017C; H12030340-018B; H12030340-018C**

Run ID :Run Order: **ICPMS204-B_120402A: 295** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **04/03/12 15:34** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0504	0.0050	0.05		101	90	110				
Cadmium	0.0260	0.0010	0.025		104	90	110				
Copper	0.0515	0.010	0.05		103	90	110				
Lead	0.0498	0.010	0.05		100	90	110				
Manganese	0.257	0.010	0.25		103	90	110				
Zinc	0.0511	0.010	0.05		102	90	110				

Associated samples: **H12030340-001C; H12030340-002C; H12030340-003C; H12030340-004C; H12030340-005C; H12030340-006C; H12030340-007C; H12030340-008C; H12030340-009C; H12030340-010C; H12030340-011C; H12030340-012C; H12030340-013C; H12030340-014C; H12030340-015C; H12030340-016C; H12030340-017C; H12030340-018B; H12030340-018C**

Run ID :Run Order: **ICPMS204-B_120402A: 322** SampType: **Sample Matrix Spike** Sample ID: **H12030310-001BMS** Method: **E200.8**

Analysis Date: **04/03/12 17:41** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.110	0.0010	0.05	0.06216	95	70	130				
Cadmium	0.0459	0.0010	0.05		92	70	130				
Copper	0.0453	0.0050	0.05	0.0000358	91	70	130				
Iron	5.93	0.030	5	1.141	96	70	130				
Lead	0.0517	0.0010	0.05	0.0000307	103	70	130				
Manganese	0.0776	0.0010	0.05	0.03153	92	70	130				
Zinc	0.0478	0.010	0.05	0.001936	92	70	130				

Associated samples: **H12030340-002C; H12030340-007C; H12030340-008C; H12030340-009C; H12030340-010C; H12030340-011C; H12030340-017C; H12030340-018B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78968

Run ID :Run Order: **ICPMS204-B_120402A: 323** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12030310-001BMSD** Method: **E200.8**

Analysis Date: **04/03/12 17:45** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.111	0.0010	0.05	0.06216	97	70	130	0.1095	1.1	20	
Cadmium	0.0451	0.0010	0.05		90	70	130	0.0459	1.8	20	
Copper	0.0458	0.0050	0.05	0.0000358	92	70	130	0.04532	1.1	20	
Iron	5.86	0.030	5	1.141	94	70	130	5.933	1.3	20	
Lead	0.0507	0.0010	0.05	0.0000307	101	70	130	0.05171	2.0	20	
Manganese	0.0765	0.0010	0.05	0.03153	90	70	130	0.07759	1.3	20	
Zinc	0.0479	0.010	0.05	0.001936	92	70	130	0.04782	0.1	20	

Associated samples: **H12030340-002C; H12030340-007C; H12030340-008C; H12030340-009C; H12030340-010C; H12030340-011C; H12030340-017C; H12030340-018B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R79058

Run ID :Run Order: **ICP2-HE_120405B: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**

Analysis Date: **04/05/12 14:15** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	4.06	0.10	4		101	90	110				
Arsenic	0.772	0.0074	0.8		96	90	110				
Cadmium	0.374	0.0010	0.4		94	90	110				
Copper	0.812	0.010	0.8		102	90	110				
Iron	4.00	0.030	4		100	90	110				
Lead	0.765	0.013	0.8		96	90	110				

Associated samples: **H12030340-019A; H12030340-020A; H12030340-021A; H12030340-022A; H12030340-023A; H12030340-024A; H12030340-025A; H12030340-026A; H12030340-027A; H12030340-028A; H12030340-029A; H12030340-030A; H12030340-031A; H12030340-032A**

Run ID :Run Order: **ICP2-HE_120405B: 10** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.7**

Analysis Date: **04/05/12 14:30** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	531	0.10	500		106	80	120				
Arsenic	-0.00664	0.0074				0	0				
Cadmium	0.000470	0.0010				0	0				
Copper	0.00736	0.010				0	0				
Iron	189	0.030	200		94	80	120				
Lead	0.00950	0.013				0	0				

Associated samples: **H12030340-019A; H12030340-020A; H12030340-021A; H12030340-022A; H12030340-023A; H12030340-024A; H12030340-025A; H12030340-026A; H12030340-027A; H12030340-028A; H12030340-029A; H12030340-030A; H12030340-031A; H12030340-032A**

Run ID :Run Order: **ICP2-HE_120405B: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**

Analysis Date: **04/05/12 14:34** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	521	0.10	500		104	80	120				
Arsenic	1.01	0.0074	1		101	80	120				
Cadmium	0.867	0.0010	1		87	80	120				
Copper	0.509	0.010	0.5		102	80	120				
Iron	186	0.030	200		93	80	120				
Lead	0.916	0.013	1		92	80	120				

Associated samples: **H12030340-019A; H12030340-020A; H12030340-021A; H12030340-022A; H12030340-023A; H12030340-024A; H12030340-025A; H12030340-026A; H12030340-027A; H12030340-028A; H12030340-029A; H12030340-030A; H12030340-031A; H12030340-032A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R79127

Run ID :Run Order: **ICP2-HE_120410C: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**

Analysis Date: **04/10/12 08:39** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.799	0.0074	0.8		100	90	110				
Iron	3.97	0.030	4		99	90	110				
Lead	0.778	0.013	0.8		97	90	110				

Associated samples: **H12030340-019A; H12030340-020A; H12030340-021A; H12030340-022A; H12030340-023A; H12030340-024A; H12030340-025A; H12030340-026A; H12030340-027A; H12030340-028A; H12030340-029A; H12030340-031A**

Run ID :Run Order: **ICP2-HE_120410C: 10** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.7**

Analysis Date: **04/10/12 08:54** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	-0.00224	0.0074				0	0				
Iron	188	0.030	200		94	80	120				
Lead	0.0352	0.013				0	0				

Associated samples: **H12030340-019A; H12030340-020A; H12030340-021A; H12030340-022A; H12030340-023A; H12030340-024A; H12030340-025A; H12030340-026A; H12030340-027A; H12030340-028A; H12030340-029A; H12030340-031A**

Run ID :Run Order: **ICP2-HE_120410C: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**

Analysis Date: **04/10/12 08:58** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	1.05	0.0074	1		105	80	120				
Iron	189	0.030	200		95	80	120				
Lead	0.935	0.013	1		94	80	120				

Associated samples: **H12030340-019A; H12030340-020A; H12030340-021A; H12030340-022A; H12030340-023A; H12030340-024A; H12030340-025A; H12030340-026A; H12030340-027A; H12030340-028A; H12030340-029A; H12030340-031A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030340
Project: UBMC Surface Water and Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R79165

Date: *17-Apr-12*

Run ID :Run Order: **ICP2-HE_120411C: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**
Analysis Date: **04/11/12 10:55** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.788	0.013	0.8		98	90	110				

Associated samples: **H12030340-019A**

Run ID :Run Order: **ICP2-HE_120411C: 10** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.7**
Analysis Date: **04/11/12 11:10** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.0254	0.013				0	0				

Associated samples: **H12030340-019A**

Run ID :Run Order: **ICP2-HE_120411C: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**
Analysis Date: **04/11/12 11:14** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.941	0.013	1		94	80	120				

Associated samples: **H12030340-019A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Workorder Receipt Checklist

H12030340

MT DEQ-Site Response

Login completed by: Wanda Johnson
Date Received: 3/27/2012
Reviewed by: BL2000\sdull
Received by: TLL
Reviewed Date: 4/2/2012
Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Container/Temp Blank temperature:	℃ See Comments		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Contact and Corrective Action Comments:

Cooler #1 received at a temperautre of 2.8C, Cooler #2 1.6C & Cooler #3 3.0C-Soils cooler. All samples received on ice. Call into client regarding sample ID for "UBMCBRSD01" on COC but the jar states "UBMCBRSW01". Also contacted client regarding "Total" metals which is on parameter sheet versus "Total Recoverable " metals on quote & what has historically been done on this site. Wj 3/27/12 ID should be "UBMCBRSD" and water metals should be Total Recoverable per A. Dreesbach. Wj 3/29/12

Chain of Custody and Analytical Request Record

PLEASE PRINT (Provide as much information as possible.)

Company Name: MTDEQ	Project Name, PWS, Permit, Etc.: UBMC Surface Water	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: Quote H-645	Contact Name: Shellie Haaland Phone/Fax: 841-5033 Email: shaaland@mt.gov		Sampler: (Please Print) Alan Dreesbach Jackie Janeske
Invoice Address:	Invoice Contact & Phone:	Purchase Order:	Quote/Bottle Order:

Special Report/Formats:

☐ DW ☐ POTW/WWTP ☐ State: _____ ☐ Other: _____

☐ EDD/EDT (Electronic Data) Format: _____ ☐ LEVEL IV ☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids
Vegetation Bioassay Other
DW - Drinking Water

ANALYSIS REQUESTED

SEE ATTACHED

Standard Turnaround (TAT)

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: Please copy results to adreesbach@portageinc.com 406-490-5155

Shipped by: Hand del

Cooler ID(s): Y

Receipt Temp: _____ °C

On Ice: Y N

Custody Seal: On Bottle Y N; On Cooler Y N

Intact: Y N

Signature Match: Y N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	SEE ATTACHED	
2	1 S35SW05	03/21/12	1010	W	X	Cooler #1 2.8° #12030340
2	2 S35SW07		0900			Cooler #2 1.6°
2	3 S35SW01		1100			
2	4 S35SW06		1110			
2	5 S35SW02		1200			
2	6 S35SW04		1345			
2	7 S35SW03		1425			
1	8 UBMCBRSW25		1510			
1	9 UBMCBRSW26		1515			
1	10 UBMCBRSW22		1550			

LABORATORY USE ONLY

Custody Record MUST be Signed

Relinquished by (print): Alan Dreesbach Date/Time: 3/22/12 0934 Signature:

Relinquished by (print): Date/Time: Signature:

Sample Disposal: Return to Client: _____ Lab Disposal: _____

Received by (print): Date/Time: Signature:

Received by (print): Date/Time: Signature:

Received by Laboratory: Tracy Loresh 3/22/12 14:34 Signature:

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.

Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

Chain of Custody and Analytical Request Record

PLEASE PRINT (Provide as much information as possible.)

Company Name: MDEQ	Project Name, PWS, Permit, Etc.: UBMC Surface Water	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: Quote H-645	Contact Name: Shellie Haaland Phone/Fax: 841-5033 Email: shaaland@mt.gov		Sampler: (Please Print) Alan Dreesbach Jackie Janoske
Invoice Address:	Invoice Contact & Phone:	Purchase Order:	Quote/Bottle Order:

Special Report/Formats:

☐ DW ☐ POTW/WWTP ☐ State: _____ ☐ Other: _____

☐ EDD/EDT (Electronic Data) Format: _____ ☐ LEVEL IV ☐ NELAC

Number of Containers
Sample Type: A Air W Water S Soils/Solids V Vegetation B Bioassay O Other D DW - Drinking Water

ANALYSIS REQUESTED

Standard Turnaround (TAT) — R U S H

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: Please copy results to adreesbach@portageinc.com 406 490.5155

Shipped by: Hand del.
Cooler ID(s): Y
Receipt Temp: °C
On Ice: (Y) N
Custody Seal On Bottle Y (N) On Cooler Y (N)
Intact Y N
Signature Match Y N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	SEE ATTACHED
1	UBMC3RSW24	03/26/12	1555	W	X
2	UBMCBRSW01	03/26/12	1650		
3	UBMCBRSW2	03/26/12	1725		
4	UBMCBRSW38	03/27/12	0850		
5	UBMCBRSW48		1005		
6	UBMCBRSW23		1030		
7	UBMCBRSW3A		1055		
8	UBMCBRSW3B		1115		
9					
10					

3/27/2012

Cooler #1 2.8
Cooler #2 1.6

LABORATORY USE ONLY H12030340

Custody Record MUST be Signed

Relinquished by (print): Alan Dreesbach Date/Time: 3/27/12 @ 1434 Signature:

Relinquished by (print): Date/Time: Signature:

Sample Disposal: Return to Client: _____ Lab Disposal: _____

Received by (print): Date/Time: Signature:

Received by (print): Date/Time: Signature:

Received by Laboratory: Tracy Loraas Date/Time: 3/27/12 14:34 Signature: Tracy Loraas

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.
This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our website at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

Chain of Custody and Analytical Request Record

PLEASE PRINT (Provide as much information as possible.)

Company Name: MDEQ	Project Name, PWS, Permit, Etc.: UBMC Sediment	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: Quote H-645	Contact Name: Phone/Fax: Shellie Haaland 841-5033 Email: shaaland@mt.gov		Sampler: (Please Print) Alan Dreesbach, Jackie Janowski
Invoice Address:	Invoice Contact & Phone:	Purchase Order:	Quote/Bottle Order:

Special Report/Formats:

☐ DW ☐ POTW/WWTP ☐ State: _____ ☐ Other: _____

☐ EDD/EDT (Electronic Data) Format: _____ ☐ LEVEL IV ☐ NELAC

ANALYSIS REQUESTED

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids
Vegetation Bioassay Other
DW - Drinking Water

SEE ATTACHED

Standard Turnaround (TAT)

RUSH

→ Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

Shipped by: Hand del

Cooler ID(s): Y

Receipt Temp: 3.0 °C

On Ice: (Y) N

Custody Seal: On Bottle Y (N) On Cooler Y (N)

Intact: Y N

Signature Match: Y N

LABORATORY USE ONLY: H12030340

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	SEE ATTACHED
1	S35SD05	03/26/12	1010	Sediment	X
2	S35SD06		1110		
3	S35SD01		1110		
4	S35SD02		1200		
5	S35SD04		1345		
6	S35SD03		1425		
7	UBMCBRSD22		1550		
8	UBMCBRSD24		1555		
9	UBMCBRSD01		1650		
10		~~03/27/12~~			

Custody Record MUST be Signed

Relinquished by (print): Alan Dreesbach Date/Time: 3/27/12 @ 1434 Signature:

Relinquished by (print): Date/Time: Signature:

Received by (print): Date/Time: Signature:

Received by (print): Date/Time: Signature:

Received by Laboratory: Tracy Crash Date/Time: 3/27/12 14:34 Signature:

Sample Disposal: Return to Client: _____ Lab Disposal: _____

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.
This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.

Chain of Custody and Analytical Request Record

PLEASE PRINT (Provide as much information as possible.)

Company Name: M DEQ

Report Mail Address: Quote H-645

Invoice Address:

Project Name, PWS, Permit, Etc.: UBMC Sediment

Contact Name: Phone/Fax: Shellie Haaland 841-5033 Email: shaaland@mt.gov

Invoice Contact & Phone:

Sample Origin State: MT

EPA/State Compliance: Yes ☐ No ☐

Sampler: (Please Print) Alan Dreesbach, Jackie Janoske

Purchase Order:

Quote/Bottle Order:

Special Report/Formats:

☐ DW
☐ POTW/WWTP
☐ State: _____
☐ Other: _____

☐ EDD/EDT (Electronic Data) Format: _____
☐ LEVEL IV
☐ NELAC

Number of Containers
Sample Type: A Air, W Water, S Soils/Solids, V Vegetation, B Bioassay, O Other
DW - Drinking Water

ANALYSIS REQUESTED

SEE ATTACHED

Standard Turnaround (TAT)

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: Please copy results to adreesbach@portageinc.com 406.490.5155

Shipped by: Hand del

Cooler ID(s): Y

Receipt Temp 3.0 °C

On Ice: (Y) N

Custody Seal On Bottle Y (N) On Cooler Y (N)

Intact Y N

Signature Match Y N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	SEE ATTACHED
1	UBMCBRSD38	03/27/12	0950	Sediment	X
2	UBMCBRSD48		1005		
3	UBMCBRSD23		1030		
4	UBMCBRSD3A		1055		
5	UBMCBRSD3B		1115		
6					
7					
8					
9					
10					

~~Cooler #1 2.8~~ ~~Cooler #2 1.6~~ H120303420

LABORATORY USE ONLY

proof 03/27/2012

Custody Record MUST be Signed

Relinquished by (print): Alan Dreesbach Date/Time: 3/27/12 @ 1434 Signature:

Relinquished by (print): Date/Time: Signature:

Sample Disposal: Return to Client: _____ Lab Disposal: _____

Received by (print): Date/Time: Signature:

Received by (print): Date/Time: Signature:

Received by Laboratory: Tracy Carol Date/Time: 3/27/12 14:34 Signature:

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.

Section 35 Quarterly													
	Quantity	Analysis											
Surface Water	7	[1]Disolved Metals	[2]Total Metals	[5]Cations	Chloride	Sulfate	Alkalinity	Hardness	Acidity	TDS	TSS	pH	EC
Groundwater	9	[3]Dissolved Metals		[5]Cations	Chloride	Sulfate	Alkalinity	Hardness	Acidity	TDS	TSS	pH	EC
Sediment	6		[4]Total Metals										

[1]Aluminum

[2]Arsenic, cadmium, copper, iron, lead, manganese, and zinc

[3]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[4]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[5]Calcium, magnesium, potassium, sodium

UBMC Quarterly													
	Quantity	Analysis											
[6]Surface Water	11	[1]Disolved Metals	[2]Total Metals	[5]Cations	Chloride	Sulfate	Alkalinity	Hardness	Acidity	TDS	TSS	pH	EC
Groundwater	10	[3]Dissolved Metals		[5]Cations	Chloride	Sulfate	Alkalinity	Hardness	Acidity	TDS	TSS	pH	EC
Sediment	9		[4]Total Metals										

[1]Aluminum

[2]Arsenic, cadmium, copper, iron, lead, manganese, and zinc

[3]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[4]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[5]Calcium, magnesium, potassium, sodium

[6]Additional surface water samples may be collected for seeps.

ANALYTICAL SUMMARY REPORT

April 13, 2012

MT DEQ-Site Response
PO Box 200901
Helena, MT 59620-0901

Workorder No.: H12030390 Quote ID: H645 - UBMC

Project Name: UBMC Groundwater

Energy Laboratories Inc Helena MT received the following 15 samples for MT DEQ-Site Response on 3/30/2012 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H12030390-001	S35MW08	03/28/12 9:40	03/30/12	Groundwater	Metals by ICP/ICPMS, Dissolved Alkalinity Conductivity Hardness as CaCO3 Anions by Ion Chromatography pH Preparation for TDS Preparation for TSS Solids, Total Dissolved Solids, Total Suspended
H12030390-002	S35MW09	03/28/12 9:45	03/30/12	Groundwater	Same As Above
H12030390-003	S35MW06	03/28/12 14:15	03/30/12	Groundwater	Same As Above
H12030390-004	S35MW04	03/28/12 15:10	03/30/12	Groundwater	Same As Above
H12030390-005	S35MW07	03/28/12 15:15	03/30/12	Groundwater	Same As Above
H12030390-006	S35MW03	03/28/12 16:20	03/30/12	Groundwater	Same As Above
H12030390-007	UBMCTDMW07	03/29/12 8:15	03/30/12	Groundwater	Same As Above
H12030390-008	UBMCTDMW08	03/29/12 8:20	03/30/12	Groundwater	Same As Above
H12030390-009	UBMCTDMW05	03/29/12 8:45	03/30/12	Groundwater	Same As Above
H12030390-010	UBMCTDMW4D	03/29/12 11:05	03/30/12	Groundwater	Same As Above
H12030390-011	UBMCTDMW06	03/29/12 11:10	03/30/12	Groundwater	Same As Above
H12030390-012	UBMCTDMW3D	03/29/12 13:30	03/30/12	Groundwater	Same As Above
H12030390-013	UBMCTDMW01	03/29/12 15:15	03/30/12	Groundwater	Same As Above
H12030390-014	UBMCTDMW2D	03/29/12 15:30	03/30/12	Groundwater	Same As Above
H12030390-015	UBMCTDMW2S	03/29/12 15:55	03/30/12	Groundwater	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise reported.

Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID S35MW08
Lab ID: H12030390-001
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 03/28/12 09:40
DateReceived: 03/30/12
Report Date: 04/13/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.3	s.u.		0.1		A4500-H B	03/30/12 12:22 / cmm		PHSC_101-H_120330A	42	R78901
Conductivity @ 25 C	1	umhos/cm		1		A2510 B	03/30/12 12:22 / cmm		PHSC_101-H_120330A	43	R78901
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/30/12 14:08 / cmm	03/30/12 11:09	J-124 (14410200)_120330A	13	16096
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	03/30/12 14:17 / cmm	03/30/12 11:14	J-124 (14410200)_120330B	9	16097
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	04/02/12 13:07 / cmm		MAN-TECH_120402A	18	R78946
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	04/02/12 13:07 / cmm		MAN-TECH_120402A	18	R78946
Carbonate as CO3	ND	mg/L		4		A2320 B	04/02/12 13:07 / cmm		MAN-TECH_120402A	18	R78946
Chloride	ND	mg/L		1		E300.0	04/03/12 15:05 / zeg		IC102-H_120403A	34	R79043
Sulfate	ND	mg/L		1		E300.0	04/03/12 15:05 / zeg		IC102-H_120403A	34	R79043
Hardness as CaCO3	ND	mg/L		1		A2340 B	04/04/12 10:24 / sld		WATERCALC_120404A	6	R78988
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	04/03/12 06:11 / dck		ICPMS204-B_120402A	202	R78968
Arsenic	ND	mg/L		0.003		E200.8	04/03/12 06:11 / dck		ICPMS204-B_120402A	202	R78968
Cadmium	ND	mg/L		0.00008		E200.8	04/03/12 06:11 / dck		ICPMS204-B_120402A	202	R78968
Calcium	ND	mg/L		1		E200.7	04/02/12 14:52 / sld		ICP2-HE_120402B	77	R78958
Copper	ND	mg/L		0.001		E200.8	04/03/12 06:11 / dck		ICPMS204-B_120402A	202	R78968
Iron	ND	mg/L		0.05		E200.8	04/03/12 06:11 / dck		ICPMS204-B_120402A	202	R78968
Lead	ND	mg/L		0.0005		E200.8	04/03/12 06:11 / dck		ICPMS204-B_120402A	202	R78968
Magnesium	ND	mg/L		1		E200.7	04/02/12 14:52 / sld		ICP2-HE_120402B	77	R78958
Manganese	ND	mg/L		0.005		E200.8	04/03/12 06:11 / dck		ICPMS204-B_120402A	202	R78968
Potassium	ND	mg/L		1		E200.7	04/02/12 14:52 / sld		ICP2-HE_120402B	77	R78958
Sodium	ND	mg/L		1		E200.7	04/02/12 14:52 / sld		ICP2-HE_120402B	77	R78958
Zinc	ND	mg/L		0.01		E200.8	04/03/12 06:11 / dck		ICPMS204-B_120402A	202	R78968

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID S35MW09
Lab ID: H12030390-002
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 03/28/12 09:45
DateReceived: 03/30/12
Report Date: 04/13/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.8	s.u.		0.1		A4500-H B	03/30/12 12:26 / cmm		PHSC_101-H_120330A	44	R78901
Conductivity @ 25 C	2	umhos/cm		1		A2510 B	03/30/12 12:26 / cmm		PHSC_101-H_120330A	45	R78901
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/30/12 14:09 / cmm	03/30/12 11:09	-124 (14410200)_120330A	14	16096
Solids, Total Dissolved TDS @ 180 C	10	mg/L		10		A2540 C	03/30/12 14:17 / cmm	03/30/12 11:14	-124 (14410200)_120330B	10	16097
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	04/02/12 13:12 / cmm		MAN-TECH_120402A	20	R78946
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	04/02/12 13:12 / cmm		MAN-TECH_120402A	20	R78946
Carbonate as CO3	ND	mg/L		4		A2320 B	04/02/12 13:12 / cmm		MAN-TECH_120402A	20	R78946
Chloride	ND	mg/L		1		E300.0	04/03/12 15:18 / zeg		IC102-H_120403A	35	R79043
Sulfate	ND	mg/L		1		E300.0	04/03/12 15:18 / zeg		IC102-H_120403A	35	R79043
Hardness as CaCO3	ND	mg/L		1		A2340 B	04/04/12 10:24 / sld		WATERCALC_120404A	7	R78988
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	04/03/12 06:15 / dck		ICPMS204-B_120402A	203	R78968
Arsenic	ND	mg/L		0.003		E200.8	04/03/12 06:15 / dck		ICPMS204-B_120402A	203	R78968
Cadmium	ND	mg/L		0.00008		E200.8	04/03/12 06:15 / dck		ICPMS204-B_120402A	203	R78968
Calcium	ND	mg/L		1		E200.7	04/02/12 14:56 / sld		ICP2-HE_120402B	78	R78958
Copper	ND	mg/L		0.001		E200.8	04/03/12 06:15 / dck		ICPMS204-B_120402A	203	R78968
Iron	ND	mg/L		0.05		E200.8	04/03/12 06:15 / dck		ICPMS204-B_120402A	203	R78968
Lead	ND	mg/L		0.0005		E200.8	04/03/12 06:15 / dck		ICPMS204-B_120402A	203	R78968
Magnesium	ND	mg/L		1		E200.7	04/02/12 14:56 / sld		ICP2-HE_120402B	78	R78958
Manganese	ND	mg/L		0.005		E200.8	04/03/12 06:15 / dck		ICPMS204-B_120402A	203	R78968
Potassium	ND	mg/L		1		E200.7	04/02/12 14:56 / sld		ICP2-HE_120402B	78	R78958
Sodium	ND	mg/L		1		E200.7	04/02/12 14:56 / sld		ICP2-HE_120402B	78	R78958
Zinc	ND	mg/L		0.01		E200.8	04/03/12 06:15 / dck		ICPMS204-B_120402A	203	R78968

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID S35MW06
Lab ID: H12030390-003
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 03/28/12 14:15
DateReceived: 03/30/12
Report Date: 04/13/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.5	s.u.		0.1		A4500-H B	03/30/12 12:29 / cmm		PHSC_101-H_120330A	46	R78901
Conductivity @ 25 C	401	umhos/cm		1		A2510 B	03/30/12 12:29 / cmm		PHSC_101-H_120330A	47	R78901
Solids, Total Suspended TSS @ 105 C	332	mg/L		10		A2540 D	03/30/12 14:09 / cmm	03/30/12 11:09	-124 (14410200)_120330A	15	16096
Solids, Total Dissolved TDS @ 180 C	216	mg/L		10		A2540 C	03/30/12 14:17 / cmm	03/30/12 11:14	-124 (14410200)_120330B	11	16097
INORGANICS											
Alkalinity, Total as CaCO3	200	mg/L		4		A2320 B	04/02/12 13:24 / cmm		MAN-TECH_120402A	24	R78946
Bicarbonate as HCO3	250	mg/L		4		A2320 B	04/02/12 13:24 / cmm		MAN-TECH_120402A	24	R78946
Carbonate as CO3	ND	mg/L		4		A2320 B	04/02/12 13:24 / cmm		MAN-TECH_120402A	24	R78946
Chloride	ND	mg/L		1		E300.0	04/03/12 15:59 / zeg		IC102-H_120403A	38	R79043
Sulfate	1	mg/L		1		E300.0	04/03/12 15:59 / zeg		IC102-H_120403A	38	R79043
Hardness as CaCO3	193	mg/L		1		A2340 B	04/04/12 10:24 / sld		WATERCALC_120404A	8	R78988
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	04/03/12 06:53 / dck		ICPMS204-B_120402A	211	R78968
Arsenic	ND	mg/L		0.003		E200.8	04/03/12 06:53 / dck		ICPMS204-B_120402A	211	R78968
Cadmium	ND	mg/L		0.00008		E200.8	04/03/12 06:53 / dck		ICPMS204-B_120402A	211	R78968
Calcium	51	mg/L		1		E200.7	04/02/12 14:59 / sld		ICP2-HE_120402B	79	R78958
Copper	0.002	mg/L		0.001		E200.8	04/03/12 06:53 / dck		ICPMS204-B_120402A	211	R78968
Iron	ND	mg/L		0.05		E200.8	04/03/12 06:53 / dck		ICPMS204-B_120402A	211	R78968
Lead	ND	mg/L		0.0005		E200.8	04/03/12 06:53 / dck		ICPMS204-B_120402A	211	R78968
Magnesium	16	mg/L		1		E200.7	04/02/12 14:59 / sld		ICP2-HE_120402B	79	R78958
Manganese	ND	mg/L		0.005		E200.8	04/03/12 06:53 / dck		ICPMS204-B_120402A	211	R78968
Potassium	1	mg/L		1		E200.7	04/02/12 14:59 / sld		ICP2-HE_120402B	79	R78958
Sodium	5	mg/L		1		E200.7	04/02/12 14:59 / sld		ICP2-HE_120402B	79	R78958
Zinc	ND	mg/L		0.01		E200.8	04/03/12 06:53 / dck		ICPMS204-B_120402A	211	R78968

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID S35MW04
Lab ID: H12030390-004
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 03/28/12 15:10
DateReceived: 03/30/12
Report Date: 04/13/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.6	s.u.		0.1		A4500-H B	03/30/12 12:32 / cmm		PHSC_101-H_120330A	48	R78901
Conductivity @ 25 C	357	umhos/cm		1		A2510 B	03/30/12 12:32 / cmm		PHSC_101-H_120330A	49	R78901
Solids, Total Suspended TSS @ 105 C	470	mg/L		10		A2540 D	03/30/12 14:09 / cmm	03/30/12 11:09	124 (14410200)_120330A	16	16096
Solids, Total Dissolved TDS @ 180 C	198	mg/L		10		A2540 C	03/30/12 14:17 / cmm	03/30/12 11:14	124 (14410200)_120330B	12	16097
INORGANICS											
Alkalinity, Total as CaCO3	180	mg/L		4		A2320 B	04/02/12 13:31 / cmm		MAN-TECH_120402A	26	R78946
Bicarbonate as HCO3	220	mg/L		4		A2320 B	04/02/12 13:31 / cmm		MAN-TECH_120402A	26	R78946
Carbonate as CO3	ND	mg/L		4		A2320 B	04/02/12 13:31 / cmm		MAN-TECH_120402A	26	R78946
Chloride	ND	mg/L		1		E300.0	04/03/12 16:40 / zeg		IC102-H_120403A	41	R79043
Sulfate	1	mg/L		1		E300.0	04/03/12 16:40 / zeg		IC102-H_120403A	41	R79043
Hardness as CaCO3	167	mg/L		1		A2340 B	04/04/12 10:24 / sld		WATERCALC_120404A	9	R78988
METALS, DISSOLVED											
Aluminum	0.05	mg/L		0.03		E200.8	04/03/12 06:58 / dck		ICPMS204-B_120402A	212	R78968
Arsenic	ND	mg/L		0.003		E200.8	04/03/12 06:58 / dck		ICPMS204-B_120402A	212	R78968
Cadmium	ND	mg/L		0.00008		E200.8	04/03/12 06:58 / dck		ICPMS204-B_120402A	212	R78968
Calcium	50	mg/L		1		E200.7	04/02/12 15:03 / sld		ICP2-HE_120402B	80	R78958
Copper	ND	mg/L		0.001		E200.8	04/03/12 06:58 / dck		ICPMS204-B_120402A	212	R78968
Iron	ND	mg/L		0.05		E200.8	04/03/12 06:58 / dck		ICPMS204-B_120402A	212	R78968
Lead	ND	mg/L		0.0005		E200.8	04/03/12 06:58 / dck		ICPMS204-B_120402A	212	R78968
Magnesium	10	mg/L		1		E200.7	04/02/12 15:03 / sld		ICP2-HE_120402B	80	R78958
Manganese	ND	mg/L		0.005		E200.8	04/03/12 06:58 / dck		ICPMS204-B_120402A	212	R78968
Potassium	3	mg/L		1		E200.7	04/02/12 15:03 / sld		ICP2-HE_120402B	80	R78958
Sodium	2	mg/L		1		E200.7	04/02/12 15:03 / sld		ICP2-HE_120402B	80	R78958
Zinc	ND	mg/L		0.01		E200.8	04/03/12 06:58 / dck		ICPMS204-B_120402A	212	R78968

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID S35MW07
Lab ID: H12030390-005
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 03/28/12 15:15
DateReceived: 03/30/12
Report Date: 04/13/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.7	s.u.		0.1		A4500-H B	03/30/12 12:35 / cmm		PHSC_101-H_120330A	50	R78901
Conductivity @ 25 C	356	umhos/cm		1		A2510 B	03/30/12 12:35 / cmm		PHSC_101-H_120330A	51	R78901
Solids, Total Suspended TSS @ 105 C	470	mg/L		10		A2540 D	03/30/12 14:09 / cmm	03/30/12 11:09	-124 (14410200)_120330A	17	16096
Solids, Total Dissolved TDS @ 180 C	194	mg/L		10		A2540 C	03/30/12 14:17 / cmm	03/30/12 11:14	-124 (14410200)_120330B	13	16097
INORGANICS											
Alkalinity, Total as CaCO3	180	mg/L		4		A2320 B	04/02/12 13:38 / cmm		MAN-TECH_120402A	28	R78946
Bicarbonate as HCO3	220	mg/L		4		A2320 B	04/02/12 13:38 / cmm		MAN-TECH_120402A	28	R78946
Carbonate as CO3	ND	mg/L		4		A2320 B	04/02/12 13:38 / cmm		MAN-TECH_120402A	28	R78946
Chloride	ND	mg/L		1		E300.0	04/03/12 16:53 / zeg		IC102-H_120403A	42	R79043
Sulfate	1	mg/L		1		E300.0	04/03/12 16:53 / zeg		IC102-H_120403A	42	R79043
Hardness as CaCO3	173	mg/L		1		A2340 B	04/04/12 10:24 / sld		WATERCALC_120404A	10	R78988
METALS, DISSOLVED											
Aluminum	0.06	mg/L		0.03		E200.8	04/03/12 07:02 / dck		ICPMS204-B_120402A	213	R78968
Arsenic	ND	mg/L		0.003		E200.8	04/03/12 07:02 / dck		ICPMS204-B_120402A	213	R78968
Cadmium	ND	mg/L		0.00008		E200.8	04/03/12 07:02 / dck		ICPMS204-B_120402A	213	R78968
Calcium	51	mg/L		1		E200.7	04/02/12 15:07 / sld		ICP2-HE_120402B	81	R78958
Copper	ND	mg/L		0.001		E200.8	04/03/12 07:02 / dck		ICPMS204-B_120402A	213	R78968
Iron	0.05	mg/L		0.05		E200.8	04/03/12 07:02 / dck		ICPMS204-B_120402A	213	R78968
Lead	ND	mg/L		0.0005		E200.8	04/03/12 07:02 / dck		ICPMS204-B_120402A	213	R78968
Magnesium	11	mg/L		1		E200.7	04/02/12 15:07 / sld		ICP2-HE_120402B	81	R78958
Manganese	ND	mg/L		0.005		E200.8	04/03/12 07:02 / dck		ICPMS204-B_120402A	213	R78968
Potassium	3	mg/L		1		E200.7	04/02/12 15:07 / sld		ICP2-HE_120402B	81	R78958
Sodium	2	mg/L		1		E200.7	04/02/12 15:07 / sld		ICP2-HE_120402B	81	R78958
Zinc	ND	mg/L		0.01		E200.8	04/03/12 07:02 / dck		ICPMS204-B_120402A	213	R78968

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID S35MW03
Lab ID: H12030390-006
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 03/28/12 16:20
DateReceived: 03/30/12
Report Date: 04/13/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.7	s.u.		0.1		A4500-H B	03/30/12 12:43 / cmm		PHSC_101-H_120330A	56	R78901
Conductivity @ 25 C	356	umhos/cm		1		A2510 B	03/30/12 12:43 / cmm		PHSC_101-H_120330A	57	R78901
Solids, Total Suspended TSS @ 105 C	136	mg/L		10		A2540 D	03/30/12 14:10 / cmm	03/30/12 11:09	-124 (14410200)_120330A	18	16096
Solids, Total Dissolved TDS @ 180 C	208	mg/L		10		A2540 C	03/30/12 14:18 / cmm	03/30/12 11:14	-124 (14410200)_120330B	14	16097
INORGANICS											
Alkalinity, Total as CaCO3	180	mg/L		4		A2320 B	04/02/12 13:45 / cmm		MAN-TECH_120402A	30	R78946
Bicarbonate as HCO3	220	mg/L		4		A2320 B	04/02/12 13:45 / cmm		MAN-TECH_120402A	30	R78946
Carbonate as CO3	ND	mg/L		4		A2320 B	04/02/12 13:45 / cmm		MAN-TECH_120402A	30	R78946
Chloride	1	mg/L		1		E300.0	04/03/12 17:07 / zeg		IC102-H_120403A	43	R79043
Sulfate	4	mg/L		1		E300.0	04/03/12 17:07 / zeg		IC102-H_120403A	43	R79043
Hardness as CaCO3	154	mg/L		1		A2340 B	04/04/12 10:24 / sld		WATERCALC_120404A	11	R78988
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	04/03/12 07:07 / dck		ICPMS204-B_120402A	214	R78968
Arsenic	ND	mg/L		0.003		E200.8	04/03/12 07:07 / dck		ICPMS204-B_120402A	214	R78968
Cadmium	ND	mg/L		0.00008		E200.8	04/03/12 07:07 / dck		ICPMS204-B_120402A	214	R78968
Calcium	44	mg/L		1		E200.7	04/02/12 15:11 / sld		ICP2-HE_120402B	82	R78958
Copper	ND	mg/L		0.001		E200.8	04/03/12 07:07 / dck		ICPMS204-B_120402A	214	R78968
Iron	ND	mg/L		0.05		E200.8	04/03/12 07:07 / dck		ICPMS204-B_120402A	214	R78968
Lead	ND	mg/L		0.0005		E200.8	04/03/12 07:07 / dck		ICPMS204-B_120402A	214	R78968
Magnesium	10	mg/L		1		E200.7	04/02/12 15:11 / sld		ICP2-HE_120402B	82	R78958
Manganese	ND	mg/L		0.005		E200.8	04/03/12 07:07 / dck		ICPMS204-B_120402A	214	R78968
Potassium	2	mg/L		1		E200.7	04/02/12 15:11 / sld		ICP2-HE_120402B	82	R78958
Sodium	11	mg/L		1		E200.7	04/02/12 15:11 / sld		ICP2-HE_120402B	82	R78958
Zinc	ND	mg/L		0.01		E200.8	04/03/12 07:07 / dck		ICPMS204-B_120402A	214	R78968

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCTDMW07
Lab ID: H12030390-007
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 03/29/12 08:15
DateReceived: 03/30/12
Report Date: 04/13/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.3	s.u.		0.1		A4500-H B	03/30/12 12:46 / cmm		PHSC_101-H_120330A	58	R78901
Conductivity @ 25 C	2	umhos/cm		1		A2510 B	03/30/12 12:46 / cmm		PHSC_101-H_120330A	59	R78901
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/30/12 14:10 / cmm	03/30/12 11:09	-124 (14410200)_120330A	19	16096
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	03/30/12 14:18 / cmm	03/30/12 11:14	-124 (14410200)_120330B	15	16097
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	04/02/12 13:58 / cmm		MAN-TECH_120402A	34	R78946
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	04/02/12 13:58 / cmm		MAN-TECH_120402A	34	R78946
Carbonate as CO3	ND	mg/L		4		A2320 B	04/02/12 13:58 / cmm		MAN-TECH_120402A	34	R78946
Chloride	ND	mg/L		1		E300.0	04/03/12 17:21 / zeg		IC102-H_120403A	44	R79043
Sulfate	ND	mg/L		1		E300.0	04/03/12 17:21 / zeg		IC102-H_120403A	44	R79043
Hardness as CaCO3	ND	mg/L		1		A2340 B	04/04/12 10:24 / sld		WATERCALC_120404A	12	R78988
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	04/03/12 07:12 / dck		ICPMS204-B_120402A	215	R78968
Arsenic	ND	mg/L		0.003		E200.8	04/03/12 07:12 / dck		ICPMS204-B_120402A	215	R78968
Cadmium	ND	mg/L		0.00008		E200.8	04/03/12 07:12 / dck		ICPMS204-B_120402A	215	R78968
Calcium	ND	mg/L		1		E200.7	04/02/12 15:14 / sld		ICP2-HE_120402B	83	R78958
Copper	ND	mg/L		0.001		E200.8	04/03/12 07:12 / dck		ICPMS204-B_120402A	215	R78968
Iron	ND	mg/L		0.05		E200.8	04/03/12 07:12 / dck		ICPMS204-B_120402A	215	R78968
Lead	ND	mg/L		0.0005		E200.8	04/03/12 07:12 / dck		ICPMS204-B_120402A	215	R78968
Magnesium	ND	mg/L		1		E200.7	04/02/12 15:14 / sld		ICP2-HE_120402B	83	R78958
Manganese	ND	mg/L		0.005		E200.8	04/03/12 07:12 / dck		ICPMS204-B_120402A	215	R78968
Potassium	ND	mg/L		1		E200.7	04/02/12 15:14 / sld		ICP2-HE_120402B	83	R78958
Sodium	ND	mg/L		1		E200.7	04/02/12 15:14 / sld		ICP2-HE_120402B	83	R78958
Zinc	ND	mg/L		0.01		E200.8	04/03/12 07:12 / dck		ICPMS204-B_120402A	215	R78968

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCTDMW08
Lab ID: H12030390-008
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 03/29/12 08:20
DateReceived: 03/30/12
Report Date: 04/13/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.4	s.u.		0.1		A4500-H B	03/30/12 12:51 / cmm		PHSC_101-H_120330A	62	R78901
Conductivity @ 25 C	1	umhos/cm		1		A2510 B	03/30/12 12:51 / cmm		PHSC_101-H_120330A	63	R78901
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/30/12 14:10 / cmm	03/30/12 11:09	-124 (14410200)_120330A	21	16096
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	03/30/12 14:18 / cmm	03/30/12 11:14	-124 (14410200)_120330B	17	16097
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	04/02/12 14:03 / cmm		MAN-TECH_120402A	36	R78946
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	04/02/12 14:03 / cmm		MAN-TECH_120402A	36	R78946
Carbonate as CO3	ND	mg/L		4		A2320 B	04/02/12 14:03 / cmm		MAN-TECH_120402A	36	R78946
Chloride	ND	mg/L		1		E300.0	04/10/12 13:10 / cmm		IC102-H_120410A	24	R79125
Sulfate	ND	mg/L		1		E300.0	04/10/12 13:10 / cmm		IC102-H_120410A	24	R79125
Hardness as CaCO3	ND	mg/L		1		A2340 B	04/04/12 10:24 / sld		WATERCALC_120404A	13	R78988
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	04/03/12 07:16 / dck		ICPMS204-B_120402A	216	R78968
Arsenic	ND	mg/L		0.003		E200.8	04/03/12 07:16 / dck		ICPMS204-B_120402A	216	R78968
Cadmium	ND	mg/L		0.00008		E200.8	04/03/12 07:16 / dck		ICPMS204-B_120402A	216	R78968
Calcium	ND	mg/L		1		E200.7	04/02/12 15:18 / sld		ICP2-HE_120402B	84	R78958
Copper	ND	mg/L		0.001		E200.8	04/03/12 07:16 / dck		ICPMS204-B_120402A	216	R78968
Iron	ND	mg/L		0.05		E200.8	04/03/12 07:16 / dck		ICPMS204-B_120402A	216	R78968
Lead	ND	mg/L		0.0005		E200.8	04/03/12 07:16 / dck		ICPMS204-B_120402A	216	R78968
Magnesium	ND	mg/L		1		E200.7	04/02/12 15:18 / sld		ICP2-HE_120402B	84	R78958
Manganese	ND	mg/L		0.005		E200.8	04/03/12 07:16 / dck		ICPMS204-B_120402A	216	R78968
Potassium	ND	mg/L		1		E200.7	04/02/12 15:18 / sld		ICP2-HE_120402B	84	R78958
Sodium	ND	mg/L		1		E200.7	04/02/12 15:18 / sld		ICP2-HE_120402B	84	R78958
Zinc	ND	mg/L		0.01		E200.8	04/03/12 07:16 / dck		ICPMS204-B_120402A	216	R78968

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCTDMW05
Lab ID: H12030390-009
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 03/29/12 08:45
DateReceived: 03/30/12
Report Date: 04/13/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.0	s.u.		0.1		A4500-H B	03/30/12 12:54 / cmm		PHSC_101-H_120330A	64	R78901
Conductivity @ 25 C	289	umhos/cm		1		A2510 B	03/30/12 12:54 / cmm		PHSC_101-H_120330A	65	R78901
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/30/12 14:10 / cmm	03/30/12 11:09	-124 (14410200)_120330A	22	16096
Solids, Total Dissolved TDS @ 180 C	146	mg/L		10		A2540 C	03/30/12 14:18 / cmm	03/30/12 11:14	-124 (14410200)_120330B	18	16097
INORGANICS											
Alkalinity, Total as CaCO3	90	mg/L		4		A2320 B	04/02/12 14:10 / cmm		MAN-TECH_120402A	38	R78946
Bicarbonate as HCO3	110	mg/L		4		A2320 B	04/02/12 14:10 / cmm		MAN-TECH_120402A	38	R78946
Carbonate as CO3	ND	mg/L		4		A2320 B	04/02/12 14:10 / cmm		MAN-TECH_120402A	38	R78946
Chloride	ND	mg/L		1		E300.0	04/03/12 17:48 / zeg		IC102-H_120403A	46	R79043
Sulfate	33	mg/L		1		E300.0	04/03/12 17:48 / zeg		IC102-H_120403A	46	R79043
Hardness as CaCO3	137	mg/L		1		A2340 B	04/04/12 10:24 / sld		WATERCALC_120404A	14	R78988
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	04/03/12 07:21 / dck		ICPMS204-B_120402A	217	R78968
Arsenic	ND	mg/L		0.003		E200.8	04/03/12 07:21 / dck		ICPMS204-B_120402A	217	R78968
Cadmium	ND	mg/L		0.00008		E200.8	04/03/12 07:21 / dck		ICPMS204-B_120402A	217	R78968
Calcium	29	mg/L		1		E200.7	04/02/12 15:22 / sld		ICP2-HE_120402B	85	R78958
Copper	ND	mg/L		0.001		E200.8	04/03/12 07:21 / dck		ICPMS204-B_120402A	217	R78968
Iron	ND	mg/L		0.05		E200.8	04/03/12 07:21 / dck		ICPMS204-B_120402A	217	R78968
Lead	ND	mg/L		0.0005		E200.8	04/03/12 07:21 / dck		ICPMS204-B_120402A	217	R78968
Magnesium	16	mg/L		1		E200.7	04/02/12 15:22 / sld		ICP2-HE_120402B	85	R78958
Manganese	ND	mg/L		0.005		E200.8	04/03/12 07:21 / dck		ICPMS204-B_120402A	217	R78968
Potassium	ND	mg/L		1		E200.7	04/02/12 15:22 / sld		ICP2-HE_120402B	85	R78958
Sodium	2	mg/L		1		E200.7	04/02/12 15:22 / sld		ICP2-HE_120402B	85	R78958
Zinc	ND	mg/L		0.01		E200.8	04/03/12 07:21 / dck		ICPMS204-B_120402A	217	R78968

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCTDMW4D
Lab ID: H12030390-010
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 03/29/12 11:05
DateReceived: 03/30/12
Report Date: 04/13/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.4	s.u.		0.1		A4500-H B	03/30/12 12:57 / cmm		PHSC_101-H_120330A	66	R78901
Conductivity @ 25 C	248	umhos/cm		1		A2510 B	03/30/12 12:57 / cmm		PHSC_101-H_120330A	67	R78901
Solids, Total Suspended TSS @ 105 C	22	mg/L		10		A2540 D	03/30/12 14:10 / cmm	03/30/12 11:09	-124 (14410200)_120330A	23	16096
Solids, Total Dissolved TDS @ 180 C	122	mg/L		10		A2540 C	03/30/12 14:18 / cmm	03/30/12 11:14	-124 (14410200)_120330B	19	16097
INORGANICS											
Alkalinity, Total as CaCO3	97	mg/L		4		A2320 B	04/02/12 14:23 / cmm		MAN-TECH_120402A	42	R78946
Bicarbonate as HCO3	120	mg/L		4		A2320 B	04/02/12 14:23 / cmm		MAN-TECH_120402A	42	R78946
Carbonate as CO3	ND	mg/L		4		A2320 B	04/02/12 14:23 / cmm		MAN-TECH_120402A	42	R78946
Chloride	ND	mg/L		1		E300.0	04/03/12 18:29 / zeg		IC102-H_120403A	49	R79043
Sulfate	15	mg/L		1		E300.0	04/03/12 18:29 / zeg		IC102-H_120403A	49	R79043
Hardness as CaCO3	116	mg/L		1		A2340 B	04/04/12 10:24 / sld		WATERCALC_120404A	15	R78988
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	04/03/12 07:26 / dck		ICPMS204-B_120402A	218	R78968
Arsenic	ND	mg/L		0.003		E200.8	04/03/12 07:26 / dck		ICPMS204-B_120402A	218	R78968
Cadmium	ND	mg/L		0.00008		E200.8	04/03/12 07:26 / dck		ICPMS204-B_120402A	218	R78968
Calcium	25	mg/L		1		E200.7	04/02/12 15:33 / sld		ICP2-HE_120402B	88	R78958
Copper	ND	mg/L		0.001		E200.8	04/03/12 07:26 / dck		ICPMS204-B_120402A	218	R78968
Iron	ND	mg/L		0.05		E200.8	04/03/12 07:26 / dck		ICPMS204-B_120402A	218	R78968
Lead	ND	mg/L		0.0005		E200.8	04/03/12 07:26 / dck		ICPMS204-B_120402A	218	R78968
Magnesium	13	mg/L		1		E200.7	04/02/12 15:33 / sld		ICP2-HE_120402B	88	R78958
Manganese	ND	mg/L		0.005		E200.8	04/03/12 07:26 / dck		ICPMS204-B_120402A	218	R78968
Potassium	ND	mg/L		1		E200.7	04/02/12 15:33 / sld		ICP2-HE_120402B	88	R78958
Sodium	2	mg/L		1		E200.7	04/02/12 15:33 / sld		ICP2-HE_120402B	88	R78958
Zinc	ND	mg/L		0.01		E200.8	04/03/12 07:26 / dck		ICPMS204-B_120402A	218	R78968

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCTDMW06
Lab ID: H12030390-011
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 03/29/12 11:10
DateReceived: 03/30/12
Report Date: 04/13/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.4	s.u.		0.1		A4500-H B	03/30/12 12:59 / cmm		PHSC_101-H_120330A	68	R78901
Conductivity @ 25 C	246	umhos/cm		1		A2510 B	03/30/12 12:59 / cmm		PHSC_101-H_120330A	69	R78901
Solids, Total Suspended TSS @ 105 C	18	mg/L		10		A2540 D	03/30/12 14:11 / cmm	03/30/12 11:09	-124 (14410200)_120330A	24	16096
Solids, Total Dissolved TDS @ 180 C	130	mg/L		10		A2540 C	03/30/12 14:19 / cmm	03/30/12 11:14	-124 (14410200)_120330B	20	16097
INORGANICS											
Alkalinity, Total as CaCO3	99	mg/L		4		A2320 B	04/02/12 14:30 / cmm		MAN-TECH_120402A	44	R78946
Bicarbonate as HCO3	120	mg/L		4		A2320 B	04/02/12 14:30 / cmm		MAN-TECH_120402A	44	R78946
Carbonate as CO3	ND	mg/L		4		A2320 B	04/02/12 14:30 / cmm		MAN-TECH_120402A	44	R78946
Chloride	ND	mg/L		1		E300.0	04/03/12 18:42 / zeg		IC102-H_120403A	50	R79043
Sulfate	16	mg/L		1		E300.0	04/03/12 18:42 / zeg		IC102-H_120403A	50	R79043
Hardness as CaCO3	113	mg/L		1		A2340 B	04/04/12 10:24 / sld		WATERCALC_120404A	16	R78988
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	04/03/12 07:31 / dck		ICPMS204-B_120402A	219	R78968
Arsenic	ND	mg/L		0.003		E200.8	04/03/12 07:31 / dck		ICPMS204-B_120402A	219	R78968
Cadmium	ND	mg/L		0.00008		E200.8	04/03/12 07:31 / dck		ICPMS204-B_120402A	219	R78968
Calcium	24	mg/L		1		E200.7	04/02/12 15:48 / sld		ICP2-HE_120402B	92	R78958
Copper	ND	mg/L		0.001		E200.8	04/03/12 07:31 / dck		ICPMS204-B_120402A	219	R78968
Iron	ND	mg/L		0.05		E200.8	04/03/12 07:31 / dck		ICPMS204-B_120402A	219	R78968
Lead	ND	mg/L		0.0005		E200.8	04/03/12 07:31 / dck		ICPMS204-B_120402A	219	R78968
Magnesium	13	mg/L		1		E200.7	04/02/12 15:48 / sld		ICP2-HE_120402B	92	R78958
Manganese	ND	mg/L		0.005		E200.8	04/03/12 07:31 / dck		ICPMS204-B_120402A	219	R78968
Potassium	ND	mg/L		1		E200.7	04/02/12 15:48 / sld		ICP2-HE_120402B	92	R78958
Sodium	2	mg/L		1		E200.7	04/02/12 15:48 / sld		ICP2-HE_120402B	92	R78958
Zinc	ND	mg/L		0.01		E200.8	04/03/12 07:31 / dck		ICPMS204-B_120402A	219	R78968

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCTDMW3D
Lab ID: H12030390-012
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 03/29/12 13:30
DateReceived: 03/30/12
Report Date: 04/13/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.4	s.u.		0.1		A4500-H B	03/30/12 13:02 / cmm		PHSC_101-H_120330A	70	R78901
Conductivity @ 25 C	669	umhos/cm		1		A2510 B	03/30/12 13:02 / cmm		PHSC_101-H_120330A	71	R78901
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/30/12 14:11 / cmm	03/30/12 12:43	-124 (14410200)_120330A	27	16101
Solids, Total Dissolved TDS @ 180 C	430	mg/L		10		A2540 C	03/30/12 14:19 / cmm	03/30/12 11:14	-124 (14410200)_120330B	21	16097
INORGANICS											
Alkalinity, Total as CaCO3	58	mg/L		4		A2320 B	04/02/12 14:37 / cmm		MAN-TECH_120402A	46	R78946
Bicarbonate as HCO3	71	mg/L		4		A2320 B	04/02/12 14:37 / cmm		MAN-TECH_120402A	46	R78946
Carbonate as CO3	ND	mg/L		4		A2320 B	04/02/12 14:37 / cmm		MAN-TECH_120402A	46	R78946
Chloride	ND	mg/L		1		E300.0	04/03/12 18:56 / zeg		IC102-H_120403A	51	R79043
Sulfate	260	mg/L		1		E300.0	04/03/12 18:56 / zeg		IC102-H_120403A	51	R79043
Hardness as CaCO3	335	mg/L		1		A2340 B	04/04/12 10:24 / sld		WATERCALC_120404A	17	R78988
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	04/03/12 07:54 / dck		ICPMS204-B_120402A	224	R78968
Arsenic	ND	mg/L		0.003		E200.8	04/03/12 07:54 / dck		ICPMS204-B_120402A	224	R78968
Cadmium	0.00011	mg/L		0.00008		E200.8	04/03/12 07:54 / dck		ICPMS204-B_120402A	224	R78968
Calcium	80	mg/L		1		E200.7	04/02/12 15:52 / sld		ICP2-HE_120402B	93	R78958
Copper	ND	mg/L		0.001		E200.8	04/03/12 07:54 / dck		ICPMS204-B_120402A	224	R78968
Iron	ND	mg/L		0.05		E200.8	04/03/12 07:54 / dck		ICPMS204-B_120402A	224	R78968
Lead	ND	mg/L		0.0005		E200.8	04/03/12 07:54 / dck		ICPMS204-B_120402A	224	R78968
Magnesium	33	mg/L		1		E200.7	04/02/12 15:52 / sld		ICP2-HE_120402B	93	R78958
Manganese	ND	mg/L		0.005		E200.8	04/03/12 07:54 / dck		ICPMS204-B_120402A	224	R78968
Potassium	ND	mg/L		1		E200.7	04/02/12 15:52 / sld		ICP2-HE_120402B	93	R78958
Sodium	2	mg/L		1		E200.7	04/02/12 15:52 / sld		ICP2-HE_120402B	93	R78958
Zinc	0.02	mg/L		0.01		E200.8	04/03/12 07:54 / dck		ICPMS204-B_120402A	224	R78968

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCTDMW01
Lab ID: H12030390-013
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 03/29/12 15:15
DateReceived: 03/30/12
Report Date: 04/13/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.5	s.u.		0.1		A4500-H B	03/30/12 13:04 / cmm		PHSC_101-H_120330A	72	R78901
Conductivity @ 25 C	886	umhos/cm		1		A2510 B	03/30/12 13:04 / cmm		PHSC_101-H_120330A	73	R78901
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/30/12 14:11 / cmm	03/30/12 12:43	-124 (14410200)_120330A	28	16101
Solids, Total Dissolved TDS @ 180 C	602	mg/L		10		A2540 C	03/30/12 14:19 / cmm	03/30/12 11:14	-124 (14410200)_120330B	22	16097
INORGANICS											
Alkalinity, Total as CaCO3	67	mg/L		4		A2320 B	04/02/12 14:43 / cmm		MAN-TECH_120402A	48	R78946
Bicarbonate as HCO3	82	mg/L		4		A2320 B	04/02/12 14:43 / cmm		MAN-TECH_120402A	48	R78946
Carbonate as CO3	ND	mg/L		4		A2320 B	04/02/12 14:43 / cmm		MAN-TECH_120402A	48	R78946
Chloride	ND	mg/L		1		E300.0	04/03/12 19:09 / zeg		IC102-H_120403A	52	R79043
Sulfate	380	mg/L		1		E300.0	04/03/12 19:09 / zeg		IC102-H_120403A	52	R79043
Hardness as CaCO3	453	mg/L		1		A2340 B	04/04/12 10:24 / sld		WATERCALC_120404A	18	R78988
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	04/03/12 08:13 / dck		ICPMS204-B_120402A	228	R78968
Arsenic	ND	mg/L		0.003		E200.8	04/03/12 08:13 / dck		ICPMS204-B_120402A	228	R78968
Cadmium	0.00057	mg/L		0.00008		E200.8	04/03/12 08:13 / dck		ICPMS204-B_120402A	228	R78968
Calcium	80	mg/L		1		E200.7	04/02/12 15:55 / sld		ICP2-HE_120402B	94	R78958
Copper	ND	mg/L		0.001		E200.8	04/03/12 08:13 / dck		ICPMS204-B_120402A	228	R78968
Iron	ND	mg/L		0.05		E200.8	04/03/12 08:13 / dck		ICPMS204-B_120402A	228	R78968
Lead	ND	mg/L		0.0005		E200.8	04/03/12 08:13 / dck		ICPMS204-B_120402A	228	R78968
Magnesium	62	mg/L		1		E200.7	04/02/12 15:55 / sld		ICP2-HE_120402B	94	R78958
Manganese	ND	mg/L		0.005		E200.8	04/03/12 08:13 / dck		ICPMS204-B_120402A	228	R78968
Potassium	1	mg/L		1		E200.7	04/02/12 15:55 / sld		ICP2-HE_120402B	94	R78958
Sodium	2	mg/L		1		E200.7	04/02/12 15:55 / sld		ICP2-HE_120402B	94	R78958
Zinc	0.29	mg/L		0.01		E200.8	04/03/12 08:13 / dck		ICPMS204-B_120402A	228	R78968

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCTDMW2D
Lab ID: H12030390-014
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 03/29/12 15:30
DateReceived: 03/30/12
Report Date: 04/13/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.2	s.u.		0.1		A4500-H B	03/30/12 13:07 / cmm		PHSC_101-H_120330A	74	R78901
Conductivity @ 25 C	261	umhos/cm		1		A2510 B	03/30/12 13:07 / cmm		PHSC_101-H_120330A	75	R78901
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/30/12 14:11 / cmm	03/30/12 12:43	-124 (14410200)_120330A	29	16101
Solids, Total Dissolved TDS @ 180 C	128	mg/L		10		A2540 C	03/30/12 14:19 / cmm	03/30/12 11:14	-124 (14410200)_120330B	23	16097
INORGANICS											
Alkalinity, Total as CaCO3	100	mg/L		4		A2320 B	04/02/12 14:50 / cmm		MAN-TECH_120402A	50	R78946
Bicarbonate as HCO3	120	mg/L		4		A2320 B	04/02/12 14:50 / cmm		MAN-TECH_120402A	50	R78946
Carbonate as CO3	ND	mg/L		4		A2320 B	04/02/12 14:50 / cmm		MAN-TECH_120402A	50	R78946
Chloride	ND	mg/L		1		E300.0	04/03/12 19:50 / zeg		IC102-H_120403A	55	R79043
Sulfate	22	mg/L		1		E300.0	04/03/12 19:50 / zeg		IC102-H_120403A	55	R79043
Hardness as CaCO3	126	mg/L		1		A2340 B	04/04/12 10:24 / sld		WATERCALC_120404A	19	R78988
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	04/03/12 08:18 / dck		ICPMS204-B_120402A	229	R78968
Arsenic	ND	mg/L		0.003		E200.8	04/03/12 08:18 / dck		ICPMS204-B_120402A	229	R78968
Cadmium	ND	mg/L		0.00008		E200.8	04/03/12 08:18 / dck		ICPMS204-B_120402A	229	R78968
Calcium	26	mg/L		1		E200.7	04/02/12 15:59 / sld		ICP2-HE_120402B	95	R78958
Copper	ND	mg/L		0.001		E200.8	04/03/12 08:18 / dck		ICPMS204-B_120402A	229	R78968
Iron	ND	mg/L		0.05		E200.8	04/03/12 08:18 / dck		ICPMS204-B_120402A	229	R78968
Lead	ND	mg/L		0.0005		E200.8	04/03/12 08:18 / dck		ICPMS204-B_120402A	229	R78968
Magnesium	15	mg/L		1		E200.7	04/02/12 15:59 / sld		ICP2-HE_120402B	95	R78958
Manganese	ND	mg/L		0.005		E200.8	04/03/12 08:18 / dck		ICPMS204-B_120402A	229	R78968
Potassium	ND	mg/L		1		E200.7	04/02/12 15:59 / sld		ICP2-HE_120402B	95	R78958
Sodium	1	mg/L		1		E200.7	04/02/12 15:59 / sld		ICP2-HE_120402B	95	R78958
Zinc	ND	mg/L		0.01		E200.8	04/03/12 08:18 / dck		ICPMS204-B_120402A	229	R78968

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCTDMW2S
Lab ID: H12030390-015
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 03/29/12 15:55
DateReceived: 03/30/12
Report Date: 04/13/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.5	s.u.		0.1		A4500-H B	03/30/12 13:09 / cmm		PHSC_101-H_120330A	76	R78901
Conductivity @ 25 C	1400	umhos/cm		1		A2510 B	03/30/12 13:09 / cmm		PHSC_101-H_120330A	77	R78901
Solids, Total Suspended TSS @ 105 C	42	mg/L		10		A2540 D	03/30/12 14:12 / cmm	03/30/12 12:43	-124 (14410200)_120330A	30	16101
Solids, Total Dissolved TDS @ 180 C	1040	mg/L		10		A2540 C	03/30/12 14:21 / cmm	03/30/12 11:14	-124 (14410200)_120330B	24	16097
INORGANICS											
Alkalinity, Total as CaCO3	120	mg/L		4		A2320 B	04/02/12 14:57 / cmm		MAN-TECH_120402A	52	R78946
Bicarbonate as HCO3	150	mg/L		4		A2320 B	04/02/12 14:57 / cmm		MAN-TECH_120402A	52	R78946
Carbonate as CO3	ND	mg/L		4		A2320 B	04/02/12 14:57 / cmm		MAN-TECH_120402A	52	R78946
Chloride	ND	mg/L		1		E300.0	04/03/12 20:04 / zeg		IC102-H_120403A	56	R79043
Sulfate	670	mg/L	D	2		E300.0	04/03/12 20:04 / zeg		IC102-H_120403A	56	R79043
Hardness as CaCO3	732	mg/L		1		A2340 B	04/06/12 08:07 / sld		WATERCALC_120406A	4	R79039
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	04/03/12 08:22 / dck		ICPMS204-B_120402A	230	R78968
Arsenic	ND	mg/L		0.003		E200.8	04/03/12 08:22 / dck		ICPMS204-B_120402A	230	R78968
Cadmium	0.0135	mg/L		0.00008		E200.8	04/03/12 08:22 / dck		ICPMS204-B_120402A	230	R78968
Calcium	128	mg/L		1		E200.8	04/04/12 16:05 / dck		ICPMS204-B_120404A	65	R79000
Copper	ND	mg/L		0.001		E200.8	04/03/12 08:22 / dck		ICPMS204-B_120402A	230	R78968
Iron	ND	mg/L		0.05		E200.8	04/03/12 08:22 / dck		ICPMS204-B_120402A	230	R78968
Lead	ND	mg/L		0.0005		E200.8	04/03/12 08:22 / dck		ICPMS204-B_120402A	230	R78968
Magnesium	108	mg/L		1		E200.8	04/04/12 16:05 / dck		ICPMS204-B_120404A	65	R79000
Manganese	27.7	mg/L		0.005		E200.8	04/04/12 16:05 / dck		ICPMS204-B_120404A	65	R79000
Potassium	2	mg/L		1		E200.7	04/02/12 16:03 / sld		ICP2-HE_120402B	96	R78958
Sodium	2	mg/L		1		E200.7	04/02/12 16:03 / sld		ICP2-HE_120402B	96	R78958
Zinc	9.47	mg/L		0.01		E200.8	04/04/12 16:05 / dck		ICPMS204-B_120404A	65	R79000

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

Client: MT DEQ-Site Response
Work Order: H12030390
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: 16096

Run ID :Run Order: **ACCU-124 (14410200)_120330A: 1** SampType: **Method Blank** Sample ID: **MB-16096** Method: **A2540 D**

Analysis Date: **03/30/12 11:27** Units: **mg/L** **Prep Info:** Prep Date: **3/30/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	2									

Associated samples: **H12030390-001A; H12030390-002A; H12030390-003A; H12030390-004A; H12030390-005A; H12030390-006A; H12030390-007A; H12030390-008A; H12030390-009A; H12030390-010A; H12030390-011A**

Run ID :Run Order: **ACCU-124 (14410200)_120330A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS-16096** Method: **A2540 D**

Analysis Date: **03/30/12 11:27** Units: **mg/L** **Prep Info:** Prep Date: **3/30/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	1940	10	2000		97	70	130				

Associated samples: **H12030390-001A; H12030390-002A; H12030390-003A; H12030390-004A; H12030390-005A; H12030390-006A; H12030390-007A; H12030390-008A; H12030390-009A; H12030390-010A; H12030390-011A**

Run ID :Run Order: **ACCU-124 (14410200)_120330A: 5** SampType: **Sample Duplicate** Sample ID: **H12030374-002ADUP** Method: **A2540 D**

Analysis Date: **03/30/12 11:27** Units: **mg/L** **Prep Info:** Prep Date: **3/30/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	14.0	10						14		5	

Associated samples: **H12030390-001A; H12030390-002A; H12030390-003A; H12030390-004A; H12030390-005A; H12030390-006A; H12030390-007A; H12030390-008A; H12030390-009A; H12030390-010A; H12030390-011A**

Run ID :Run Order: **ACCU-124 (14410200)_120330A: 20** SampType: **Sample Duplicate** Sample ID: **H12030390-007ADUP** Method: **A2540 D**

Analysis Date: **03/30/12 14:10** Units: **mg/L** **Prep Info:** Prep Date: **3/30/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	2.00	10								5	

Associated samples: **H12030390-001A; H12030390-002A; H12030390-003A; H12030390-004A; H12030390-005A; H12030390-006A; H12030390-007A; H12030390-008A; H12030390-009A; H12030390-010A; H12030390-011A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030390
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: 16097

Run ID :Run Order: **ACCU-124 (14410200)_120330B: 1** SampType: **Method Blank** Sample ID: **MB-16097** Method: **A2540 C**
Analysis Date: **03/30/12 11:20** Units: **mg/L** **Prep Info:** Prep Date: **3/30/2012** Prep Method: **A2540 C**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	ND	3									

Associated samples: **H12030390-001A; H12030390-002A; H12030390-003A; H12030390-004A; H12030390-005A; H12030390-006A; H12030390-007A; H12030390-008A; H12030390-009A; H12030390-010A; H12030390-011A; H12030390-012A; H12030390-013A; H12030390-014A; H12030390-015A**

Run ID :Run Order: **ACCU-124 (14410200)_120330B: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS-16097** Method: **A2540 C**
Analysis Date: **03/30/12 11:20** Units: **mg/L** **Prep Info:** Prep Date: **3/30/2012** Prep Method: **A2540 C**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2000	10	2000		100	90	110				

Associated samples: **H12030390-001A; H12030390-002A; H12030390-003A; H12030390-004A; H12030390-005A; H12030390-006A; H12030390-007A; H12030390-008A; H12030390-009A; H12030390-010A; H12030390-011A; H12030390-012A; H12030390-013A; H12030390-014A; H12030390-015A**

Run ID :Run Order: **ACCU-124 (14410200)_120330B: 5** SampType: **Sample Duplicate** Sample ID: **H12030377-002ADUP** Method: **A2540 C**
Analysis Date: **03/30/12 11:21** Units: **mg/L** **Prep Info:** Prep Date: **3/30/2012** Prep Method: **A2540 C**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	926	10						956	3.2	5	

Associated samples: **H12030390-001A; H12030390-002A; H12030390-003A; H12030390-004A; H12030390-005A; H12030390-006A; H12030390-007A; H12030390-008A; H12030390-009A; H12030390-010A; H12030390-011A; H12030390-012A; H12030390-013A; H12030390-014A; H12030390-015A**

Run ID :Run Order: **ACCU-124 (14410200)_120330B: 8** SampType: **Sample Matrix Spike** Sample ID: **H12030389-002AMS** Method: **A2540 C**
Analysis Date: **03/30/12 11:21** Units: **mg/L** **Prep Info:** Prep Date: **3/30/2012** Prep Method: **A2540 C**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2240	10	2000	256	99	80	120				

Associated samples: **H12030390-001A; H12030390-002A; H12030390-003A; H12030390-004A; H12030390-005A; H12030390-006A; H12030390-007A; H12030390-008A; H12030390-009A; H12030390-010A; H12030390-011A; H12030390-012A; H12030390-013A; H12030390-014A; H12030390-015A**

Run ID :Run Order: **ACCU-124 (14410200)_120330B: 16** SampType: **Sample Duplicate** Sample ID: **H12030390-007ADUP** Method: **A2540 C**
Analysis Date: **03/30/12 14:18** Units: **mg/L** **Prep Info:** Prep Date: **3/30/2012** Prep Method: **A2540 C**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	ND	10						8		5	

Associated samples: **H12030390-001A; H12030390-002A; H12030390-003A; H12030390-004A; H12030390-005A; H12030390-006A; H12030390-007A; H12030390-008A; H12030390-009A; H12030390-010A; H12030390-011A; H12030390-012A; H12030390-013A; H12030390-014A; H12030390-015A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030390
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: 16101

Run ID :Run Order: **ACCU-124 (14410200)_120330A: 25** SampType: **Method Blank** Sample ID: **MB-16101** Method: **A2540 D**

Analysis Date: **03/30/12 14:11** Units: **mg/L** **Prep Info:** Prep Date: **3/30/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	2									

Associated samples: **H12030390-012A; H12030390-013A; H12030390-014A; H12030390-015A**

Run ID :Run Order: **ACCU-124 (14410200)_120330A: 26** SampType: **Laboratory Control Sample** Sample ID: **LCS-16101** Method: **A2540 D**

Analysis Date: **03/30/12 14:11** Units: **mg/L** **Prep Info:** Prep Date: **3/30/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	1720	10	2000		86	70	130				

Associated samples: **H12030390-012A; H12030390-013A; H12030390-014A; H12030390-015A**

Run ID :Run Order: **ACCU-124 (14410200)_120330A: 34** SampType: **Sample Duplicate** Sample ID: **H12030392-003BDUP** Method: **A2540 D**

Analysis Date: **03/30/12 14:12** Units: **mg/L** **Prep Info:** Prep Date: **4/2/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	104	10						96	8.0	5	R

Associated samples: **H12030390-012A; H12030390-013A; H12030390-014A; H12030390-015A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030390
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78901

Run ID :Run Order: **PHSC_101-H_120330A: 2** SampType: **Initial Calibration Verification Standard** Sample ID: **SC 150** Method: **A2510 B**
Analysis Date: **03/30/12 10:03** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	156	1.0	150		104	90	110				

Associated samples: **H12030390-001A; H12030390-002A; H12030390-003A; H12030390-004A; H12030390-005A; H12030390-006A; H12030390-007A; H12030390-008A; H12030390-009A; H12030390-010A; H12030390-011A; H12030390-012A; H12030390-013A; H12030390-014A; H12030390-015A**

Run ID :Run Order: **PHSC_101-H_120330A: 3** SampType: **Initial Calibration Verification Standard** Sample ID: **SC 5000** Method: **A2510 B**
Analysis Date: **03/30/12 10:05** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	5330	1.0	5000		107	90	110				

Associated samples: **H12030390-001A; H12030390-002A; H12030390-003A; H12030390-004A; H12030390-005A; H12030390-006A; H12030390-007A; H12030390-008A; H12030390-009A; H12030390-010A; H12030390-011A; H12030390-012A; H12030390-013A; H12030390-014A; H12030390-015A**

Run ID :Run Order: **PHSC_101-H_120330A: 4** SampType: **Initial Calibration Verification Standard** Sample ID: **SC 20000** Method: **A2510 B**
Analysis Date: **03/30/12 10:08** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	21100	1.0	20000		106	90	110				

Associated samples: **H12030390-001A; H12030390-002A; H12030390-003A; H12030390-004A; H12030390-005A; H12030390-006A; H12030390-007A; H12030390-008A; H12030390-009A; H12030390-010A; H12030390-011A; H12030390-012A; H12030390-013A; H12030390-014A; H12030390-015A**

Run ID :Run Order: **PHSC_101-H_120330A: 5** SampType: **Initial Calibration Verification Standard** Sample ID: **SC 2ND 1000** Method: **A2510 B**
Analysis Date: **03/30/12 10:10** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	1070	1.0	1000	1	107	90	110				

Associated samples: **H12030390-001A; H12030390-002A; H12030390-003A; H12030390-004A; H12030390-005A; H12030390-006A; H12030390-007A; H12030390-008A; H12030390-009A; H12030390-010A; H12030390-011A; H12030390-012A; H12030390-013A; H12030390-014A; H12030390-015A**

Run ID :Run Order: **PHSC_101-H_120330A: 39** SampType: **Sample Duplicate** Sample ID: **H12030389-001ADUP** Method: **A2510 B**
Analysis Date: **03/30/12 11:20** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	450	1.0						447	0.7	10	

Associated samples: **H12030390-001A; H12030390-002A; H12030390-003A; H12030390-004A; H12030390-005A; H12030390-006A; H12030390-007A; H12030390-008A; H12030390-009A; H12030390-010A; H12030390-011A; H12030390-012A; H12030390-013A; H12030390-014A; H12030390-015A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030390
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78901

Run ID :Run Order: **PHSC_101-H_120330A: 55** SampType: **Continuing Calibration Verification Standard** Sample ID: **ccv- sc 1413** Method: **A2510 B**

Analysis Date: **03/30/12 12:40** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	1530	1.0	1413		108	90	110				

Associated samples:

Run ID :Run Order: **PHSC_101-H_120330A: 61** SampType: **Sample Duplicate** Sample ID: **H12030390-007ADUP** Method: **A2510 B**

Analysis Date: **03/30/12 12:49** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	1.00	1.0						2	67	10	R

Associated samples: **H12030390-001A; H12030390-002A; H12030390-003A; H12030390-004A; H12030390-005A; H12030390-006A; H12030390-007A; H12030390-008A; H12030390-009A; H12030390-010A; H12030390-011A; H12030390-012A; H12030390-013A; H12030390-014A; H12030390-015A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030390
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78901

Run ID :Run Order: **PHSC_101-H_120330A: 1** SampType: **Initial Calibration Verification Standard** Sample ID: **pH 7** Method: **A4500-H B**

Analysis Date: **03/30/12 10:00** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	6.97	0.10	7		100	98	102				

Associated samples: **H12030390-001A; H12030390-002A; H12030390-003A; H12030390-004A; H12030390-005A; H12030390-006A; H12030390-007A; H12030390-008A; H12030390-009A; H12030390-010A; H12030390-011A; H12030390-012A; H12030390-013A; H12030390-014A; H12030390-015A**

Run ID :Run Order: **PHSC_101-H_120330A: 38** SampType: **Sample Duplicate** Sample ID: **H12030389-001ADUP** Method: **A4500-H B**

Analysis Date: **03/30/12 11:20** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.46	0.10						7.49	0.4	3	

Associated samples: **H12030390-001A; H12030390-002A; H12030390-003A; H12030390-004A; H12030390-005A; H12030390-006A; H12030390-007A; H12030390-008A; H12030390-009A; H12030390-010A; H12030390-011A; H12030390-012A; H12030390-013A; H12030390-014A; H12030390-015A**

Run ID :Run Order: **PHSC_101-H_120330A: 60** SampType: **Sample Duplicate** Sample ID: **H12030390-007ADUP** Method: **A4500-H B**

Analysis Date: **03/30/12 12:49** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	5.09	0.10						5.32	4.4	3	R

Associated samples: **H12030390-001A; H12030390-002A; H12030390-003A; H12030390-004A; H12030390-005A; H12030390-006A; H12030390-007A; H12030390-008A; H12030390-009A; H12030390-010A; H12030390-011A; H12030390-012A; H12030390-013A; H12030390-014A; H12030390-015A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030390
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78946

Run ID :Run Order: **MAN-TECH_120402A: 8** SampType: **Method Blank** Sample ID: **MBLK** Method: **A2320 B**
Analysis Date: **04/02/12 12:32** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	2	1									

Associated samples: **H12030390-001A; H12030390-002A; H12030390-003A; H12030390-004A; H12030390-005A; H12030390-006A; H12030390-007A; H12030390-008A; H12030390-009A; H12030390-010A; H12030390-011A; H12030390-012A; H12030390-013A; H12030390-014A; H12030390-015A**

Run ID :Run Order: **MAN-TECH_120402A: 10** SampType: **Laboratory Control Sample** Sample ID: **LCS-03012012** Method: **A2320 B**
Analysis Date: **04/02/12 12:40** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	620	4.0	600	1.51	103	90	110				

Associated samples: **H12030390-001A; H12030390-002A; H12030390-003A; H12030390-004A; H12030390-005A; H12030390-006A; H12030390-007A; H12030390-008A; H12030390-009A; H12030390-010A; H12030390-011A; H12030390-012A; H12030390-013A; H12030390-014A; H12030390-015A**

Run ID :Run Order: **MAN-TECH_120402A: 22** SampType: **Sample Duplicate** Sample ID: **H12030390-002ADUP** Method: **A2320 B**
Analysis Date: **04/02/12 13:17** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	3.2	4.0						1.62		10	
Bicarbonate as HCO3	3.8	4.0						1.98		10	
Carbonate as CO3	ND	4.0								10	

Associated samples: **H12030390-001A; H12030390-002A; H12030390-003A; H12030390-004A; H12030390-005A; H12030390-006A; H12030390-007A; H12030390-008A; H12030390-009A; H12030390-010A; H12030390-011A; H12030390-012A; H12030390-013A; H12030390-014A; H12030390-015A**

Run ID :Run Order: **MAN-TECH_120402A: 32** SampType: **Sample Matrix Spike** Sample ID: **H12030390-006AMS** Method: **A2320 B**
Analysis Date: **04/02/12 13:54** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	700	4.0	600	177.7	87	80	120				

Associated samples: **H12030390-001A; H12030390-002A; H12030390-003A; H12030390-004A; H12030390-005A; H12030390-006A; H12030390-007A; H12030390-008A; H12030390-009A; H12030390-010A; H12030390-011A; H12030390-012A; H12030390-013A; H12030390-014A; H12030390-015A**

Run ID :Run Order: **MAN-TECH_120402A: 40** SampType: **Sample Duplicate** Sample ID: **H12030390-009ADUP** Method: **A2320 B**
Analysis Date: **04/02/12 14:17** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	90	4.0						89.94	0.2	10	
Bicarbonate as HCO3	110	4.0						109.7	0.2	10	
Carbonate as CO3	ND	4.0								10	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030390
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78946

Run ID :Run Order: **MAN-TECH_120402A: 40** SampType: **Sample Duplicate** Sample ID: **H12030390-009ADUP** Method: **A2320 B**
Analysis Date: **04/02/12 14:17** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12030390-001A; H12030390-002A; H12030390-003A; H12030390-004A; H12030390-005A; H12030390-006A; H12030390-007A; H12030390-008A; H12030390-009A; H12030390-010A; H12030390-011A; H12030390-012A; H12030390-013A; H12030390-014A; H12030390-015A**

Run ID :Run Order: **MAN-TECH_120402A: 57** SampType: **Method Blank** Sample ID: **MBLK** Method: **A2320 B**
Analysis Date: **04/02/12 15:12** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	1.9	4.0									

Associated samples: **H12030390-001A; H12030390-002A; H12030390-003A; H12030390-004A; H12030390-005A; H12030390-006A; H12030390-007A; H12030390-008A; H12030390-009A; H12030390-010A; H12030390-011A; H12030390-012A; H12030390-013A; H12030390-014A; H12030390-015A**

Run ID :Run Order: **MAN-TECH_120402A: 59** SampType: **Laboratory Control Sample** Sample ID: **LCS-03012012** Method: **A2320 B**
Analysis Date: **04/02/12 15:20** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	610	4.0	600	1.93	102	90	110				

Associated samples: **H12030390-001A; H12030390-002A; H12030390-003A; H12030390-004A; H12030390-005A; H12030390-006A; H12030390-007A; H12030390-008A; H12030390-009A; H12030390-010A; H12030390-011A; H12030390-012A; H12030390-013A; H12030390-014A; H12030390-015A**

Run ID :Run Order: **MAN-TECH_120402A: 63** SampType: **Sample Duplicate** Sample ID: **H12030392-002BDUP** Method: **A2320 B**
Analysis Date: **04/02/12 15:35** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	260	4.0						263.5	0.3	10	
Bicarbonate as HCO3	310	4.0						308	0.5	10	
Carbonate as CO3	6.8	4.0						6.64	2.7	10	

Associated samples: **H12030390-001A; H12030390-002A; H12030390-003A; H12030390-004A; H12030390-005A; H12030390-006A; H12030390-007A; H12030390-008A; H12030390-009A; H12030390-010A; H12030390-011A; H12030390-012A; H12030390-013A; H12030390-014A; H12030390-015A**

Run ID :Run Order: **MAN-TECH_120402A: 67** SampType: **Sample Matrix Spike** Sample ID: **H12030392-003BMS** Method: **A2320 B**
Analysis Date: **04/02/12 15:51** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	960	4.0	600	330.2	105	80	120				

Associated samples: **H12030390-001A; H12030390-002A; H12030390-003A; H12030390-004A; H12030390-005A; H12030390-006A; H12030390-007A; H12030390-008A; H12030390-009A; H12030390-010A; H12030390-011A; H12030390-012A; H12030390-013A; H12030390-014A; H12030390-015A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030390
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78958

Run ID :Run Order: **ICP2-HE_120402B: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**
Analysis Date: **04/02/12 10:26** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	39.7	1.0	40		99	95	105				
Magnesium	39.7	1.0	40		99	95	105				
Potassium	39.2	1.0	40		98	95	105				
Sodium	39.4	1.0	40		99	95	105				

Associated samples: **H12030390-001B; H12030390-002B; H12030390-003B; H12030390-004B; H12030390-005B; H12030390-006B; H12030390-007B; H12030390-008B; H12030390-009B; H12030390-010B; H12030390-011B; H12030390-012B; H12030390-013B; H12030390-014B; H12030390-015B**

Run ID :Run Order: **ICP2-HE_120402B: 7** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV-1** Method: **E200.7**
Analysis Date: **04/02/12 10:30** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	24.9	1.0	25		100	95	105				
Magnesium	24.4	1.0	25		98	95	105				
Potassium	24.6	1.0	25		99	95	105				
Sodium	24.7	1.0	25		99	95	105				

Associated samples: **H12030390-001B; H12030390-002B; H12030390-003B; H12030390-004B; H12030390-005B; H12030390-006B; H12030390-007B; H12030390-008B; H12030390-009B; H12030390-010B; H12030390-011B; H12030390-012B; H12030390-013B; H12030390-014B; H12030390-015B**

Run ID :Run Order: **ICP2-HE_120402B: 10** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.7**
Analysis Date: **04/02/12 10:41** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	467	1.0	500		93	80	120				
Magnesium	490	1.0	500		98	80	120				
Potassium	-0.0546	1.0				0	0				
Sodium	0.0208	1.0				0	0				

Associated samples: **H12030390-001B; H12030390-002B; H12030390-003B; H12030390-004B; H12030390-005B; H12030390-006B; H12030390-007B; H12030390-008B; H12030390-009B; H12030390-010B; H12030390-011B; H12030390-012B; H12030390-013B; H12030390-014B; H12030390-015B**

Run ID :Run Order: **ICP2-HE_120402B: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**
Analysis Date: **04/02/12 10:45** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	446	1.0	500		89	80	120				
Magnesium	480	1.0	500		96	80	120				
Potassium	21.0	1.0	20		105	80	120				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030390
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78958

Run ID :Run Order: **ICP2-HE_120402B: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**
Analysis Date: **04/02/12 10:45** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	20.9	1.0	20		104	80	120				

Associated samples: **H12030390-001B; H12030390-002B; H12030390-003B; H12030390-004B; H12030390-005B; H12030390-006B; H12030390-007B; H12030390-008B; H12030390-009B; H12030390-010B; H12030390-011B; H12030390-012B; H12030390-013B; H12030390-014B; H12030390-015B**

Run ID :Run Order: **ICP2-HE_120402B: 13** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.7**
Analysis Date: **04/02/12 10:53** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	0.03	0.008									
Magnesium	ND	0.003									
Potassium	ND	0.04									
Sodium	ND	0.01									

Associated samples: **H12030390-001B; H12030390-002B; H12030390-003B; H12030390-004B; H12030390-005B; H12030390-006B; H12030390-007B; H12030390-008B; H12030390-009B; H12030390-010B; H12030390-011B; H12030390-012B; H12030390-013B; H12030390-014B; H12030390-015B**

Run ID :Run Order: **ICP2-HE_120402B: 14** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.7**
Analysis Date: **04/02/12 10:57** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	47.4	1.0	50	0.03223	95	85	115				
Magnesium	47.2	1.0	50		94	85	115				
Potassium	48.4	1.0	50		97	85	115				
Sodium	48.7	1.0	50		97	85	115				

Associated samples: **H12030390-001B; H12030390-002B; H12030390-003B; H12030390-004B; H12030390-005B; H12030390-006B; H12030390-007B; H12030390-008B; H12030390-009B; H12030390-010B; H12030390-011B; H12030390-012B; H12030390-013B; H12030390-014B; H12030390-015B**

Run ID :Run Order: **ICP2-HE_120402B: 66** SampType: **Sample Matrix Spike** Sample ID: **H12030387-001AMS2** Method: **E200.7**
Analysis Date: **04/02/12 14:11** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	129	1.0	50	75.54	106	70	130				
Magnesium	69.2	1.0	50	17.91	102	70	130				
Potassium	61.7	1.0	50	10.67	102	70	130				
Sodium	63.5	1.0	50	12.2	103	70	130				

Associated samples: **H12030390-001B; H12030390-002B; H12030390-003B; H12030390-004B; H12030390-005B; H12030390-006B; H12030390-007B; H12030390-008B; H12030390-009B; H12030390-010B; H12030390-011B; H12030390-012B; H12030390-013B; H12030390-014B; H12030390-015B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030390
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78958

Run ID :Run Order: **ICP2-HE_120402B: 74** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV** Method: **E200.7**

Analysis Date: **04/02/12 14:41** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	23.9	1.0	25		96	90	110				
Magnesium	23.6	1.0	25		94	90	110				
Potassium	24.7	1.0	25		99	90	110				
Sodium	24.7	1.0	25		99	90	110				

Associated samples: **H12030390-001B; H12030390-002B; H12030390-003B; H12030390-004B; H12030390-005B; H12030390-006B; H12030390-007B; H12030390-008B; H12030390-009B**

Run ID :Run Order: **ICP2-HE_120402B: 76** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12030387-001AMSD2** Method: **E200.7**

Analysis Date: **04/02/12 14:48** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	125	1.0	50	75.54	98	70	130	128.7	3.3	20	
Magnesium	65.7	1.0	50	17.91	96	70	130	69.15	5.2	20	
Potassium	60.6	1.0	50	10.67	100	70	130	61.7	1.8	20	
Sodium	62.4	1.0	50	12.2	100	70	130	63.53	1.7	20	

Associated samples: **H12030390-001B; H12030390-002B; H12030390-003B; H12030390-004B; H12030390-005B; H12030390-006B; H12030390-007B; H12030390-008B; H12030390-009B; H12030390-010B; H12030390-011B; H12030390-012B; H12030390-013B; H12030390-014B; H12030390-015B**

Run ID :Run Order: **ICP2-HE_120402B: 86** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV** Method: **E200.7**

Analysis Date: **04/02/12 15:26** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	26.0	1.0	25		104	90	110				
Magnesium	26.0	1.0	25		104	90	110				
Potassium	25.9	1.0	25		103	90	110				
Sodium	25.8	1.0	25		103	90	110				

Associated samples: **H12030390-010B; H12030390-011B; H12030390-012B; H12030390-013B; H12030390-014B; H12030390-015B**

Run ID :Run Order: **ICP2-HE_120402B: 90** SampType: **Sample Matrix Spike** Sample ID: **H12030390-010BMS2** Method: **E200.7**

Analysis Date: **04/02/12 15:41** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	71.2	1.0	50	24.73	93	70	130				
Magnesium	60.9	1.0	50	13.14	95	70	130				
Potassium	50.0	1.0	50	0.4273	99	70	130				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030390
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78958

Run ID :Run Order: **ICP2-HE_120402B: 90** SampType: **Sample Matrix Spike** Sample ID: **H12030390-010BMS2** Method: **E200.7**
Analysis Date: **04/02/12 15:41** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	51.4	1.0	50	1.916	99	70	130				

Associated samples: **H12030390-001B; H12030390-002B; H12030390-003B; H12030390-004B; H12030390-005B; H12030390-006B; H12030390-007B; H12030390-008B; H12030390-009B; H12030390-010B; H12030390-011B; H12030390-012B; H12030390-013B; H12030390-014B; H12030390-015B**

Run ID :Run Order: **ICP2-HE_120402B: 91** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12030390-010BMSD2** Method: **E200.7**
Analysis Date: **04/02/12 15:44** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	73.0	1.0	50	24.73	97	70	130	71.16	2.6	20	
Magnesium	61.1	1.0	50	13.14	96	70	130	60.88	0.4	20	
Potassium	50.8	1.0	50	0.4273	101	70	130	50	1.6	20	
Sodium	52.7	1.0	50	1.916	101	70	130	51.39	2.5	20	

Associated samples: **H12030390-001B; H12030390-002B; H12030390-003B; H12030390-004B; H12030390-005B; H12030390-006B; H12030390-007B; H12030390-008B; H12030390-009B; H12030390-010B; H12030390-011B; H12030390-012B; H12030390-013B; H12030390-014B; H12030390-015B**

Run ID :Run Order: **ICP2-HE_120402B: 167** SampType: **Serial Dilution** Sample ID: **H12030340-001CDIL** Method: **E200.7**
Analysis Date: **04/02/12 20:30** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	16.2	1.0				0	0	16.98	5.0	10	
Magnesium	6.68	1.0				0	0	7.031	5.1	10	
Potassium	1.16	1.0				0	0	1.381		10	N
Sodium	1.94	1.0				0	0	1.889		10	N

Associated samples: **H12030390-001B; H12030390-002B; H12030390-003B; H12030390-004B; H12030390-005B; H12030390-006B; H12030390-007B; H12030390-008B; H12030390-009B; H12030390-010B; H12030390-011B; H12030390-012B; H12030390-013B; H12030390-014B; H12030390-015B**

Run ID :Run Order: **ICP2-HE_120402B: 174** SampType: **Serial Dilution** Sample ID: **H12030342-003CDIL** Method: **E200.7**
Analysis Date: **04/02/12 20:56** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	0.258	1.0				0	0	0.04438		10	N
Magnesium	ND	1.0				0	0			10	
Potassium	ND	1.0				0	0			10	
Sodium	ND	1.0				0	0			10	

Associated samples: **H12030390-001B; H12030390-002B; H12030390-003B; H12030390-004B; H12030390-005B; H12030390-006B; H12030390-007B; H12030390-008B; H12030390-009B; H12030390-010B; H12030390-011B; H12030390-012B; H12030390-013B; H12030390-014B; H12030390-015B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030390
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78968

Run ID :Run Order: **ICPMS204-B_120402A: 8** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **04/02/12 13:52** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.264	0.10	0.25		106	90	110				
Arsenic	0.0487	0.0050	0.05		97	90	110				
Cadmium	0.0264	0.0010	0.025		106	90	110				
Copper	0.0513	0.010	0.05		103	90	110				
Iron	0.268	0.030	0.25		107	90	110				
Lead	0.0494	0.010	0.05		99	90	110				
Manganese	0.254	0.010	0.25		102	90	110				
Zinc	0.0511	0.010	0.05		102	90	110				

Associated samples: **H12030390-001B; H12030390-002B; H12030390-003B; H12030390-004B; H12030390-005B; H12030390-006B; H12030390-007B; H12030390-008B; H12030390-009B; H12030390-010B; H12030390-011B; H12030390-012B; H12030390-013B; H12030390-014B; H12030390-015B**

Run ID :Run Order: **ICPMS204-B_120402A: 9** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **04/02/12 13:57** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	40.9	0.10	40		102	70	130				
Arsenic	0.00219	0.0050									
Cadmium	0.00114	0.0010									
Copper	0.000146	0.010									
Iron	104	0.030	100		104	70	130				
Lead	0.000172	0.010									
Manganese	0.000167	0.010									
Zinc	0.00144	0.010									

Associated samples: **H12030390-001B; H12030390-002B; H12030390-003B; H12030390-004B; H12030390-005B; H12030390-006B; H12030390-007B; H12030390-008B; H12030390-009B; H12030390-010B; H12030390-011B; H12030390-012B; H12030390-013B; H12030390-014B; H12030390-015B**

Run ID :Run Order: **ICPMS204-B_120402A: 10** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **04/02/12 14:02** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	41.3	0.10	40		103	70	130				
Arsenic	0.0112	0.0050	0.01		112	70	130				
Cadmium	0.0110	0.0010	0.01		110	70	130				
Copper	0.0205	0.010	0.02		103	70	130				
Iron	103	0.030	100		103	70	130				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030390
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78968

Run ID :Run Order: **ICPMS204-B_120402A: 10** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **04/02/12 14:02** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.000147	0.010				0	0				
Manganese	0.0202	0.010	0.02		101	70	130				
Zinc	0.0116	0.010	0.01		116	70	130				

Associated samples: **H12030390-001B; H12030390-002B; H12030390-003B; H12030390-004B; H12030390-005B; H12030390-006B; H12030390-007B; H12030390-008B; H12030390-009B; H12030390-010B; H12030390-011B; H12030390-012B; H12030390-013B; H12030390-014B; H12030390-015B**

Run ID :Run Order: **ICPMS204-B_120402A: 21** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.8**

Analysis Date: **04/02/12 16:03** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	ND	0.0003									
Arsenic	7E-05	3E-05									
Cadmium	ND	1E-05									
Copper	ND	3E-05									
Iron	0.0010	0.0002									
Lead	ND	1.0E-05									
Manganese	6E-05	1E-05									
Zinc	0.001	0.0003									

Associated samples: **H12030390-001B; H12030390-002B; H12030390-003B; H12030390-004B; H12030390-005B; H12030390-006B; H12030390-007B; H12030390-008B; H12030390-009B; H12030390-010B; H12030390-011B; H12030390-012B; H12030390-013B; H12030390-014B; H12030390-015B**

Run ID :Run Order: **ICPMS204-B_120402A: 29** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**

Analysis Date: **04/02/12 16:40** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0494	0.10	0.05		99	85	115				
Arsenic	0.0486	0.0050	0.05	0.0000654	97	85	115				
Cadmium	0.0470	0.0010	0.05		94	85	115				
Copper	0.0460	0.010	0.05		92	85	115				
Iron	4.98	0.030	5	0.0009885	100	85	115				
Lead	0.0477	0.010	0.05		95	85	115				
Manganese	0.0476	0.010	0.05	0.0000605	95	85	115				
Zinc	0.0471	0.010	0.05	0.001083	92	85	115				

Associated samples: **H12030390-001B; H12030390-002B; H12030390-003B; H12030390-004B; H12030390-005B; H12030390-006B; H12030390-007B; H12030390-008B; H12030390-009B; H12030390-010B; H12030390-011B; H12030390-012B; H12030390-013B; H12030390-014B; H12030390-015B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030390
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78968

Run ID :Run Order: **ICPMS204-B_120402A: 67** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **04/02/12 19:39** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.264	0.10	0.25		106	90	110				
Arsenic	0.0492	0.0050	0.05		98	90	110				
Cadmium	0.0264	0.0010	0.025		106	90	110				
Copper	0.0514	0.010	0.05		103	90	110				
Iron	0.264	0.030	0.25		105	90	110				
Lead	0.0504	0.010	0.05		101	90	110				
Manganese	0.259	0.010	0.25		103	90	110				
Zinc	0.0516	0.010	0.05		103	90	110				

Associated samples: **H12030390-001B; H12030390-002B; H12030390-003B; H12030390-004B; H12030390-005B; H12030390-006B; H12030390-007B; H12030390-008B; H12030390-009B; H12030390-010B; H12030390-011B; H12030390-012B; H12030390-013B; H12030390-014B; H12030390-015B**

Run ID :Run Order: **ICPMS204-B_120402A: 68** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **04/02/12 19:44** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	39.9	0.10	40		100	70	130				
Arsenic	0.000851	0.0050									
Cadmium	0.00106	0.0010									
Copper	0.000189	0.010									
Iron	96.4	0.030	100		96	70	130				
Lead	0.000152	0.010									
Manganese	0.000189	0.010									
Zinc	0.00127	0.010									

Associated samples: **H12030390-001B; H12030390-002B; H12030390-003B; H12030390-004B; H12030390-005B; H12030390-006B; H12030390-007B; H12030390-008B; H12030390-009B; H12030390-010B; H12030390-011B; H12030390-012B; H12030390-013B; H12030390-014B; H12030390-015B**

Run ID :Run Order: **ICPMS204-B_120402A: 69** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **04/02/12 19:48** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	40.3	0.10	40		101	70	130				
Arsenic	0.0104	0.0050	0.01		104	70	130				
Cadmium	0.0105	0.0010	0.01		105	70	130				
Copper	0.0194	0.010	0.02		97	70	130				
Iron	98.9	0.030	100		99	70	130				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030390
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78968

Run ID :Run Order: **ICPMS204-B_120402A: 69** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **04/02/12 19:48** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.000126	0.010				0	0				
Manganese	0.0196	0.010	0.02		98	70	130				
Zinc	0.0107	0.010	0.01		107	70	130				

Associated samples: **H12030390-001B; H12030390-002B; H12030390-003B; H12030390-004B; H12030390-005B; H12030390-006B; H12030390-007B; H12030390-008B; H12030390-009B; H12030390-010B; H12030390-011B; H12030390-012B; H12030390-013B; H12030390-014B; H12030390-015B**

Run ID :Run Order: **ICPMS204-B_120402A: 177** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **04/03/12 04:14** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.261	0.10	0.25		104	90	110				
Arsenic	0.0499	0.0050	0.05		100	90	110				
Cadmium	0.0260	0.0010	0.025		104	90	110				
Copper	0.0520	0.010	0.05		104	90	110				
Iron	0.259	0.030	0.25		104	90	110				
Lead	0.0495	0.010	0.05		99	90	110				
Manganese	0.260	0.010	0.25		104	90	110				
Zinc	0.0526	0.010	0.05		105	90	110				

Associated samples: **H12030390-001B; H12030390-002B; H12030390-003B; H12030390-004B; H12030390-005B; H12030390-006B; H12030390-007B; H12030390-008B; H12030390-009B; H12030390-010B; H12030390-011B; H12030390-012B; H12030390-013B; H12030390-014B; H12030390-015B**

Run ID :Run Order: **ICPMS204-B_120402A: 178** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **04/03/12 04:18** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	39.3	0.10	40		98	70	130				
Arsenic	0.000507	0.0050									
Cadmium	0.000989	0.0010									
Copper	0.000184	0.010									
Iron	97.7	0.030	100		98	70	130				
Lead	0.000156	0.010									
Manganese	0.000165	0.010									
Zinc	0.00130	0.010									

Associated samples: **H12030390-001B; H12030390-002B; H12030390-003B; H12030390-004B; H12030390-005B; H12030390-006B; H12030390-007B; H12030390-008B; H12030390-009B; H12030390-010B; H12030390-011B; H12030390-012B; H12030390-013B; H12030390-014B; H12030390-015B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030390
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78968

Run ID :Run Order: **ICPMS204-B_120402A: 179** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **04/03/12 04:23** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	39.2	0.10	40		98	70	130				
Arsenic	0.0104	0.0050	0.01		104	70	130				
Cadmium	0.0103	0.0010	0.01		103	70	130				
Copper	0.0198	0.010	0.02		99	70	130				
Iron	96.8	0.030	100		97	70	130				
Lead	0.000129	0.010				0	0				
Manganese	0.0191	0.010	0.02		96	70	130				
Zinc	0.0112	0.010	0.01		112	70	130				

Associated samples: **H12030390-001B; H12030390-002B; H12030390-003B; H12030390-004B; H12030390-005B; H12030390-006B; H12030390-007B; H12030390-008B; H12030390-009B; H12030390-010B; H12030390-011B; H12030390-012B; H12030390-013B; H12030390-014B; H12030390-015B**

Run ID :Run Order: **ICPMS204-B_120402A: 204** SampType: **Sample Matrix Spike** Sample ID: **H12030390-002BMS** Method: **E200.8**

Analysis Date: **04/03/12 06:20** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0489	0.030	0.05		98	70	130				
Arsenic	0.0488	0.0010	0.05		98	70	130				
Cadmium	0.0484	0.0010	0.05		97	70	130				
Copper	0.0480	0.0050	0.05	0.0003064	95	70	130				
Iron	4.68	0.030	5	0.002963	93	70	130				
Lead	0.0495	0.0010	0.05	0.0000526	99	70	130				
Manganese	0.0517	0.0010	0.05	0.003742	96	70	130				
Zinc	0.0503	0.010	0.05	0.002457	96	70	130				

Associated samples: **H12030390-001B; H12030390-002B; H12030390-003B; H12030390-004B; H12030390-005B; H12030390-006B; H12030390-007B; H12030390-008B; H12030390-009B; H12030390-010B; H12030390-011B; H12030390-012B; H12030390-013B; H12030390-014B; H12030390-015B**

Run ID :Run Order: **ICPMS204-B_120402A: 205** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12030390-002BMSD** Method: **E200.8**

Analysis Date: **04/03/12 06:25** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0487	0.030	0.05		97	70	130	0.04886	0.2	20	
Arsenic	0.0488	0.0010	0.05		98	70	130	0.0488	0.0	20	
Cadmium	0.0483	0.0010	0.05		97	70	130	0.04841	0.1	20	
Copper	0.0478	0.0050	0.05	0.0003064	95	70	130	0.04804	0.6	20	
Iron	4.81	0.030	5	0.002963	96	70	130	4.676	2.8	20	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030390
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R78968

Run ID :Run Order: **ICPMS204-B_120402A: 205** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12030390-002BMSD** Method: **E200.8**

Analysis Date: **04/03/12 06:25** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.0489	0.0010	0.05	0.0000526	98	70	130	0.04951	1.2	20	
Manganese	0.0522	0.0010	0.05	0.003742	97	70	130	0.05173	0.9	20	
Zinc	0.0498	0.010	0.05	0.002457	95	70	130	0.05027	0.9	20	

Associated samples: **H12030390-001B; H12030390-002B; H12030390-003B; H12030390-004B; H12030390-005B; H12030390-006B; H12030390-007B; H12030390-008B; H12030390-009B; H12030390-010B; H12030390-011B; H12030390-012B; H12030390-013B; H12030390-014B; H12030390-015B**

Run ID :Run Order: **ICPMS204-B_120402A: 225** SampType: **Sample Matrix Spike** Sample ID: **H12030390-012BMS** Method: **E200.8**

Analysis Date: **04/03/12 07:59** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0479	0.030	0.05	0.001402	93	70	130				
Arsenic	0.0490	0.0010	0.05	0.0002948	97	70	130				
Cadmium	0.0474	0.0010	0.05	0.0001119	94	70	130				
Copper	0.0470	0.0050	0.05	0.0001955	94	70	130				
Iron	4.76	0.030	5	0.007319	95	70	130				
Lead	0.0488	0.0010	0.05	0.0000206	97	70	130				
Manganese	0.0482	0.0010	0.05	0.000711	95	70	130				
Zinc	0.0638	0.010	0.05	0.01788	92	70	130				

Associated samples: **H12030390-001B; H12030390-002B; H12030390-003B; H12030390-004B; H12030390-005B; H12030390-006B; H12030390-007B; H12030390-008B; H12030390-009B; H12030390-010B; H12030390-011B; H12030390-012B; H12030390-013B; H12030390-014B; H12030390-015B**

Run ID :Run Order: **ICPMS204-B_120402A: 226** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12030390-012BMSD** Method: **E200.8**

Analysis Date: **04/03/12 08:04** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0468	0.030	0.05	0.001402	91	70	130	0.04787	2.2	20	
Arsenic	0.0492	0.0010	0.05	0.0002948	98	70	130	0.04901	0.4	20	
Cadmium	0.0464	0.0010	0.05	0.0001119	92	70	130	0.04736	2.1	20	
Copper	0.0465	0.0050	0.05	0.0001955	93	70	130	0.047	1.1	20	
Iron	4.73	0.030	5	0.007319	94	70	130	4.763	0.8	20	
Lead	0.0505	0.0010	0.05	0.0000206	101	70	130	0.04875	3.5	20	
Manganese	0.0474	0.0010	0.05	0.000711	93	70	130	0.04819	1.8	20	
Zinc	0.0627	0.010	0.05	0.01788	90	70	130	0.06383	1.8	20	

Associated samples: **H12030390-001B; H12030390-002B; H12030390-003B; H12030390-004B; H12030390-005B; H12030390-006B; H12030390-007B; H12030390-008B; H12030390-009B; H12030390-010B; H12030390-011B; H12030390-012B; H12030390-013B; H12030390-014B; H12030390-015B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030390
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R79000

Run ID :Run Order: **ICPMS204-B_120404A: 9** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**
Analysis Date: **04/04/12 11:15** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	111	0.50	120		92	70	130				
Magnesium	40.3	0.50	40		101	70	130				
Manganese	0.000879	0.010									
Zinc	0.00144	0.010									

Associated samples: **H12030390-015B**

Run ID :Run Order: **ICPMS204-B_120404A: 10** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**
Analysis Date: **04/04/12 11:20** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	111	0.50	120		92	70	130				
Magnesium	40.6	0.50	40		102	70	130				
Manganese	0.0196	0.010	0.02		98	70	130				
Zinc	0.0108	0.010	0.01		108	70	130				

Associated samples: **H12030390-015B**

Run ID :Run Order: **ICPMS204-B_120404A: 13** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**
Analysis Date: **04/04/12 11:34** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	2.58	0.50	2.5		103	90	110				
Magnesium	2.54	0.50	2.5		102	90	110				
Manganese	0.244	0.010	0.25		98	90	110				
Zinc	0.0508	0.010	0.05		102	90	110				

Associated samples: **H12030390-015B**

Run ID :Run Order: **ICPMS204-B_120404A: 34** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.8**
Analysis Date: **04/04/12 13:40** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	ND	0.003									
Magnesium	ND	0.0007									
Manganese	0.0002	1E-05									
Zinc	ND	0.0003									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030390
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R79000

Run ID :Run Order: **ICPMS204-B_120404A: 34** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.8**
Analysis Date: **04/04/12 13:40** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12030390-015B**

Run ID :Run Order: **ICPMS204-B_120404A: 35** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**
Analysis Date: **04/04/12 13:46** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	48.1	0.50	50		96	85	115				
Magnesium	47.3	0.50	50		95	85	115				
Manganese	0.0466	0.010	0.05	0.0002144	93	85	115				
Zinc	0.0464	0.010	0.05		93	85	115				

Associated samples: **H12030390-015B**

Run ID :Run Order: **ICPMS204-B_120404A: 45** SampType: **Sample Matrix Spike** Sample ID: **H12040038-002AMS** Method: **E200.8**
Analysis Date: **04/04/12 14:32** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	88.2	1.0	50	48.16	80	70	130				
Magnesium	75.4	1.0	50	28.92	93	70	130				
Manganese	0.0476	0.0010	0.05	0.001153	93	70	130				
Zinc	0.0479	0.010	0.05	0.0025	91	70	130				

Associated samples: **H12030390-015B**

Run ID :Run Order: **ICPMS204-B_120404A: 46** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12040038-002AMSD** Method: **E200.8**
Analysis Date: **04/04/12 14:36** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	87.2	1.0	50	48.16	78	70	130	88.19	1.2	20	
Magnesium	73.8	1.0	50	28.92	90	70	130	75.43	2.2	20	
Manganese	0.0483	0.0010	0.05	0.001153	94	70	130	0.04758	1.6	20	
Zinc	0.0472	0.010	0.05	0.0025	89	70	130	0.04786	1.5	20	

Associated samples: **H12030390-015B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030390
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R79043

Run ID :Run Order: **IC102-H_120403A: 15** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV040312-12** Method: **E300.0**
Analysis Date: **04/03/12 10:46** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	100	1.0	100		103	90	110				
Sulfate	410	1.0	400		103	90	110				

Associated samples: **H12030390-001A; H12030390-002A; H12030390-003A; H12030390-004A; H12030390-005A; H12030390-006A; H12030390-007A; H12030390-009A; H12030390-010A; H12030390-011A; H12030390-012A; H12030390-013A; H12030390-014A; H12030390-015A**

Run ID :Run Order: **IC102-H_120403A: 16** SampType: **Method Blank** Sample ID: **ICB040312-13** Method: **E300.0**
Analysis Date: **04/03/12 11:00** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.02									
Sulfate	ND	0.02									

Associated samples: **H12030390-001A; H12030390-002A; H12030390-003A; H12030390-004A; H12030390-005A; H12030390-006A; H12030390-007A; H12030390-009A; H12030390-010A; H12030390-011A; H12030390-012A; H12030390-013A; H12030390-014A; H12030390-015A**

Run ID :Run Order: **IC102-H_120403A: 17** SampType: **Laboratory Fortified Blank** Sample ID: **LFB040312-14** Method: **E300.0**
Analysis Date: **04/03/12 11:13** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	53	1.0	50		105	90	110				
Sulfate	210	1.1	200		103	90	110				

Associated samples: **H12030390-001A; H12030390-002A; H12030390-003A; H12030390-004A; H12030390-005A; H12030390-006A; H12030390-007A; H12030390-009A; H12030390-010A; H12030390-011A; H12030390-012A; H12030390-013A; H12030390-014A; H12030390-015A**

Run ID :Run Order: **IC102-H_120403A: 29** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV040312-30** Method: **E300.0**
Analysis Date: **04/03/12 13:57** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	100	1.0	100		104	90	110				
Sulfate	410	1.0	400		102	90	110				

Associated samples: **H12030390-001A; H12030390-002A; H12030390-003A**

Run ID :Run Order: **IC102-H_120403A: 36** SampType: **Sample Matrix Spike** Sample ID: **H12030390-002AMS** Method: **E300.0**
Analysis Date: **04/03/12 15:32** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	52	1.0	50		104	90	110				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030390
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R79043

Run ID :Run Order: **IC102-H_120403A: 36** SampType: **Sample Matrix Spike** Sample ID: **H12030390-002AMS** Method: **E300.0**
Analysis Date: **04/03/12 15:32** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	200	1.1	200		102	90	110				

Associated samples: **H12030390-001A; H12030390-002A; H12030390-003A; H12030390-004A; H12030390-005A; H12030390-006A; H12030390-007A; H12030390-009A; H12030390-010A; H12030390-011A; H12030390-012A; H12030390-013A; H12030390-014A; H12030390-015A**

Run ID :Run Order: **IC102-H_120403A: 37** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12030390-002AMSD** Method: **E300.0**
Analysis Date: **04/03/12 15:45** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	53	1.0	50		105	90	110	52.22	0.8	20	
Sulfate	210	1.1	200		103	90	110	203.8	0.8	20	

Associated samples: **H12030390-001A; H12030390-002A; H12030390-003A; H12030390-004A; H12030390-005A; H12030390-006A; H12030390-007A; H12030390-009A; H12030390-010A; H12030390-011A; H12030390-012A; H12030390-013A; H12030390-014A; H12030390-015A**

Run ID :Run Order: **IC102-H_120403A: 39** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV040312-44** Method: **E300.0**
Analysis Date: **04/03/12 16:13** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	100	1.0	100		105	90	110				
Sulfate	410	1.0	400		103	90	110				

Associated samples: **H12030390-004A; H12030390-005A; H12030390-006A; H12030390-007A; H12030390-009A; H12030390-010A; H12030390-011A; H12030390-012A; H12030390-013A**

Run ID :Run Order: **IC102-H_120403A: 47** SampType: **Sample Matrix Spike** Sample ID: **H12030390-009AMS** Method: **E300.0**
Analysis Date: **04/03/12 18:01** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	46	1.0	50	0.254	91	90	110				
Sulfate	230	1.1	200	32.52	99	90	110				

Associated samples: **H12030390-001A; H12030390-002A; H12030390-003A; H12030390-004A; H12030390-005A; H12030390-006A; H12030390-007A; H12030390-009A; H12030390-010A; H12030390-011A; H12030390-012A; H12030390-013A; H12030390-014A; H12030390-015A**

Run ID :Run Order: **IC102-H_120403A: 48** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12030390-009AMSD** Method: **E300.0**
Analysis Date: **04/03/12 18:15** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	49	1.0	50	0.254	98	90	110	45.9	7.0	20	
Sulfate	240	1.1	200	32.52	104	90	110	230.7	4.5	20	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030390
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R79043

Run ID :Run Order: **IC102-H_120403A: 48** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12030390-009AMSD** Method: **E300.0**
Analysis Date: **04/03/12 18:15** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12030390-001A; H12030390-002A; H12030390-003A; H12030390-004A; H12030390-005A; H12030390-006A; H12030390-007A; H12030390-009A; H12030390-010A; H12030390-011A; H12030390-012A; H12030390-013A; H12030390-014A; H12030390-015A**

Run ID :Run Order: **IC102-H_120403A: 53** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV040312-58** Method: **E300.0**
Analysis Date: **04/03/12 19:23** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	100	1.0	100		101	90	110				
Sulfate	400	1.0	400		100	90	110				

Associated samples: **H12030390-014A; H12030390-015A**

Run ID :Run Order: **IC102-H_120403A: 63** SampType: **Sample Matrix Spike** Sample ID: **H12030403-001AMS** Method: **E300.0**
Analysis Date: **04/03/12 21:39** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	200	1.0	50	121.4	148	90	110				S
Sulfate	210	1.1	200	9.706	100	90	110				

Associated samples: **H12030390-001A; H12030390-002A; H12030390-003A; H12030390-004A; H12030390-005A; H12030390-006A; H12030390-007A; H12030390-009A; H12030390-010A; H12030390-011A; H12030390-012A; H12030390-013A; H12030390-014A; H12030390-015A**

Run ID :Run Order: **IC102-H_120403A: 64** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12030403-001AMSD** Method: **E300.0**
Analysis Date: **04/03/12 21:53** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	200	1.0	50	121.4	149	90	110	195.3	0.4	20	S
Sulfate	210	1.1	200	9.706	100	90	110	209.4	0.5	20	

Associated samples: **H12030390-001A; H12030390-002A; H12030390-003A; H12030390-004A; H12030390-005A; H12030390-006A; H12030390-007A; H12030390-009A; H12030390-010A; H12030390-011A; H12030390-012A; H12030390-013A; H12030390-014A; H12030390-015A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030390
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R79125

Run ID :Run Order: **IC102-H_120410A: 16** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV041012-12** Method: **E300.0**
Analysis Date: **04/10/12 11:22** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	100	1.0	100		102	90	110				
Sulfate	400	1.0	400		101	90	110				

Associated samples: **H12030390-008A**

Run ID :Run Order: **IC102-H_120410A: 17** SampType: **Method Blank** Sample ID: **ICB041012-13** Method: **E300.0**
Analysis Date: **04/10/12 11:35** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.07	0.02									
Sulfate	0.08	0.02									

Associated samples: **H12030390-008A**

Run ID :Run Order: **IC102-H_120410A: 18** SampType: **Laboratory Fortified Blank** Sample ID: **LFB041012-14** Method: **E300.0**
Analysis Date: **04/10/12 11:49** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	45	1.0	50	0.07	90	90	110				
Sulfate	180	1.0	200	0.075	91	90	110				

Associated samples: **H12030390-008A**

Run ID :Run Order: **IC102-H_120410A: 19** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV041012-15** Method: **E300.0**
Analysis Date: **04/10/12 12:02** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	100	1.0	100		103	90	110				
Sulfate	410	1.0	400		102	90	110				

Associated samples: **H12030390-008A**

Run ID :Run Order: **IC102-H_120410A: 29** SampType: **Sample Matrix Spike** Sample ID: **H12040020-004AMS** Method: **E300.0**
Analysis Date: **04/10/12 14:18** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	68	1.0	50	16.41	104	90	110				
Sulfate	220	1.1	200	12.33	103	90	110				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12030390
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *17-Apr-12*

BatchID: R79125

Run ID :Run Order: **IC102-H_120410A: 29** SampType: **Sample Matrix Spike** Sample ID: **H12040020-004AMS** Method: **E300.0**

Analysis Date: **04/10/12 14:18** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12030390-008A**

Run ID :Run Order: **IC102-H_120410A: 30** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12040020-004AMSD** Method: **E300.0**

Analysis Date: **04/10/12 14:32** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	69	1.0	50	16.41	104	90	110	68.16	0.6	20	
Sulfate	220	1.1	200	12.33	104	90	110	219	0.7	20	

Associated samples: **H12030390-008A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Workorder Receipt Checklist

H12030390

MT DEQ-Site Response

Login completed by: Tracy L. Lorash
Date Received: 3/30/2012
Reviewed by: BL2000\sdull
Received by: wjj
Reviewed Date: 4/3/2012
Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Container/Temp Blank temperature:	℃ See Comments		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Contact and Corrective Action Comments:

All samples received on ice with Cooler #1 at a temperature of -0.1C and Cooler #2 at a temperature of -0.9C. TI 3/30/12.

Chain of Custody and Analytical Request Record

Page 1 of 2

PLEASE PRINT (Provide as much information as possible.)

Company Name: MDEQ	Project Name, PWS, Permit, Etc.: UBMC Groundwater	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: Quote H-1645	Contact Name: Shellie Haaland Phone/Fax: 841-5033 Email: Shaaland@mt.gov		Sampler: (Please Print) Alan Dreesbach Jackie Janosk
Invoice Address:	Invoice Contact & Phone:	Purchase Order:	Quote/Bottle Order:

Special Report/Formats:

☐ DW ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: _____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids Vegetation Bioassay Other DW - Drinking Water

ANALYSIS REQUESTED

SEE ATTACHED

Standard Turnaround (TAT)

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: Please copy results to adreesbach@portageinc.com 490-5135

Shipped by: hand del

Cooler ID(s): Y

Receipt Temp: see comments °C

On Ice: (Y) N

Custody Seal: On Bottle Y N; On Cooler Y N

Intact: Y N

Signature Match: Y N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX				
1	S35MW08	03/29/12	0940	W	X		#1 -0.1	HI2030390
1	2 S35MW09		0945				#2 -0.9	
1	3 S35MW06		1415					
1	4 S35MW04		1510					
1	5 S35MW07		1515					
1	6 S35MW03		1620					
2	7 UBMCTDMW07	03/29/12	0815					
2	8 UBMCTDMW08		0820					
2	9 UBMCTDMW05		0845					
2	10 UBMCTDMW4D		1105					

LABORATORY USE ONLY

Custody Record MUST be Signed

Relinquished by (print): Alan Dreesbach	Date/Time: 3/3-/12 0903	Signature:	Received by (print):	Date/Time: / Signature:
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time: / Signature:
Sample Disposal: Return to Client: _____ Lab Disposal: _____			Received by Laboratory: Wanda Dm	Date/Time: 3-30-12 09:03 / Signature:

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.
This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

ENERGY

Chain of Custody and Analytical Request Record

PLEASE PRINT (Provide as much information as possible.)

Company Name: M DEQ	Project Name, PWS, Permit, Etc.: UBMC Groundwater	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: Quote H-645	Contact Name: Shellie Haaland Phone/Fax: 841-5033	Email: Shaaland@mt.gov	Sampler: (Please Print) Alan Dreesbach Jackie Janoski
Invoice Address:	Invoice Contact & Phone:	Purchase Order:	Quote/Bottle Order:

Special Report/Formats:

☐ DW ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: _____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids
Vegetation Bioassay Other
DW - Drinking Water

ANALYSIS REQUESTED

Standard Turnaround (TAT)

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: Please copy results to adreesbach@portageinc.com 490-5135

Shipped by: hand del
Cooler ID(s): Y
Receipt Temp: see comments °C
On Ice: Y N 3-30
Custody Seal On Bottle Y N
On Cooler Y N
Intact Y N
Signature Match Y N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	SEE ATTACHED	LABORATORY USE ONLY
1	UBMCTDMW06	03/29/12	1110	W	X	H12030390
2	UBMCTDMW3D		1330			
3	UBMCTDMW01		1515			
4	UBMCTDMW2D		1530			
5	UBMCTDMW2S		1555			
6						
7						
8						
9						
10						

03/29/2012

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Alan Dreesbach	3/30/12 0903	[signature]			
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory: Wanda Johnson	Date/Time: 3-30-12 9:07	Signature: [signature]

Sample Disposal: Return to Client: _____ Lab Disposal: _____

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.
This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

Section 35 Quarterly													
	Quantity	Analysis											
Surface Water	7	[1]Disolved Metals	[2]Total Rec. Metals	[5]Cations	Chloride	Sulfate	Alkalinity	Hardness	Acidity	TDS	TSS	pH	EC
Groundwater	9	[3]Disolved Metals		[5]Cations	Chloride	Sulfate	Alkalinity	Hardness	Acidity	TDS	TSS	pH	EC
Sediment	6		[4]Total Rec. Metals										

[1]Aluminum

[2]Arsenic, cadmium, copper, iron, lead, manganese, and zinc

[3]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[4]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[5]Calcium, magnesium, potassium, sodium

UBMC Quarterly													
	Quantity	Analysis											
[6]Surface Water	11	[1]Disolved Metals	[2]Total Rec. Metals	[5]Cations	Chloride	Sulfate	Alkalinity	Hardness	Acidity	TDS	TSS	pH	EC
Groundwater	10	[3]Disolved Metals		[5]Cations	Chloride	Sulfate	Alkalinity	Hardness	Acidity	TDS	TSS	pH	EC
Sediment	9		[4]Total Rec. Metals										

[1]Aluminum

[2]Arsenic, cadmium, copper, iron, lead, manganese, and zinc

[3]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[4]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[5]Calcium, magnesium, potassium, sodium

[6]Additional surface water samples may be collected for seeps.

ANALYTICAL SUMMARY REPORT

October 25, 2012

MT DEQ-Site Response
PO Box 200901
Helena, MT 59620-0901

Workorder No.: H12100099 Quote ID: H645 - UBMC

Project Name: UBMC Surface Water/Sediment

Energy Laboratories Inc Helena MT received the following 19 samples for MT DEQ-Site Response on 10/3/2012 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H12100099-001	BRSW-25	10/02/12 9:48	10/03/12	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Hardness as CaCO3 Anions by Ion Chromatography pH Metals Digestion by EPA 200.2 Preparation for TSS Solids, Total Dissolved Solids, Total Suspended
H12100099-002	BRSW-26	10/02/12 9:59	10/03/12	Aqueous	Same As Above
H12100099-003	BRSW-38	10/02/12 10:19	10/03/12	Aqueous	Same As Above
H12100099-004	BRSW-48	10/02/12 12:12	10/03/12	Aqueous	Same As Above
H12100099-005	BRSW-23	10/02/12 12:45	10/03/12	Aqueous	Same As Above
H12100099-006	BRSW-3A	10/02/12 13:18	10/03/12	Aqueous	Same As Above
H12100099-007	BRSW-3B	10/02/12 13:49	10/03/12	Aqueous	Same As Above
H12100099-008	BRSW-2	10/02/12 14:45	10/03/12	Aqueous	Same As Above
H12100099-009	BRSW-22	10/02/12 15:28	10/03/12	Aqueous	Same As Above
H12100099-010	BRSW-24	10/02/12 15:47	10/03/12	Aqueous	Same As Above
H12100099-011	BRSW-1	10/02/12 16:20	10/03/12	Aqueous	Same As Above
H12100099-012	BRSD-38	10/02/12 10:19	10/03/12	Sediment	Metals by ICP/ICPMS, Total Digestion, Total Metals
H12100099-013	BRSD-48	10/02/12 12:12	10/03/12	Sediment	Same As Above
H12100099-014	BRSD-23	10/02/12 12:45	10/03/12	Sediment	Same As Above
H12100099-015	BRSD-3A	10/02/12 13:18	10/03/12	Sediment	Same As Above
H12100099-016	BRSD-3B	10/02/12 13:49	10/03/12	Sediment	Same As Above
H12100099-017	BRSD-22	10/02/12 15:28	10/03/12	Sediment	Same As Above
H12100099-018	BRSD-24	10/02/12 15:47	10/03/12	Sediment	Same As Above
H12100099-019	BRSD-1	10/02/12 16:20	10/03/12	Sediment	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

ANALYTICAL SUMMARY REPORT

If you have any questions regarding these test results, please call.

Report Approved By:

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-25
Lab ID: H12100099-001
Matrix: Aqueous

Project: UBMC Surface Water/Sediment
Collection Date: 10/02/12 09:48 **DateReceived:** 10/03/12
Report Date: 10/25/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.5	s.u.	H	0.1		A4500-H B	10/04/12 10:55 / cmm		PHSC_101-H_121004A	37	R83422
Conductivity @ 25 C	1	umhos/cm		1		A2510 B	10/04/12 10:55 / cmm		PHSC_101-H_121004A	38	R83422
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/04/12 15:48 / cmm	10/04/12 14:25	-124 (14410200)_121004A	18	18263
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	10/04/12 16:00 / cmm		-124 (14410200)_121004B	12	TDS121004A
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	10/04/12 18:44 / cmm		MAN-TECH_121004B	48	R83460
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	10/04/12 18:44 / cmm		MAN-TECH_121004B	48	R83460
Carbonate as CO3	ND	mg/L		4		A2320 B	10/04/12 18:44 / cmm		MAN-TECH_121004B	48	R83460
Chloride	ND	mg/L		1		E300.0	10/05/12 01:46 / cmm		IC102-H_121004A	51	R83467
Sulfate	ND	mg/L		1		E300.0	10/05/12 01:46 / cmm		IC102-H_121004A	51	R83467
Hardness as CaCO3	ND	mg/L		1		A2340 B	10/08/12 07:58 / sld		WATERCALC_121008A	5	R83484
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	10/05/12 17:30 / sld		ICP2-HE_121005A	114	R83483
Calcium	ND	mg/L		1		E200.7	10/04/12 11:28 / sld		ICP2-HE_121004A	29	R83458
Magnesium	ND	mg/L		1		E200.7	10/04/12 11:28 / sld		ICP2-HE_121004A	29	R83458
Potassium	ND	mg/L		1		E200.7	10/04/12 11:28 / sld		ICP2-HE_121004A	29	R83458
Sodium	ND	mg/L		1		E200.7	10/04/12 11:28 / sld		ICP2-HE_121004A	29	R83458
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	10/11/12 21:06 / dck	10/04/12 08:57	ICPMS204-B_121010C	387	18257
Cadmium	ND	mg/L		0.00008		E200.8	10/11/12 21:06 / dck	10/04/12 08:57	ICPMS204-B_121010C	387	18257
Copper	ND	mg/L		0.001		E200.8	10/11/12 21:06 / dck	10/04/12 08:57	ICPMS204-B_121010C	387	18257
Iron	ND	mg/L		0.03		E200.8	10/11/12 21:06 / dck	10/04/12 08:57	ICPMS204-B_121010C	387	18257
Lead	ND	mg/L		0.0005		E200.8	10/15/12 17:17 / dck	10/04/12 08:57	ICPMS204-B_121015A	32	18257
Manganese	ND	mg/L		0.005		E200.8	10/11/12 21:06 / dck	10/04/12 08:57	ICPMS204-B_121010C	387	18257
Zinc	ND	mg/L		0.01		E200.8	10/11/12 21:06 / dck	10/04/12 08:57	ICPMS204-B_121010C	387	18257

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-26
Lab ID: H12100099-002
Matrix: Aqueous

Project: UBMC Surface Water/Sediment
Collection Date: 10/02/12 09:59 **DateReceived:** 10/03/12
Report Date: 10/25/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.1	s.u.	H	0.1		A4500-H B	10/04/12 10:58 / cmm		PHSC_101-H_121004A	39	R83422
Conductivity @ 25 C	1	umhos/cm		1		A2510 B	10/04/12 10:58 / cmm		PHSC_101-H_121004A	40	R83422
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/04/12 15:48 / cmm	10/04/12 14:25	-124 (14410200)_121004A	19	18263
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	10/04/12 16:00 / cmm		-124 (14410200)_121004B	13	TDS121004A
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	10/04/12 18:49 / cmm		MAN-TECH_121004B	50	R83460
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	10/04/12 18:49 / cmm		MAN-TECH_121004B	50	R83460
Carbonate as CO3	ND	mg/L		4		A2320 B	10/04/12 18:49 / cmm		MAN-TECH_121004B	50	R83460
Chloride	ND	mg/L		1		E300.0	10/05/12 01:59 / cmm		IC102-H_121004A	52	R83467
Sulfate	ND	mg/L		1		E300.0	10/05/12 01:59 / cmm		IC102-H_121004A	52	R83467
Hardness as CaCO3	ND	mg/L		1		A2340 B	10/08/12 07:58 / sld		WATERCALC_121008A	6	R83484
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	10/05/12 17:34 / sld		ICP2-HE_121005A	115	R83483
Calcium	ND	mg/L		1		E200.7	10/04/12 11:32 / sld		ICP2-HE_121004A	30	R83458
Magnesium	ND	mg/L		1		E200.7	10/04/12 11:32 / sld		ICP2-HE_121004A	30	R83458
Potassium	ND	mg/L		1		E200.7	10/04/12 11:32 / sld		ICP2-HE_121004A	30	R83458
Sodium	ND	mg/L		1		E200.7	10/04/12 11:32 / sld		ICP2-HE_121004A	30	R83458
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	10/11/12 21:28 / dck	10/04/12 08:57	ICPMS204-B_121010C	392	18257
Cadmium	ND	mg/L		0.00008		E200.8	10/11/12 21:28 / dck	10/04/12 08:57	ICPMS204-B_121010C	392	18257
Copper	ND	mg/L		0.001		E200.8	10/11/12 21:28 / dck	10/04/12 08:57	ICPMS204-B_121010C	392	18257
Iron	ND	mg/L		0.03		E200.8	10/11/12 21:28 / dck	10/04/12 08:57	ICPMS204-B_121010C	392	18257
Lead	ND	mg/L		0.0005		E200.8	10/15/12 17:21 / dck	10/04/12 08:57	ICPMS204-B_121015A	33	18257
Manganese	ND	mg/L		0.005		E200.8	10/11/12 21:28 / dck	10/04/12 08:57	ICPMS204-B_121010C	392	18257
Zinc	ND	mg/L		0.01		E200.8	10/11/12 21:28 / dck	10/04/12 08:57	ICPMS204-B_121010C	392	18257

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-38
Lab ID: H12100099-003
Matrix: Aqueous

Project: UBMC Surface Water/Sediment
Collection Date: 10/02/12 10:19 **DateReceived:** 10/03/12
Report Date: 10/25/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.3	s.u.	H	0.1		A4500-H B	10/04/12 11:00 / cmm		PHSC_101-H_121004A	41	R83422
Conductivity @ 25 C	298	umhos/cm		1		A2510 B	10/04/12 11:00 / cmm		PHSC_101-H_121004A	42	R83422
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/04/12 15:48 / cmm	10/04/12 14:25	-124 (14410200)_121004A	20	18263
Solids, Total Dissolved TDS @ 180 C	166	mg/L		10		A2540 C	10/04/12 16:00 / cmm		-124 (14410200)_121004B	14	TDS121004A
INORGANICS											
Alkalinity, Total as CaCO3	93	mg/L		4		A2320 B	10/04/12 18:56 / cmm		MAN-TECH_121004B	52	R83460
Bicarbonate as HCO3	110	mg/L		4		A2320 B	10/04/12 18:56 / cmm		MAN-TECH_121004B	52	R83460
Carbonate as CO3	ND	mg/L		4		A2320 B	10/04/12 18:56 / cmm		MAN-TECH_121004B	52	R83460
Chloride	ND	mg/L		1		E300.0	10/05/12 02:11 / cmm		IC102-H_121004A	53	R83467
Sulfate	54	mg/L		1		E300.0	10/05/12 02:11 / cmm		IC102-H_121004A	53	R83467
Hardness as CaCO3	145	mg/L		1		A2340 B	10/04/12 11:54 / abb		CALC_121005A	243	R83473
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	10/05/12 17:38 / sld		ICP2-HE_121005A	116	R83483
Calcium	30	mg/L		1		E200.7	10/04/12 11:54 / sld		ICP2-HE_121004A	36	R83458
Magnesium	17	mg/L		1		E200.7	10/04/12 11:54 / sld		ICP2-HE_121004A	36	R83458
Potassium	ND	mg/L		1		E200.7	10/04/12 11:54 / sld		ICP2-HE_121004A	36	R83458
Sodium	1	mg/L		1		E200.7	10/04/12 11:54 / sld		ICP2-HE_121004A	36	R83458
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	10/11/12 21:33 / dck	10/04/12 08:57	ICPMS204-B_121010C	393	18257
Cadmium	0.00399	mg/L		0.00008		E200.8	10/11/12 21:33 / dck	10/04/12 08:57	ICPMS204-B_121010C	393	18257
Copper	0.005	mg/L		0.001		E200.8	10/11/12 21:33 / dck	10/04/12 08:57	ICPMS204-B_121010C	393	18257
Iron	0.15	mg/L		0.03		E200.8	10/11/12 21:33 / dck	10/04/12 08:57	ICPMS204-B_121010C	393	18257
Lead	0.0092	mg/L		0.0005		E200.8	10/15/12 17:26 / dck	10/04/12 08:57	ICPMS204-B_121015A	34	18257
Manganese	0.748	mg/L		0.005		E200.8	10/11/12 21:33 / dck	10/04/12 08:57	ICPMS204-B_121010C	393	18257
Zinc	0.89	mg/L		0.01		E200.8	10/11/12 21:33 / dck	10/04/12 08:57	ICPMS204-B_121010C	393	18257

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-48
Lab ID: H12100099-004
Matrix: Aqueous

Project: UBMC Surface Water/Sediment
Collection Date: 10/02/12 12:12 **DateReceived:** 10/03/12
Report Date: 10/25/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.6	s.u.	H	0.1		A4500-H B	10/04/12 11:03 / cmm		PHSC_101-H_121004A	43	R83422
Conductivity @ 25 C	300	umhos/cm		1		A2510 B	10/04/12 11:03 / cmm		PHSC_101-H_121004A	44	R83422
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/04/12 15:49 / cmm	10/04/12 14:25	-124 (14410200)_121004A	21	18263
Solids, Total Dissolved TDS @ 180 C	164	mg/L		10		A2540 C	10/04/12 16:01 / cmm		-124 (14410200)_121004B	15	TDS121004A
INORGANICS											
Alkalinity, Total as CaCO3	100	mg/L		4		A2320 B	10/05/12 15:35 / cmm		MAN-TECH_121005B	43	R83488
Bicarbonate as HCO3	130	mg/L		4		A2320 B	10/05/12 15:35 / cmm		MAN-TECH_121005B	43	R83488
Carbonate as CO3	ND	mg/L		4		A2320 B	10/05/12 15:35 / cmm		MAN-TECH_121005B	43	R83488
Chloride	ND	mg/L		1		E300.0	10/05/12 02:24 / cmm		IC102-H_121004A	54	R83467
Sulfate	47	mg/L		1		E300.0	10/05/12 02:24 / cmm		IC102-H_121004A	54	R83467
Hardness as CaCO3	154	mg/L		1		A2340 B	10/08/12 07:58 / sld		WATERCALC_121008A	7	R83484
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	10/05/12 17:41 / sld		ICP2-HE_121005A	117	R83483
Calcium	29	mg/L		1		E200.7	10/04/12 11:58 / sld		ICP2-HE_121004A	37	R83458
Magnesium	20	mg/L		1		E200.7	10/04/12 11:58 / sld		ICP2-HE_121004A	37	R83458
Potassium	ND	mg/L		1		E200.7	10/04/12 11:58 / sld		ICP2-HE_121004A	37	R83458
Sodium	1	mg/L		1		E200.7	10/04/12 11:58 / sld		ICP2-HE_121004A	37	R83458
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	10/11/12 21:55 / dck	10/04/12 08:57	ICPMS204-B_121010C	398	18257
Cadmium	0.00199	mg/L		0.00008		E200.8	10/11/12 21:55 / dck	10/04/12 08:57	ICPMS204-B_121010C	398	18257
Copper	0.007	mg/L		0.001		E200.8	10/11/12 21:55 / dck	10/04/12 08:57	ICPMS204-B_121010C	398	18257
Iron	0.47	mg/L		0.03		E200.8	10/11/12 21:55 / dck	10/04/12 08:57	ICPMS204-B_121010C	398	18257
Lead	0.0229	mg/L		0.0005		E200.8	10/15/12 17:30 / dck	10/04/12 08:57	ICPMS204-B_121015A	35	18257
Manganese	0.874	mg/L		0.005		E200.8	10/11/12 21:55 / dck	10/04/12 08:57	ICPMS204-B_121010C	398	18257
Zinc	0.41	mg/L		0.01		E200.8	10/11/12 21:55 / dck	10/04/12 08:57	ICPMS204-B_121010C	398	18257

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-23
Lab ID: H12100099-005
Matrix: Aqueous

Project: UBMC Surface Water/Sediment
Collection Date: 10/02/12 12:45 **DateReceived:** 10/03/12
Report Date: 10/25/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.8	s.u.	H	0.1		A4500-H B	10/04/12 11:06 / cmm		PHSC_101-H_121004A	45	R83422
Conductivity @ 25 C	301	umhos/cm		1		A2510 B	10/04/12 11:06 / cmm		PHSC_101-H_121004A	46	R83422
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/04/12 15:50 / cmm	10/04/12 14:25	-124 (14410200)_121004A	23	18263
Solids, Total Dissolved TDS @ 180 C	164	mg/L		10		A2540 C	10/04/12 16:01 / cmm		-124 (14410200)_121004B	17	TDS121004A
INORGANICS											
Alkalinity, Total as CaCO3	110	mg/L		4		A2320 B	10/05/12 15:42 / cmm		MAN-TECH_121005B	45	R83488
Bicarbonate as HCO3	130	mg/L		4		A2320 B	10/05/12 15:42 / cmm		MAN-TECH_121005B	45	R83488
Carbonate as CO3	ND	mg/L		4		A2320 B	10/05/12 15:42 / cmm		MAN-TECH_121005B	45	R83488
Chloride	ND	mg/L		1		E300.0	10/05/12 02:36 / cmm		IC102-H_121004A	55	R83467
Sulfate	44	mg/L		1		E300.0	10/05/12 02:36 / cmm		IC102-H_121004A	55	R83467
Hardness as CaCO3	159	mg/L		1		A2340 B	10/08/12 07:58 / sld		WATERCALC_121008A	8	R83484
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	10/05/12 17:45 / sld		ICP2-HE_121005A	118	R83483
Calcium	29	mg/L		1		E200.7	10/04/12 12:02 / sld		ICP2-HE_121004A	38	R83458
Magnesium	21	mg/L		1		E200.7	10/04/12 12:02 / sld		ICP2-HE_121004A	38	R83458
Potassium	ND	mg/L		1		E200.7	10/04/12 12:02 / sld		ICP2-HE_121004A	38	R83458
Sodium	1	mg/L		1		E200.7	10/04/12 12:02 / sld		ICP2-HE_121004A	38	R83458
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	10/11/12 22:00 / dck	10/04/12 08:57	ICPMS204-B_121010C	399	18257
Cadmium	0.00118	mg/L		0.00008		E200.8	10/11/12 22:00 / dck	10/04/12 08:57	ICPMS204-B_121010C	399	18257
Copper	0.004	mg/L		0.001		E200.8	10/11/12 22:00 / dck	10/04/12 08:57	ICPMS204-B_121010C	399	18257
Iron	0.08	mg/L		0.03		E200.8	10/11/12 22:00 / dck	10/04/12 08:57	ICPMS204-B_121010C	399	18257
Lead	0.0090	mg/L		0.0005		E200.8	10/15/12 17:35 / dck	10/04/12 08:57	ICPMS204-B_121015A	36	18257
Manganese	0.349	mg/L		0.005		E200.8	10/11/12 22:00 / dck	10/04/12 08:57	ICPMS204-B_121010C	399	18257
Zinc	0.25	mg/L		0.01		E200.8	10/11/12 22:00 / dck	10/04/12 08:57	ICPMS204-B_121010C	399	18257

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-3A
Lab ID: H12100099-006
Matrix: Aqueous

Project: UBMC Surface Water/Sediment
Collection Date: 10/02/12 13:18 **DateReceived:** 10/03/12
Report Date: 10/25/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.6	s.u.	H	0.1		A4500-H B	10/04/12 11:08 / cmm		PHSC_101-H_121004A	47	R83422
Conductivity @ 25 C	271	umhos/cm		1		A2510 B	10/04/12 11:08 / cmm		PHSC_101-H_121004A	48	R83422
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/04/12 15:50 / cmm	10/04/12 14:25	-124 (14410200)_121004A	24	18263
Solids, Total Dissolved TDS @ 180 C	143	mg/L		10		A2540 C	10/04/12 16:01 / cmm		-124 (14410200)_121004B	18	TDS121004A
INORGANICS											
Alkalinity, Total as CaCO3	110	mg/L		4		A2320 B	10/05/12 15:50 / cmm		MAN-TECH_121005B	47	R83488
Bicarbonate as HCO3	140	mg/L		4		A2320 B	10/05/12 15:50 / cmm		MAN-TECH_121005B	47	R83488
Carbonate as CO3	ND	mg/L		4		A2320 B	10/05/12 15:50 / cmm		MAN-TECH_121005B	47	R83488
Chloride	ND	mg/L		1		E300.0	10/05/12 02:49 / cmm		IC102-H_121004A	56	R83467
Sulfate	21	mg/L		1		E300.0	10/05/12 02:49 / cmm		IC102-H_121004A	56	R83467
Hardness as CaCO3	136	mg/L		1		A2340 B	10/08/12 07:58 / sld		WATERCALC_121008A	9	R83484
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	10/05/12 17:49 / sld		ICP2-HE_121005A	119	R83483
Calcium	29	mg/L		1		E200.7	10/04/12 12:05 / sld		ICP2-HE_121004A	39	R83458
Magnesium	16	mg/L		1		E200.7	10/04/12 12:05 / sld		ICP2-HE_121004A	39	R83458
Potassium	ND	mg/L		1		E200.7	10/04/12 12:05 / sld		ICP2-HE_121004A	39	R83458
Sodium	1	mg/L		1		E200.7	10/04/12 12:05 / sld		ICP2-HE_121004A	39	R83458
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	10/11/12 22:05 / dck	10/04/12 08:57	ICPMS204-B_121010C	400	18257
Cadmium	0.00025	mg/L		0.00008		E200.8	10/11/12 22:05 / dck	10/04/12 08:57	ICPMS204-B_121010C	400	18257
Copper	0.001	mg/L		0.001		E200.8	10/11/12 22:05 / dck	10/04/12 08:57	ICPMS204-B_121010C	400	18257
Iron	ND	mg/L		0.03		E200.8	10/11/12 22:05 / dck	10/04/12 08:57	ICPMS204-B_121010C	400	18257
Lead	0.0008	mg/L		0.0005		E200.8	10/15/12 17:39 / dck	10/04/12 08:57	ICPMS204-B_121015A	37	18257
Manganese	0.199	mg/L		0.005		E200.8	10/11/12 22:05 / dck	10/04/12 08:57	ICPMS204-B_121010C	400	18257
Zinc	0.22	mg/L		0.01		E200.8	10/11/12 22:05 / dck	10/04/12 08:57	ICPMS204-B_121010C	400	18257

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-3B
Lab ID: H12100099-007
Matrix: Aqueous

Project: UBMC Surface Water/Sediment
Collection Date: 10/02/12 13:49 **DateReceived:** 10/03/12
Report Date: 10/25/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.8	s.u.	H	0.1		A4500-H B	10/04/12 11:39 / cmm		PHSC_101-H_121004A	54	R83422
Conductivity @ 25 C	213	umhos/cm		1		A2510 B	10/04/12 11:39 / cmm		PHSC_101-H_121004A	55	R83422
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/04/12 15:51 / cmm	10/04/12 14:26	-124 (14410200)_121004A	27	18264
Solids, Total Dissolved TDS @ 180 C	108	mg/L		10		A2540 C	10/04/12 16:02 / cmm		-124 (14410200)_121004B	19	TDS121004A
INORGANICS											
Alkalinity, Total as CaCO3	110	mg/L		4		A2320 B	10/05/12 15:57 / cmm		MAN-TECH_121005B	49	R83488
Bicarbonate as HCO3	130	mg/L		4		A2320 B	10/05/12 15:57 / cmm		MAN-TECH_121005B	49	R83488
Carbonate as CO3	ND	mg/L		4		A2320 B	10/05/12 15:57 / cmm		MAN-TECH_121005B	49	R83488
Chloride	ND	mg/L		1		E300.0	10/05/12 03:52 / cmm		IC102-H_121004A	61	R83467
Sulfate	6	mg/L		1		E300.0	10/05/12 03:52 / cmm		IC102-H_121004A	61	R83467
Hardness as CaCO3	111	mg/L		1		A2340 B	10/08/12 07:58 / sld		WATERCALC_121008A	10	R83484
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	10/05/12 17:53 / sld		ICP2-HE_121005A	120	R83483
Calcium	23	mg/L		1		E200.7	10/04/12 12:09 / sld		ICP2-HE_121004A	40	R83458
Magnesium	13	mg/L		1		E200.7	10/04/12 12:09 / sld		ICP2-HE_121004A	40	R83458
Potassium	ND	mg/L		1		E200.7	10/04/12 12:09 / sld		ICP2-HE_121004A	40	R83458
Sodium	1	mg/L		1		E200.7	10/04/12 12:09 / sld		ICP2-HE_121004A	40	R83458
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	10/11/12 22:09 / dck	10/04/12 08:57	ICPMS204-B_121010C	401	18257
Cadmium	ND	mg/L		0.00008		E200.8	10/11/12 22:09 / dck	10/04/12 08:57	ICPMS204-B_121010C	401	18257
Copper	ND	mg/L		0.001		E200.8	10/11/12 22:09 / dck	10/04/12 08:57	ICPMS204-B_121010C	401	18257
Iron	ND	mg/L		0.03		E200.8	10/11/12 22:09 / dck	10/04/12 08:57	ICPMS204-B_121010C	401	18257
Lead	ND	mg/L		0.0005		E200.8	10/15/12 18:01 / dck	10/04/12 08:57	ICPMS204-B_121015A	42	18257
Manganese	ND	mg/L		0.005		E200.8	10/11/12 22:09 / dck	10/04/12 08:57	ICPMS204-B_121010C	401	18257
Zinc	0.26	mg/L		0.01		E200.8	10/11/12 22:09 / dck	10/04/12 08:57	ICPMS204-B_121010C	401	18257

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-2
Lab ID: H12100099-008
Matrix: Aqueous

Project: UBMC Surface Water/Sediment
Collection Date: 10/02/12 14:45 **DateReceived:** 10/03/12
Report Date: 10/25/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.8	s.u.	H	0.1		A4500-H B	10/04/12 11:45 / cmm		PHSC_101-H_121004A	58	R83422
Conductivity @ 25 C	3880	umhos/cm		1		A2510 B	10/04/12 11:45 / cmm		PHSC_101-H_121004A	59	R83422
Solids, Total Suspended TSS @ 105 C	11	mg/L		10		A2540 D	10/04/12 15:51 / cmm	10/04/12 14:26	-124 (14410200)_121004A	29	18264
Solids, Total Dissolved TDS @ 180 C	3640	mg/L		10		A2540 C	10/04/12 16:02 / cmm		-124 (14410200)_121004B	20	TDS121004A
INORGANICS											
Alkalinity, Total as CaCO3	38	mg/L		4		A2320 B	10/05/12 16:11 / cmm		MAN-TECH_121005B	53	R83488
Bicarbonate as HCO3	46	mg/L		4		A2320 B	10/05/12 16:11 / cmm		MAN-TECH_121005B	53	R83488
Carbonate as CO3	ND	mg/L		4		A2320 B	10/05/12 16:11 / cmm		MAN-TECH_121005B	53	R83488
Chloride	ND	mg/L		1		E300.0	10/05/12 04:05 / cmm		IC102-H_121004A	62	R83467
Sulfate	2500	mg/L	D	5		E300.0	10/11/12 18:17 / cmm		IC102-H_121011B	28	R83652
Hardness as CaCO3	3100	mg/L		1		A2340 B	10/08/12 07:58 / sld		WATERCALC_121008A	11	R83484
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	10/05/12 17:57 / sld		ICP2-HE_121005A	121	R83483
Calcium	497	mg/L		1		E200.7	10/05/12 17:57 / sld		ICP2-HE_121005A	121	R83483
Magnesium	424	mg/L		1		E200.7	10/05/12 17:57 / sld		ICP2-HE_121005A	121	R83483
Potassium	6	mg/L		1		E200.7	10/04/12 12:13 / sld		ICP2-HE_121004A	41	R83458
Sodium	2	mg/L		1		E200.7	10/04/12 12:13 / sld		ICP2-HE_121004A	41	R83458
METALS, TOTAL RECOVERABLE											
Arsenic	0.006	mg/L		0.003		E200.8	10/11/12 22:14 / dck	10/04/12 08:57	ICPMS204-B_121010C	402	18257
Cadmium	0.0130	mg/L		0.00008		E200.8	10/11/12 22:14 / dck	10/04/12 08:57	ICPMS204-B_121010C	402	18257
Copper	0.025	mg/L		0.001		E200.8	10/11/12 22:14 / dck	10/04/12 08:57	ICPMS204-B_121010C	402	18257
Iron	0.86	mg/L		0.03		E200.8	10/11/12 22:14 / dck	10/04/12 08:57	ICPMS204-B_121010C	402	18257
Lead	0.115	mg/L		0.0005		E200.8	10/15/12 18:06 / dck	10/04/12 08:57	ICPMS204-B_121015A	43	18257
Manganese	5.60	mg/L		0.005		E200.8	10/15/12 18:06 / dck	10/04/12 08:57	ICPMS204-B_121015A	43	18257
Zinc	1.92	mg/L		0.01		E200.8	10/11/12 22:14 / dck	10/04/12 08:57	ICPMS204-B_121010C	402	18257

Report Definitions:
RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
H - Analysis performed past recommended holding time.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-22
Lab ID: H12100099-009
Matrix: Aqueous

Project: UBMC Surface Water/Sediment
Collection Date: 10/02/12 15:28 **DateReceived:** 10/03/12
Report Date: 10/25/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.5	s.u.	H	0.1		A4500-H B	10/04/12 11:47 / cmm		PHSC_101-H_121004A	60	R83422
Conductivity @ 25 C	315	umhos/cm		1		A2510 B	10/04/12 11:47 / cmm		PHSC_101-H_121004A	61	R83422
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/04/12 15:51 / cmm	10/04/12 14:26	-124 (14410200)_121004A	30	18264
Solids, Total Dissolved TDS @ 180 C	189	mg/L		10		A2540 C	10/04/12 16:02 / cmm		-124 (14410200)_121004B	21	TDS121004A
INORGANICS											
Alkalinity, Total as CaCO3	98	mg/L		4		A2320 B	10/05/12 16:34 / cmm		MAN-TECH_121005B	60	R83488
Bicarbonate as HCO3	120	mg/L		4		A2320 B	10/05/12 16:34 / cmm		MAN-TECH_121005B	60	R83488
Carbonate as CO3	ND	mg/L		4		A2320 B	10/05/12 16:34 / cmm		MAN-TECH_121005B	60	R83488
Chloride	ND	mg/L		1		E300.0	10/05/12 04:17 / cmm		IC102-H_121004A	63	R83467
Sulfate	57	mg/L		1		E300.0	10/05/12 04:17 / cmm		IC102-H_121004A	63	R83467
Hardness as CaCO3	159	mg/L		1		A2340 B	10/08/12 07:58 / sld		WATERCALC_121008A	12	R83484
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	10/05/12 18:08 / sld		ICP2-HE_121005A	124	R83483
Calcium	40	mg/L		1		E200.7	10/04/12 12:17 / sld		ICP2-HE_121004A	42	R83458
Magnesium	14	mg/L		1		E200.7	10/04/12 12:17 / sld		ICP2-HE_121004A	42	R83458
Potassium	ND	mg/L		1		E200.7	10/04/12 12:17 / sld		ICP2-HE_121004A	42	R83458
Sodium	1	mg/L		1		E200.7	10/04/12 12:17 / sld		ICP2-HE_121004A	42	R83458
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	10/15/12 18:10 / dck	10/04/12 08:57	ICPMS204-B_121015A	44	18257
Cadmium	0.00613	mg/L		0.00008		E200.8	10/15/12 18:10 / dck	10/04/12 08:57	ICPMS204-B_121015A	44	18257
Copper	0.019	mg/L		0.001		E200.8	10/15/12 18:10 / dck	10/04/12 08:57	ICPMS204-B_121015A	44	18257
Iron	ND	mg/L		0.03		E200.8	10/15/12 18:10 / dck	10/04/12 08:57	ICPMS204-B_121015A	44	18257
Lead	0.0050	mg/L		0.0005		E200.8	10/15/12 18:10 / dck	10/04/12 08:57	ICPMS204-B_121015A	44	18257
Manganese	ND	mg/L		0.005		E200.8	10/15/12 18:10 / dck	10/04/12 08:57	ICPMS204-B_121015A	44	18257
Zinc	1.12	mg/L		0.01		E200.8	10/15/12 18:10 / dck	10/04/12 08:57	ICPMS204-B_121015A	44	18257

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-24
Lab ID: H12100099-010
Matrix: Aqueous

Project: UBMC Surface Water/Sediment
Collection Date: 10/02/12 15:47 **DateReceived:** 10/03/12
Report Date: 10/25/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.4	s.u.	H	0.1		A4500-H B	10/04/12 11:49 / cmm		PHSC_101-H_121004A	62	R83422
Conductivity @ 25 C	313	umhos/cm		1		A2510 B	10/04/12 11:49 / cmm		PHSC_101-H_121004A	63	R83422
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/04/12 15:52 / cmm	10/04/12 14:26	-124 (14410200)_121004A	31	18264
Solids, Total Dissolved TDS @ 180 C	182	mg/L		10		A2540 C	10/04/12 16:02 / cmm		-124 (14410200)_121004B	22	TDS121004A
INORGANICS											
Alkalinity, Total as CaCO3	98	mg/L		4		A2320 B	10/05/12 16:41 / cmm		MAN-TECH_121005B	62	R83488
Bicarbonate as HCO3	120	mg/L		4		A2320 B	10/05/12 16:41 / cmm		MAN-TECH_121005B	62	R83488
Carbonate as CO3	ND	mg/L		4		A2320 B	10/05/12 16:41 / cmm		MAN-TECH_121005B	62	R83488
Chloride	ND	mg/L		1		E300.0	10/05/12 04:30 / cmm		IC102-H_121004A	64	R83467
Sulfate	57	mg/L		1		E300.0	10/05/12 04:30 / cmm		IC102-H_121004A	64	R83467
Hardness as CaCO3	158	mg/L		1		A2340 B	10/08/12 07:58 / sld		WATERCALC_121008A	13	R83484
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	10/05/12 18:12 / sld		ICP2-HE_121005A	125	R83483
Calcium	40	mg/L		1		E200.7	10/04/12 12:28 / sld		ICP2-HE_121004A	45	R83458
Magnesium	14	mg/L		1		E200.7	10/04/12 12:28 / sld		ICP2-HE_121004A	45	R83458
Potassium	ND	mg/L		1		E200.7	10/04/12 12:28 / sld		ICP2-HE_121004A	45	R83458
Sodium	1	mg/L		1		E200.7	10/04/12 12:28 / sld		ICP2-HE_121004A	45	R83458
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	10/11/12 22:22 / dck	10/04/12 08:57	ICPMS204-B_121010C	404	18257
Cadmium	0.00612	mg/L		0.00008		E200.8	10/11/12 22:22 / dck	10/04/12 08:57	ICPMS204-B_121010C	404	18257
Copper	0.017	mg/L		0.001		E200.8	10/11/12 22:22 / dck	10/04/12 08:57	ICPMS204-B_121010C	404	18257
Iron	ND	mg/L		0.03		E200.8	10/11/12 22:22 / dck	10/04/12 08:57	ICPMS204-B_121010C	404	18257
Lead	0.0046	mg/L		0.0005		E200.8	10/15/12 18:14 / dck	10/04/12 08:57	ICPMS204-B_121015A	45	18257
Manganese	ND	mg/L		0.005		E200.8	10/15/12 18:14 / dck	10/04/12 08:57	ICPMS204-B_121015A	45	18257
Zinc	1.06	mg/L		0.01		E200.8	10/11/12 22:22 / dck	10/04/12 08:57	ICPMS204-B_121010C	404	18257

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-1
Lab ID: H12100099-011
Matrix: Aqueous

Project: UBMC Surface Water/Sediment
Collection Date: 10/02/12 16:20 **DateReceived:** 10/03/12
Report Date: 10/25/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.9	s.u.	H	0.1		A4500-H B	10/04/12 11:52 / cmm		PHSC_101-H_121004A	64	R83422
Conductivity @ 25 C	218	umhos/cm		1		A2510 B	10/04/12 11:52 / cmm		PHSC_101-H_121004A	65	R83422
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/04/12 15:52 / cmm	10/04/12 14:26	-124 (14410200)_121004A	32	18264
Solids, Total Dissolved TDS @ 180 C	108	mg/L		10		A2540 C	10/04/12 16:03 / cmm		-124 (14410200)_121004B	23	TDS121004A
INORGANICS											
Alkalinity, Total as CaCO3	110	mg/L		4		A2320 B	10/05/12 16:48 / cmm		MAN-TECH_121005B	64	R83488
Bicarbonate as HCO3	130	mg/L		4		A2320 B	10/05/12 16:48 / cmm		MAN-TECH_121005B	64	R83488
Carbonate as CO3	ND	mg/L		4		A2320 B	10/05/12 16:48 / cmm		MAN-TECH_121005B	64	R83488
Chloride	ND	mg/L		1		E300.0	10/05/12 04:42 / cmm		IC102-H_121004A	65	R83467
Sulfate	5	mg/L		1		E300.0	10/05/12 04:42 / cmm		IC102-H_121004A	65	R83467
Hardness as CaCO3	115	mg/L		1		A2340 B	10/08/12 07:58 / sld		WATERCALC_121008A	14	R83484
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	10/05/12 18:26 / sld		ICP2-HE_121005A	129	R83483
Calcium	23	mg/L		1		E200.7	10/04/12 12:32 / sld		ICP2-HE_121004A	46	R83458
Magnesium	14	mg/L		1		E200.7	10/04/12 12:32 / sld		ICP2-HE_121004A	46	R83458
Potassium	ND	mg/L		1		E200.7	10/04/12 12:32 / sld		ICP2-HE_121004A	46	R83458
Sodium	1	mg/L		1		E200.7	10/04/12 12:32 / sld		ICP2-HE_121004A	46	R83458
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	10/11/12 22:27 / dck	10/04/12 08:57	ICPMS204-B_121010C	405	18257
Cadmium	ND	mg/L		0.00008		E200.8	10/11/12 22:27 / dck	10/04/12 08:57	ICPMS204-B_121010C	405	18257
Copper	ND	mg/L		0.001		E200.8	10/11/12 22:27 / dck	10/04/12 08:57	ICPMS204-B_121010C	405	18257
Iron	ND	mg/L		0.03		E200.8	10/11/12 22:27 / dck	10/04/12 08:57	ICPMS204-B_121010C	405	18257
Lead	ND	mg/L		0.0005		E200.8	10/15/12 18:19 / dck	10/04/12 08:57	ICPMS204-B_121015A	46	18257
Manganese	ND	mg/L		0.005		E200.8	10/11/12 22:27 / dck	10/04/12 08:57	ICPMS204-B_121010C	405	18257
Zinc	ND	mg/L		0.01		E200.8	10/11/12 22:27 / dck	10/04/12 08:57	ICPMS204-B_121010C	405	18257

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSD-38
Lab ID: H12100099-012
Matrix: Sediment

Project: UBMC Surface Water/Sediment
Collection Date: 10/02/12 10:19 **DateReceived:** 10/03/12
Report Date: 10/25/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	4020	mg/kg		5		SW6010B	10/16/12 19:54 / sld	10/10/12 14:57	ICP2-HE_121016D	78	18328
Arsenic	36	mg/kg		5		SW6010B	10/16/12 19:54 / sld	10/10/12 14:57	ICP2-HE_121016D	78	18328
Cadmium	11	mg/kg		1		SW6010B	10/16/12 19:54 / sld	10/10/12 14:57	ICP2-HE_121016D	78	18328
Copper	248	mg/kg		5		SW6010B	10/16/12 19:54 / sld	10/10/12 14:57	ICP2-HE_121016D	78	18328
Iron	18000	mg/kg		5		SW6010B	10/16/12 19:54 / sld	10/10/12 14:57	ICP2-HE_121016D	78	18328
Lead	758	mg/kg		5		SW6010B	10/17/12 15:03 / sld	10/10/12 14:57	ICP2-HE_121017B	28	18328
Manganese	2820	mg/kg		5		SW6010B	10/16/12 19:54 / sld	10/10/12 14:57	ICP2-HE_121016D	78	18328
Zinc	1960	mg/kg		5		SW6010B	10/16/12 19:54 / sld	10/10/12 14:57	ICP2-HE_121016D	78	18328

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSD-48
Lab ID: H12100099-013
Matrix: Sediment

Project: UBMC Surface Water/Sediment
Collection Date: 10/02/12 12:12 **DateReceived:** 10/03/12
Report Date: 10/25/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	4620	mg/kg		5		SW6010B	10/16/12 19:58 / sld	10/10/12 14:57	ICP2-HE_121016D	79	18328
Arsenic	40	mg/kg		5		SW6010B	10/16/12 19:58 / sld	10/10/12 14:57	ICP2-HE_121016D	79	18328
Cadmium	17	mg/kg		1		SW6010B	10/16/12 19:58 / sld	10/10/12 14:57	ICP2-HE_121016D	79	18328
Copper	352	mg/kg		5		SW6010B	10/16/12 19:58 / sld	10/10/12 14:57	ICP2-HE_121016D	79	18328
Iron	23900	mg/kg		5		SW6010B	10/16/12 19:58 / sld	10/10/12 14:57	ICP2-HE_121016D	79	18328
Lead	1610	mg/kg		5		SW6010B	10/17/12 15:07 / sld	10/10/12 14:57	ICP2-HE_121017B	29	18328
Manganese	2270	mg/kg		5		SW6010B	10/16/12 19:58 / sld	10/10/12 14:57	ICP2-HE_121016D	79	18328
Zinc	3090	mg/kg		5		SW6010B	10/16/12 19:58 / sld	10/10/12 14:57	ICP2-HE_121016D	79	18328

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSD-23
Lab ID: H12100099-014
Matrix: Sediment

Project: UBMC Surface Water/Sediment
Collection Date: 10/02/12 12:45 **DateReceived:** 10/03/12
Report Date: 10/25/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	3160	mg/kg		5		SW6010B	10/16/12 20:01 / sld	10/10/12 14:57	ICP2-HE_121016D	80	18328
Arsenic	83	mg/kg		5		SW6010B	10/16/12 20:01 / sld	10/10/12 14:57	ICP2-HE_121016D	80	18328
Cadmium	11	mg/kg		1		SW6010B	10/16/12 20:01 / sld	10/10/12 14:57	ICP2-HE_121016D	80	18328
Copper	333	mg/kg		5		SW6010B	10/16/12 20:01 / sld	10/10/12 14:57	ICP2-HE_121016D	80	18328
Iron	35600	mg/kg		5		SW6010B	10/17/12 15:54 / sld	10/10/12 14:57	ICP2-HE_121017B	42	18328
Lead	923	mg/kg		5		SW6010B	10/17/12 15:10 / sld	10/10/12 14:57	ICP2-HE_121017B	30	18328
Manganese	5690	mg/kg		5		SW6010B	10/16/12 20:01 / sld	10/10/12 14:57	ICP2-HE_121016D	80	18328
Zinc	2050	mg/kg		5		SW6010B	10/16/12 20:01 / sld	10/10/12 14:57	ICP2-HE_121016D	80	18328

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSD-3A
Lab ID: H12100099-015
Matrix: Sediment

Project: UBMC Surface Water/Sediment
Collection Date: 10/02/12 13:18 **DateReceived:** 10/03/12
Report Date: 10/25/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	4030	mg/kg		5		SW6010B	10/16/12 20:05 / sld	10/10/12 14:57	ICP2-HE_121016D	81	18328
Arsenic	68	mg/kg		5		SW6010B	10/16/12 20:05 / sld	10/10/12 14:57	ICP2-HE_121016D	81	18328
Cadmium	17	mg/kg		1		SW6010B	10/16/12 20:05 / sld	10/10/12 14:57	ICP2-HE_121016D	81	18328
Copper	386	mg/kg		5		SW6010B	10/16/12 20:05 / sld	10/10/12 14:57	ICP2-HE_121016D	81	18328
Iron	25800	mg/kg		5		SW6010B	10/16/12 20:05 / sld	10/10/12 14:57	ICP2-HE_121016D	81	18328
Lead	609	mg/kg		5		SW6010B	10/17/12 15:14 / sld	10/10/12 14:57	ICP2-HE_121017B	31	18328
Manganese	9160	mg/kg		5		SW6010B	10/16/12 20:05 / sld	10/10/12 14:57	ICP2-HE_121016D	81	18328
Zinc	3500	mg/kg		5		SW6010B	10/16/12 20:05 / sld	10/10/12 14:57	ICP2-HE_121016D	81	18328

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSD-3B
Lab ID: H12100099-016
Matrix: Sediment

Project: UBMC Surface Water/Sediment
Collection Date: 10/02/12 13:49 **DateReceived:** 10/03/12
Report Date: 10/25/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	4400	mg/kg		5		SW6010B	10/16/12 20:43 / sld	10/10/12 14:57	ICP2-HE_121016D	91	18328
Arsenic	6	mg/kg		5		SW6010B	10/16/12 20:43 / sld	10/10/12 14:57	ICP2-HE_121016D	91	18328
Cadmium	1	mg/kg		1		SW6010B	10/16/12 20:43 / sld	10/10/12 14:57	ICP2-HE_121016D	91	18328
Copper	117	mg/kg		5		SW6010B	10/16/12 20:43 / sld	10/10/12 14:57	ICP2-HE_121016D	91	18328
Iron	31000	mg/kg		5		SW6010B	10/17/12 15:58 / sld	10/10/12 14:57	ICP2-HE_121017B	43	18328
Lead	82	mg/kg		5		SW6010B	10/17/12 15:25 / sld	10/10/12 14:57	ICP2-HE_121017B	34	18328
Manganese	1680	mg/kg		5		SW6010B	10/16/12 20:43 / sld	10/10/12 14:57	ICP2-HE_121016D	91	18328
Zinc	275	mg/kg		5		SW6010B	10/16/12 20:43 / sld	10/10/12 14:57	ICP2-HE_121016D	91	18328

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSD-22
Lab ID: H12100099-017
Matrix: Sediment

Project: UBMC Surface Water/Sediment
Collection Date: 10/02/12 15:28 **DateReceived:** 10/03/12
Report Date: 10/25/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	8690	mg/kg		5		SW6010B	10/16/12 20:46 / sld	10/10/12 14:57	ICP2-HE_121016D	92	18328
Arsenic	47	mg/kg		5		SW6010B	10/16/12 20:46 / sld	10/10/12 14:57	ICP2-HE_121016D	92	18328
Cadmium	20	mg/kg		1		SW6010B	10/16/12 20:46 / sld	10/10/12 14:57	ICP2-HE_121016D	92	18328
Copper	1600	mg/kg		5		SW6010B	10/16/12 20:46 / sld	10/10/12 14:57	ICP2-HE_121016D	92	18328
Iron	22400	mg/kg		5		SW6010B	10/16/12 20:46 / sld	10/10/12 14:57	ICP2-HE_121016D	92	18328
Lead	1680	mg/kg		5		SW6010B	10/17/12 15:29 / sld	10/10/12 14:57	ICP2-HE_121017B	35	18328
Manganese	6860	mg/kg		5		SW6010B	10/16/12 20:46 / sld	10/10/12 14:57	ICP2-HE_121016D	92	18328
Zinc	3050	mg/kg		5		SW6010B	10/16/12 20:46 / sld	10/10/12 14:57	ICP2-HE_121016D	92	18328

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSD-24
Lab ID: H12100099-018
Matrix: Sediment

Project: UBMC Surface Water/Sediment
Collection Date: 10/02/12 15:47 **DateReceived:** 10/03/12
Report Date: 10/25/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	8220	mg/kg		5		SW6010B	10/16/12 20:50 / sld	10/10/12 14:57	ICP2-HE_121016D	93	18328
Arsenic	36	mg/kg		5		SW6010B	10/16/12 20:50 / sld	10/10/12 14:57	ICP2-HE_121016D	93	18328
Cadmium	14	mg/kg		1		SW6010B	10/16/12 20:50 / sld	10/10/12 14:57	ICP2-HE_121016D	93	18328
Copper	1120	mg/kg		5		SW6010B	10/16/12 20:50 / sld	10/10/12 14:57	ICP2-HE_121016D	93	18328
Iron	23100	mg/kg		5		SW6010B	10/16/12 20:50 / sld	10/10/12 14:57	ICP2-HE_121016D	93	18328
Lead	1040	mg/kg		5		SW6010B	10/17/12 15:32 / sld	10/10/12 14:57	ICP2-HE_121017B	36	18328
Manganese	4270	mg/kg		5		SW6010B	10/16/12 20:50 / sld	10/10/12 14:57	ICP2-HE_121016D	93	18328
Zinc	2250	mg/kg		5		SW6010B	10/16/12 20:50 / sld	10/10/12 14:57	ICP2-HE_121016D	93	18328

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSD-1
Lab ID: H12100099-019
Matrix: Sediment

Project: UBMC Surface Water/Sediment
Collection Date: 10/02/12 16:20 **DateReceived:** 10/03/12
Report Date: 10/25/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	6120	mg/kg		5		SW6010B	10/16/12 20:53 / sld	10/10/12 14:57	ICP2-HE_121016D	94	18328
Arsenic	16	mg/kg		5		SW6010B	10/16/12 20:53 / sld	10/10/12 14:57	ICP2-HE_121016D	94	18328
Cadmium	ND	mg/kg		1		SW6010B	10/16/12 20:53 / sld	10/10/12 14:57	ICP2-HE_121016D	94	18328
Copper	15	mg/kg		5		SW6010B	10/16/12 20:53 / sld	10/10/12 14:57	ICP2-HE_121016D	94	18328
Iron	12800	mg/kg		5		SW6010B	10/16/12 20:53 / sld	10/10/12 14:57	ICP2-HE_121016D	94	18328
Lead	29	mg/kg		5		SW6010B	10/17/12 15:36 / sld	10/10/12 14:57	ICP2-HE_121017B	37	18328
Manganese	309	mg/kg		5		SW6010B	10/16/12 20:53 / sld	10/10/12 14:57	ICP2-HE_121016D	94	18328
Zinc	97	mg/kg		5		SW6010B	10/16/12 20:53 / sld	10/10/12 14:57	ICP2-HE_121016D	94	18328

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

Client: MT DEQ-Site Response
Work Order: H12100099
Project: UBMC Surface Water/Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *26-Oct-12*

BatchID: 18257

Run ID :Run Order: **ICPMS204-B_121010C: 383** SampType: **Method Blank** Sample ID: **MB-18257** Method: **E200.8**
Analysis Date: **10/11/12 20:48** Units: **mg/L** **Prep Info:** Prep Date: **10/4/2012** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	5E-05	3E-05									
Cadmium	ND	2E-05									
Copper	ND	0.0003									
Iron	ND	0.0007									
Lead	ND	2E-05									
Manganese	ND	5E-05									
Zinc	0.002	0.0007									

Associated samples: **H12100099-001C; H12100099-002C; H12100099-003C; H12100099-004C; H12100099-005C; H12100099-006C; H12100099-007C; H12100099-008C; H12100099-009C; H12100099-010C; H12100099-011C**

Run ID :Run Order: **ICPMS204-B_121010C: 388** SampType: **Sample Matrix Spike** Sample ID: **H12100099-001CMS3** Method: **E200.8**
Analysis Date: **10/11/12 21:10** Units: **mg/L** **Prep Info:** Prep Date: **10/4/2012** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.538	0.0010	0.5	0.0000606	108	70	130				
Cadmium	0.281	0.0010	0.25		112	70	130				
Copper	0.525	0.0050	0.5		105	70	130				
Iron	2.54	0.030	2.5		102	70	130				
Lead	0.581	0.0010	0.5	0.0001065	116	70	130				
Manganese	2.64	0.0010	2.5	0.0003429	106	70	130				
Zinc	0.542	0.010	0.5	0.002503	108	70	130				

Associated samples: **H12100099-001C; H12100099-002C; H12100099-003C; H12100099-004C; H12100099-005C; H12100099-006C; H12100099-007C; H12100099-008C; H12100099-009C; H12100099-010C; H12100099-011C**

Run ID :Run Order: **ICPMS204-B_121010C: 389** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12100099-001CMSD3** Method: **E200.8**
Analysis Date: **10/11/12 21:15** Units: **mg/L** **Prep Info:** Prep Date: **10/4/2012** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.547	0.0010	0.5	0.0000606	109	70	130	0.5383	1.7	20	
Cadmium	0.285	0.0010	0.25		114	70	130	0.2811	1.3	20	
Copper	0.540	0.0050	0.5		108	70	130	0.5255	2.8	20	
Iron	2.58	0.030	2.5		103	70	130	2.538	1.6	20	
Lead	0.596	0.0010	0.5	0.0001065	119	70	130	0.5812	2.6	20	
Manganese	2.64	0.0010	2.5	0.0003429	106	70	130	2.64	0.2	20	
Zinc	0.551	0.010	0.5	0.002503	110	70	130	0.5418	1.7	20	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100099
Project: UBMC Surface Water/Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *26-Oct-12*

BatchID: 18257

Run ID :Run Order: **ICPMS204-B_121010C: 389** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12100099-001CMSD3** Method: **E200.8**
Analysis Date: **10/11/12 21:15** Units: **mg/L** **Prep Info:** Prep Date: **10/4/2012** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12100099-001C; H12100099-002C; H12100099-003C; H12100099-004C; H12100099-005C; H12100099-006C; H12100099-007C; H12100099-008C; H12100099-009C; H12100099-010C; H12100099-011C**

Run ID :Run Order: **ICPMS204-B_121010C: 406** SampType: **Sample Matrix Spike** Sample ID: **H12100099-011CMS3** Method: **E200.8**
Analysis Date: **10/11/12 22:31** Units: **mg/L** **Prep Info:** Prep Date: **10/4/2012** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.553	0.0010	0.5	0.001071	110	70	130				
Cadmium	0.285	0.0010	0.25	0.0000318	114	70	130				
Copper	0.549	0.0050	0.5	0.0007803	110	70	130				
Iron	2.63	0.030	2.5	0.008525	105	70	130				
Lead	0.591	0.0010	0.5	0.0005283	118	70	130				
Manganese	2.61	0.0010	2.5	0.003053	104	70	130				
Zinc	0.560	0.010	0.5	0.009258	110	70	130				

Associated samples: **H12100099-001C; H12100099-002C; H12100099-003C; H12100099-004C; H12100099-005C; H12100099-006C; H12100099-007C; H12100099-008C; H12100099-009C; H12100099-010C; H12100099-011C**

Run ID :Run Order: **ICPMS204-B_121010C: 407** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12100099-011CMSD3** Method: **E200.8**
Analysis Date: **10/11/12 22:36** Units: **mg/L** **Prep Info:** Prep Date: **10/4/2012** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.546	0.0010	0.5	0.001071	109	70	130	0.5535	1.3	20	
Cadmium	0.295	0.0010	0.25	0.0000318	118	70	130	0.285	3.3	20	
Copper	0.547	0.0050	0.5	0.0007803	109	70	130	0.5488	0.4	20	
Iron	2.63	0.030	2.5	0.008525	105	70	130	2.627	0.2	20	
Lead	0.626	0.0010	0.5	0.0005283	125	70	130	0.591	5.7	20	
Manganese	2.72	0.0010	2.5	0.003053	109	70	130	2.607	4.1	20	
Zinc	0.551	0.010	0.5	0.009258	108	70	130	0.5601	1.6	20	

Associated samples: **H12100099-001C; H12100099-002C; H12100099-003C; H12100099-004C; H12100099-005C; H12100099-006C; H12100099-007C; H12100099-008C; H12100099-009C; H12100099-010C; H12100099-011C**

Run ID :Run Order: **ICPMS204-B_121015A: 24** SampType: **Method Blank** Sample ID: **MB-18257** Method: **E200.8**
Analysis Date: **10/15/12 16:41** Units: **mg/L** **Prep Info:** Prep Date: **10/4/2012** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	8E-05	3E-05									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100099
Project: UBMC Surface Water/Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *26-Oct-12*

BatchID: 18257

Run ID :Run Order: **ICPMS204-B_121015A: 24** SampType: **Method Blank** Sample ID: **MB-18257** Method: **E200.8**

Analysis Date: **10/15/12 16:41** Units: **mg/L** **Prep Info:** Prep Date: **10/4/2012** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	ND	2E-05									
Copper	ND	0.0003									
Iron	0.005	0.0007									
Lead	4E-05	2E-05									
Manganese	9E-05	5E-05									
Zinc	0.003	0.0007									

Associated samples: **H12100099-001C; H12100099-002C; H12100099-003C; H12100099-004C; H12100099-005C; H12100099-006C; H12100099-007C; H12100099-008C; H12100099-009C; H12100099-010C; H12100099-011C**

Run ID :Run Order: **ICPMS204-B_121015A: 29** SampType: **Laboratory Control Sample** Sample ID: **LCS-18257** Method: **E200.8**

Analysis Date: **10/15/12 17:04** Units: **mg/L** **Prep Info:** Prep Date: **10/4/2012** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.556	0.0010	0.5	0.000082	111	85	115				
Cadmium	0.287	0.0010	0.25		115	85	115				
Copper	0.549	0.0050	0.5		110	85	115				
Iron	2.71	0.030	2.5	0.004701	108	85	115				
Lead	0.576	0.0010	0.5	0.0000373	115	85	115				
Manganese	2.78	0.0010	2.5	0.000089	111	85	115				
Zinc	0.562	0.010	0.5	0.002707	112	85	115				

Associated samples: **H12100099-001C; H12100099-002C; H12100099-003C; H12100099-004C; H12100099-005C; H12100099-006C; H12100099-007C; H12100099-008C; H12100099-009C; H12100099-010C; H12100099-011C**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100099
Project: UBMC Surface Water/Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *26-Oct-12*

BatchID: 18263

Run ID :Run Order: **ACCU-124 (14410200)_121004A: 1** SampType: **Method Blank** Sample ID: **MB-18263** Method: **A2540 D**
Analysis Date: **10/04/12 15:44** Units: **mg/L** **Prep Info:** Prep Date: **10/4/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	2									

Associated samples: **H12100099-001A; H12100099-002A; H12100099-003A; H12100099-004A; H12100099-005A; H12100099-006A**

Run ID :Run Order: **ACCU-124 (14410200)_121004A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS-18263** Method: **A2540 D**
Analysis Date: **10/04/12 15:45** Units: **mg/L** **Prep Info:** Prep Date: **10/4/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	2080	10	2000		104	70	130				

Associated samples: **H12100099-001A; H12100099-002A; H12100099-003A; H12100099-004A; H12100099-005A; H12100099-006A**

Run ID :Run Order: **ACCU-124 (14410200)_121004A: 11** SampType: **Sample Duplicate** Sample ID: **H12100097-001ADUP** Method: **A2540 D**
Analysis Date: **10/04/12 15:46** Units: **mg/L** **Prep Info:** Prep Date: **10/4/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	10								5	

Associated samples: **H12100099-001A; H12100099-002A; H12100099-003A; H12100099-004A; H12100099-005A; H12100099-006A**

Run ID :Run Order: **ACCU-124 (14410200)_121004A: 22** SampType: **Sample Duplicate** Sample ID: **H12100099-004ADUP** Method: **A2540 D**
Analysis Date: **10/04/12 15:49** Units: **mg/L** **Prep Info:** Prep Date: **10/4/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	10						4		5	

Associated samples: **H12100099-001A; H12100099-002A; H12100099-003A; H12100099-004A; H12100099-005A; H12100099-006A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100099
Project: UBMC Surface Water/Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *26-Oct-12*

BatchID: 18264

Run ID :Run Order: **ACCU-124 (14410200)_121004A: 25** SampType: **Method Blank** Sample ID: **MB-18264** Method: **A2540 D**
Analysis Date: **10/04/12 15:50** Units: **mg/L** **Prep Info:** Prep Date: **10/4/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	2									

Associated samples: **H12100099-007A; H12100099-008A; H12100099-009A; H12100099-010A; H12100099-011A**

Run ID :Run Order: **ACCU-124 (14410200)_121004A: 26** SampType: **Laboratory Control Sample** Sample ID: **LCS-18264** Method: **A2540 D**
Analysis Date: **10/04/12 15:50** Units: **mg/L** **Prep Info:** Prep Date: **10/4/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	2330	10	2000		116	70	130				

Associated samples: **H12100099-007A; H12100099-008A; H12100099-009A; H12100099-010A; H12100099-011A**

Run ID :Run Order: **ACCU-124 (14410200)_121004A: 28** SampType: **Sample Duplicate** Sample ID: **H12100099-007ADUP** Method: **A2540 D**
Analysis Date: **10/04/12 15:51** Units: **mg/L** **Prep Info:** Prep Date: **10/4/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	4.00	10						3		5	

Associated samples: **H12100099-007A; H12100099-008A; H12100099-009A; H12100099-010A; H12100099-011A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100099
Project: UBMC Surface Water/Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *26-Oct-12*

BatchID: 18328

Run ID :Run Order: **ICP2-HE_121016D: 67** SampType: **Method Blank** Sample ID: **MB-18328** Method: **SW6010B**
Analysis Date: **10/16/12 19:13** Units: **mg/kg** **Prep Info:** Prep Date: **10/10/2012** Prep Method: **SW3050 B**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.3	0.3									
Arsenic	ND	0.4									
Cadmium	0.02	0.01									
Copper	ND	0.2									
Iron	10	0.7									
Manganese	0.1	0.04									
Zinc	0.2	0.1									

Associated samples: **H12100099-012A; H12100099-013A; H12100099-014A; H12100099-015A; H12100099-016A; H12100099-017A; H12100099-018A; H12100099-019A**

Run ID :Run Order: **ICP2-HE_121016D: 68** SampType: **Laboratory Fortified Blank** Sample ID: **LFB-18328** Method: **SW6010B**
Analysis Date: **10/16/12 19:17** Units: **mg/kg** **Prep Info:** Prep Date: **10/10/2012** Prep Method: **SW3050 B**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	243	5.0	250	0.3225	97	80	120				
Arsenic	46.8	1.0	50		94	80	120				
Cadmium	22.2	1.0	25	0.0195	89	80	120				
Copper	48.1	1.0	50		96	80	120				
Iron	241	5.0	250	10.39	92	80	120				
Manganese	237	1.0	250	0.1075	95	80	120				
Zinc	47.2	1.0	50	0.1805	94	80	120				

Associated samples: **H12100099-012A; H12100099-013A; H12100099-014A; H12100099-015A; H12100099-016A; H12100099-017A; H12100099-018A; H12100099-019A**

Run ID :Run Order: **ICP2-HE_121016D: 69** SampType: **Laboratory Control Sample** Sample ID: **LCS-18328** Method: **SW6010B**
Analysis Date: **10/16/12 19:21** Units: **mg/kg** **Prep Info:** Prep Date: **10/10/2012** Prep Method: **SW3050 B**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	12700	5.0	14550	0.3225	87	50.7	131.3				
Arsenic	263	1.5	339.6		77	72.3	106.4				
Cadmium	111	1.0	135.6	0.0195	82	73	105.1				
Copper	247	1.0	277.2		89	77.5	109.6				
Iron	18800	5.0	22770	10.39	82	39.6	138.3				
Manganese	357	1.0	365.3	0.1075	98	80.8	115.7				
Zinc	181	1.0	210.9	0.1805	86	74.2	109.9				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100099
Project: UBMC Surface Water/Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *26-Oct-12*

BatchID: 18328

Run ID :Run Order: **ICP2-HE_121016D: 69** SampType: **Laboratory Control Sample** Sample ID: **LCS-18328** Method: **SW6010B**
Analysis Date: **10/16/12 19:21** Units: **mg/kg** **Prep Info:** Prep Date: **10/10/2012** Prep Method: **SW3050 B**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12100099-012A; H12100099-013A; H12100099-014A; H12100099-015A; H12100099-016A; H12100099-017A; H12100099-018A; H12100099-019A**

Run ID :Run Order: **ICP2-HE_121016D: 97** SampType: **Sample Matrix Spike** Sample ID: **H12100099-019AMS** Method: **SW6010B**
Analysis Date: **10/16/12 21:04** Units: **mg/kg** **Prep Info:** Prep Date: **10/11/2012** Prep Method: **SW3050 B**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	9090	5.0	125	6117		75	125				A
Arsenic	31.2	1.0	25	16.11	60	75	125				S
Cadmium	11.9	1.0	12.5	0.07975	94	75	125				
Copper	36.3	1.0	25	14.54	87	75	125				
Iron	12400	5.0	125	12830		75	125				A
Manganese	433	1.0	125	309.4	99	75	125				
Zinc	108	1.0	25	97.17	43	75	125				S

Associated samples: **H12100099-012A; H12100099-013A; H12100099-014A; H12100099-015A; H12100099-016A; H12100099-017A; H12100099-018A; H12100099-019A**

Run ID :Run Order: **ICP2-HE_121016D: 98** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12100099-019AMSD** Method: **SW6010B**
Analysis Date: **10/16/12 21:08** Units: **mg/kg** **Prep Info:** Prep Date: **10/11/2012** Prep Method: **SW3050 B**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	8470	5.0	125	6117		75	125	9088	7.0	20	A
Arsenic	30.7	1.0	25	16.11	58	75	125	31.22	1.7	20	S
Cadmium	12.4	1.0	12.5	0.07975	99	75	125	11.88	4.7	20	
Copper	41.1	1.0	25	14.54	106	75	125	36.28	13	20	
Iron	12100	5.0	125	12830		75	125	12430	2.8	20	A
Manganese	362	1.0	125	309.4	42	75	125	433.3	18	20	S
Zinc	114	1.0	25	97.17	67	75	125	107.8	5.6	20	S

Associated samples: **H12100099-012A; H12100099-013A; H12100099-014A; H12100099-015A; H12100099-016A; H12100099-017A; H12100099-018A; H12100099-019A**

Run ID :Run Order: **ICP2-HE_121017B: 17** SampType: **Method Blank** Sample ID: **MB-18328** Method: **SW6010B**
Analysis Date: **10/17/12 14:23** Units: **mg/kg** **Prep Info:** Prep Date: **10/10/2012** Prep Method: **SW3050 B**

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	ND	0.8									
Arsenic	0.6	0.4									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100099
Project: UBMC Surface Water/Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *26-Oct-12*

BatchID: 18328

Run ID :Run Order: **ICP2-HE_121017B: 17** SampType: **Method Blank** Sample ID: **MB-18328** Method: **SW6010B**
Analysis Date: **10/17/12 14:23** Units: **mg/kg** **Prep Info:** Prep Date: **10/10/2012** Prep Method: **SW3050 B**

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	ND	0.01									
Copper	ND	0.2									
Iron	10	0.7									
Lead	ND	1									
Manganese	0.06	0.04									
Zinc	0.3	0.1									

Associated samples: **H12100099-012A; H12100099-013A; H12100099-014A; H12100099-015A; H12100099-016A; H12100099-017A; H12100099-018A; H12100099-019A**

Run ID :Run Order: **ICP2-HE_121017B: 18** SampType: **Laboratory Fortified Blank** Sample ID: **LFB-18328** Method: **SW6010B**
Analysis Date: **10/17/12 14:26** Units: **mg/kg** **Prep Info:** Prep Date: **10/10/2012** Prep Method: **SW3050 B**

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	251	5.0	250		100	80	120				
Arsenic	49.1	1.0	50	0.5505	97	80	120				
Cadmium	23.5	1.0	25		94	80	120				
Copper	49.2	1.0	50		98	80	120				
Iron	255	5.0	250	10.99	98	80	120				
Lead	48.6	1.0	50		97	80	120				
Manganese	250	1.0	250	0.0555	100	80	120				
Zinc	49.1	1.0	50	0.3315	98	80	120				

Associated samples: **H12100099-012A; H12100099-013A; H12100099-014A; H12100099-015A; H12100099-016A; H12100099-017A; H12100099-018A; H12100099-019A**

Run ID :Run Order: **ICP2-HE_121017B: 19** SampType: **Laboratory Control Sample** Sample ID: **LCS-18328** Method: **SW6010B**
Analysis Date: **10/17/12 14:30** Units: **mg/kg** **Prep Info:** Prep Date: **10/10/2012** Prep Method: **SW3050 B**

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	12800	5.0	14550		88	50.7	131.3				
Arsenic	284	1.5	339.6	0.5505	84	72.3	106.4				
Cadmium	118	1.0	135.6		87	73	105.1				
Copper	247	1.0	277.2		89	77.5	109.6				
Iron	19500	5.0	22770	10.99	86	39.6	138.3				
Lead	179	3.1	185.1		97	75.9	108.6				
Manganese	366	1.0	365.3	0.0555	100	80.8	115.7				
Zinc	191	1.0	210.9	0.3315	91	74.2	109.9				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100099
Project: UBMC Surface Water/Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *26-Oct-12*

BatchID: 18328

Run ID :Run Order: **ICP2-HE_121017B: 19** SampType: **Laboratory Control Sample** Sample ID: **LCS-18328** Method: **SW6010B**

Analysis Date: **10/17/12 14:30** Units: **mg/kg** **Prep Info:** Prep Date: **10/10/2012** Prep Method: **SW3050 B**

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12100099-012A; H12100099-013A; H12100099-014A; H12100099-015A; H12100099-016A; H12100099-017A; H12100099-018A; H12100099-019A**

Run ID :Run Order: **ICP2-HE_121017B: 40** SampType: **Sample Matrix Spike** Sample ID: **H12100099-019AMS** Method: **SW6010B**

Analysis Date: **10/17/12 15:47** Units: **mg/kg** **Prep Info:** Prep Date: **10/11/2012** Prep Method: **SW3050 B**

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	8990	5.0	125	6110		75	125				A
Arsenic	32.7	1.0	25	16.23	66	75	125				S
Cadmium	11.4	1.0	12.5		91	75	125				
Copper	36.1	1.0	25	14.48	86	75	125				
Iron	12400	5.0	125	12920		75	125				A
Lead	45.3	1.5	25	28.69	67	75	125				S
Manganese	418	1.0	125	302.9	92	75	125				
Zinc	105	1.0	25	92.22	53	75	125				S

Associated samples: **H12100099-012A; H12100099-013A; H12100099-014A; H12100099-015A; H12100099-016A; H12100099-017A; H12100099-018A; H12100099-019A**

Run ID :Run Order: **ICP2-HE_121017B: 41** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12100099-019AMSD** Method: **SW6010B**

Analysis Date: **10/17/12 15:51** Units: **mg/kg** **Prep Info:** Prep Date: **10/11/2012** Prep Method: **SW3050 B**

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	8470	5.0	125	6110		75	125	8985	5.9	20	A
Arsenic	31.8	1.0	25	16.23	62	75	125	32.66	2.8	20	S
Cadmium	11.5	1.0	12.5		92	75	125	11.41	1.1	20	
Copper	40.1	1.0	25	14.48	102	75	125	36.08	11	20	
Iron	12100	5.0	125	12920		75	125	12360	1.8	20	A
Lead	41.3	1.5	25	28.69	50	75	125	45.34	9.3	20	S
Manganese	352	1.0	125	302.9	39	75	125	417.6	17	20	S
Zinc	128	1.0	25	92.22	145	75	125	105.4	20	20	S

Associated samples: **H12100099-012A; H12100099-013A; H12100099-014A; H12100099-015A; H12100099-016A; H12100099-017A; H12100099-018A; H12100099-019A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100099
Project: UBMC Surface Water/Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *26-Oct-12*

BatchID: R83422

Run ID :Run Order: **PHSC_101-H_121004A: 2** SampType: **Continuing Calibration Verification Standard** Sample ID: **SC 150** Method: **A2510 B**
Analysis Date: **10/04/12 10:02** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	145	1.0				0	0				

Associated samples: **H12100099-001A; H12100099-002A; H12100099-003A; H12100099-004A; H12100099-005A; H12100099-006A; H12100099-007A; H12100099-008A; H12100099-009A; H12100099-010A; H12100099-011A**

Run ID :Run Order: **PHSC_101-H_121004A: 3** SampType: **Continuing Calibration Verification Standard** Sample ID: **SC 5000** Method: **A2510 B**
Analysis Date: **10/04/12 10:05** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	5070	1.0				0	0				

Associated samples: **H12100099-001A; H12100099-002A; H12100099-003A; H12100099-004A; H12100099-005A; H12100099-006A; H12100099-007A; H12100099-008A; H12100099-009A; H12100099-010A; H12100099-011A**

Run ID :Run Order: **PHSC_101-H_121004A: 4** SampType: **Continuing Calibration Verification Standard** Sample ID: **SC 20000** Method: **A2510 B**
Analysis Date: **10/04/12 10:07** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	20200	1.0				0	0				

Associated samples: **H12100099-001A; H12100099-002A; H12100099-003A; H12100099-004A; H12100099-005A; H12100099-006A; H12100099-007A; H12100099-008A; H12100099-009A; H12100099-010A; H12100099-011A**

Run ID :Run Order: **PHSC_101-H_121004A: 50** SampType: **Sample Duplicate** Sample ID: **H12100099-006ADUP** Method: **A2510 B**
Analysis Date: **10/04/12 11:11** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	259	1.0						271	4.5	10	

Associated samples: **H12100099-001A; H12100099-002A; H12100099-003A; H12100099-004A; H12100099-005A; H12100099-006A; H12100099-007A; H12100099-008A; H12100099-009A; H12100099-010A; H12100099-011A**

Run ID :Run Order: **PHSC_101-H_121004A: 52** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV - SC 1413** Method: **A2510 B**
Analysis Date: **10/04/12 11:34** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	1420	1.0	1413		100	90	110				

Associated samples: **H12100099-007A; H12100099-008A; H12100099-009A; H12100099-010A; H12100099-011A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100099
Project: UBMC Surface Water/Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *26-Oct-12*

BatchID: R83422

Run ID :Run Order: **PHSC_101-H_121004A: 57** SampType: **Sample Duplicate** Sample ID: **H12100099-007ADUP** Method: **A2510 B**

Analysis Date: **10/04/12 11:42** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	213	1.0						213	**0.0**	10	

Associated samples: **H12100099-001A; H12100099-002A; H12100099-003A; H12100099-004A; H12100099-005A; H12100099-006A; H12100099-007A; H12100099-008A; H12100099-009A; H12100099-010A; H12100099-011A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100099
Project: UBMC Surface Water/Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *26-Oct-12*

BatchID: R83422

Run ID :Run Order: **PHSC_101-H_121004A: 1** SampType: **Initial Calibration Verification Standard** Sample ID: **pH 7** Method: **A4500-H B**

Analysis Date: **10/04/12 10:00** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.0	0.1	7		100	98	102				

Associated samples: **H12100099-001A; H12100099-002A; H12100099-003A; H12100099-004A; H12100099-005A; H12100099-006A; H12100099-007A; H12100099-008A; H12100099-009A; H12100099-010A; H12100099-011A**

Run ID :Run Order: **PHSC_101-H_121004A: 49** SampType: **Sample Duplicate** Sample ID: **H12100099-006ADUP** Method: **A4500-H B**

Analysis Date: **10/04/12 11:11** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.5	0.1						7.55	0.4	3	

Associated samples: **H12100099-001A; H12100099-002A; H12100099-003A; H12100099-004A; H12100099-005A; H12100099-006A; H12100099-007A; H12100099-008A; H12100099-009A; H12100099-010A; H12100099-011A**

Run ID :Run Order: **PHSC_101-H_121004A: 51** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV - pH 7** Method: **A4500-H B**

Analysis Date: **10/04/12 11:31** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.0	0.1	7		100	98	102				

Associated samples: **H12100099-007A; H12100099-008A; H12100099-009A; H12100099-010A; H12100099-011A**

Run ID :Run Order: **PHSC_101-H_121004A: 56** SampType: **Sample Duplicate** Sample ID: **H12100099-007ADUP** Method: **A4500-H B**

Analysis Date: **10/04/12 11:42** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.9	0.1						7.84	0.3	3	

Associated samples: **H12100099-001A; H12100099-002A; H12100099-003A; H12100099-004A; H12100099-005A; H12100099-006A; H12100099-007A; H12100099-008A; H12100099-009A; H12100099-010A; H12100099-011A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100099
Project: UBMC Surface Water/Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *26-Oct-12*

BatchID: R83458

Run ID :Run Order: **ICP2-HE_121004A: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**

Analysis Date: **10/04/12 10:01** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	40.1	1.0	40		100	95	105				
Magnesium	39.6	1.0	40		99	95	105				
Potassium	40.0	1.0	40		100	95	105				
Sodium	40.7	1.0	40		102	95	105				

Associated samples: **H12100099-001B; H12100099-002B; H12100099-003B; H12100099-004B; H12100099-005B; H12100099-006B; H12100099-007B; H12100099-008B; H12100099-009B; H12100099-010B; H12100099-011B**

Run ID :Run Order: **ICP2-HE_121004A: 7** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV-1** Method: **E200.7**

Analysis Date: **10/04/12 10:05** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	25.2	1.0	25		101	95	105				
Magnesium	24.6	1.0	25		98	95	105				
Potassium	24.5	1.0	25		98	95	105				
Sodium	24.3	1.0	25		97	95	105				

Associated samples: **H12100099-001B; H12100099-002B; H12100099-003B; H12100099-004B; H12100099-005B; H12100099-006B; H12100099-007B; H12100099-008B; H12100099-009B; H12100099-010B; H12100099-011B**

Run ID :Run Order: **ICP2-HE_121004A: 10** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.7**

Analysis Date: **10/04/12 10:16** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	479	1.0	500		96	80	120				
Magnesium	505	1.0	500		101	80	120				
Potassium	-0.0155	1.0				0	0				
Sodium	0.0454	1.0				0	0				

Associated samples: **H12100099-001B; H12100099-002B; H12100099-003B; H12100099-004B; H12100099-005B; H12100099-006B; H12100099-007B; H12100099-008B; H12100099-009B; H12100099-010B; H12100099-011B**

Run ID :Run Order: **ICP2-HE_121004A: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**

Analysis Date: **10/04/12 10:20** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	479	1.0	500		96	80	120				
Magnesium	504	1.0	500		101	80	120				
Potassium	21.6	1.0	20		108	80	120				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100099
Project: UBMC Surface Water/Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *26-Oct-12*

BatchID: R83458

Run ID :Run Order: **ICP2-HE_121004A: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**
Analysis Date: **10/04/12 10:20** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	21.7	1.0	20		109	80	120				

Associated samples: **H12100099-001B; H12100099-002B; H12100099-003B; H12100099-004B; H12100099-005B; H12100099-006B; H12100099-007B; H12100099-008B; H12100099-009B; H12100099-010B; H12100099-011B**

Run ID :Run Order: **ICP2-HE_121004A: 13** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.7**
Analysis Date: **10/04/12 10:28** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	0.05	0.02									
Magnesium	ND	0.007									
Potassium	ND	0.02									
Sodium	ND	0.02									

Associated samples: **H12100099-001B; H12100099-002B; H12100099-003B; H12100099-004B; H12100099-005B; H12100099-006B; H12100099-007B; H12100099-008B; H12100099-009B; H12100099-010B; H12100099-011B**

Run ID :Run Order: **ICP2-HE_121004A: 14** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.7**
Analysis Date: **10/04/12 10:32** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	48.5	1.0	50	0.05378	97	85	115				
Magnesium	48.1	1.0	50		96	85	115				
Potassium	49.0	1.0	50		98	85	115				
Sodium	49.8	1.0	50		100	85	115				

Associated samples: **H12100099-001B; H12100099-002B; H12100099-003B; H12100099-004B; H12100099-005B; H12100099-006B; H12100099-007B; H12100099-008B; H12100099-009B; H12100099-010B; H12100099-011B**

Run ID :Run Order: **ICP2-HE_121004A: 19** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV** Method: **E200.7**
Analysis Date: **10/04/12 10:50** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	25.3	1.0	25		101	90	110				
Magnesium	25.0	1.0	25		100	90	110				
Potassium	24.9	1.0	25		100	90	110				
Sodium	24.8	1.0	25		99	90	110				

Associated samples: **H12100099-001B; H12100099-002B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100099
Project: UBMC Surface Water/Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *26-Oct-12*

BatchID: R83458

Run ID :Run Order: **ICP2-HE_121004A: 31** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV** Method: **E200.7**
Analysis Date: **10/04/12 11:36** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	25.4	1.0	25		102	90	110				
Magnesium	25.1	1.0	25		100	90	110				
Potassium	24.9	1.0	25		100	90	110				
Sodium	24.7	1.0	25		99	90	110				

Associated samples: **H12100099-003B; H12100099-004B; H12100099-005B; H12100099-006B; H12100099-007B; H12100099-008B; H12100099-009B**

Run ID :Run Order: **ICP2-HE_121004A: 34** SampType: **Sample Matrix Spike** Sample ID: **H12100099-002BMS2** Method: **E200.7**
Analysis Date: **10/04/12 11:47** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	50.5	1.0	50	0.06987	101	70	130				
Magnesium	50.3	1.0	50		101	70	130				
Potassium	50.7	1.0	50		101	70	130				
Sodium	51.5	1.0	50		103	70	130				

Associated samples: **H12100099-001B; H12100099-002B; H12100099-003B; H12100099-004B; H12100099-005B; H12100099-006B; H12100099-007B; H12100099-008B; H12100099-009B; H12100099-010B; H12100099-011B**

Run ID :Run Order: **ICP2-HE_121004A: 35** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12100099-002BMSD2** Method: **E200.7**
Analysis Date: **10/04/12 11:51** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	50.4	1.0	50	0.06987	101	70	130	50.5	0.2	20	
Magnesium	50.5	1.0	50		101	70	130	50.29	0.3	20	
Potassium	49.9	1.0	50		100	70	130	50.73	1.7	20	
Sodium	50.7	1.0	50		101	70	130	51.52	1.5	20	

Associated samples: **H12100099-001B; H12100099-002B; H12100099-003B; H12100099-004B; H12100099-005B; H12100099-006B; H12100099-007B; H12100099-008B; H12100099-009B; H12100099-010B; H12100099-011B**

Run ID :Run Order: **ICP2-HE_121004A: 43** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV** Method: **E200.7**
Analysis Date: **10/04/12 12:21** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	26.1	1.0	25		104	90	110				
Magnesium	26.0	1.0	25		104	90	110				
Potassium	24.8	1.0	25		99	90	110				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100099
Project: UBMC Surface Water/Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *26-Oct-12*

BatchID: R83458

Run ID :Run Order: **ICP2-HE_121004A: 43** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV** Method: **E200.7**

Analysis Date: **10/04/12 12:21** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	24.7	1.0	25		99	90	110				

Associated samples: **H12100099-010B; H12100099-011B**

Run ID :Run Order: **ICP2-HE_121004A: 50** SampType: **Sample Matrix Spike** Sample ID: **H12100048-002AMS2** Method: **E200.7**

Analysis Date: **10/04/12 12:47** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	86.4	1.0	50	37.49	98	70	130				
Magnesium	58.1	1.0	50	8.56	99	70	130				
Potassium	61.7	1.0	50	11.29	101	70	130				
Sodium	86.5	1.0	50	35.55	102	70	130				

Associated samples: **H12100099-001B; H12100099-002B; H12100099-003B; H12100099-004B; H12100099-005B; H12100099-006B; H12100099-007B; H12100099-008B; H12100099-009B; H12100099-010B; H12100099-011B**

Run ID :Run Order: **ICP2-HE_121004A: 51** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12100048-002AMSD2** Method: **E200.7**

Analysis Date: **10/04/12 12:51** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	86.2	1.0	50	37.49	97	70	130	86.44	0.3	20	
Magnesium	57.9	1.0	50	8.56	99	70	130	58.11	0.3	20	
Potassium	61.9	1.0	50	11.29	101	70	130	61.68	0.4	20	
Sodium	86.8	1.0	50	35.55	102	70	130	86.5	0.3	20	

Associated samples: **H12100099-001B; H12100099-002B; H12100099-003B; H12100099-004B; H12100099-005B; H12100099-006B; H12100099-007B; H12100099-008B; H12100099-009B; H12100099-010B; H12100099-011B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100099
Project: UBMC Surface Water/Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *26-Oct-12*

BatchID: R83460

Run ID :Run Order: **MAN-TECH_121004B: 8** SampType: **Method Blank** Sample ID: **MBLK** Method: **A2320 B**
Analysis Date: **10/04/12 16:18** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	ND	1									

Associated samples: **H12100099-001A; H12100099-002A; H12100099-003A**

Run ID :Run Order: **MAN-TECH_121004B: 10** SampType: **Laboratory Control Sample** Sample ID: **LCS-10032012** Method: **A2320 B**
Analysis Date: **10/04/12 16:26** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	640	4.0	600	1.19	106	90	110				

Associated samples: **H12100099-001A; H12100099-002A; H12100099-003A**

Run ID :Run Order: **MAN-TECH_121004B: 29** SampType: **Sample Duplicate** Sample ID: **H12100096-001ADUP** Method: **A2320 B**
Analysis Date: **10/04/12 17:36** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	23	4.0						23.06	2.2	10	
Bicarbonate as HCO3	28	4.0						28.14	2.2	10	
Carbonate as CO3	ND	4.0								10	

Associated samples: **H12100099-001A; H12100099-002A; H12100099-003A**

Run ID :Run Order: **MAN-TECH_121004B: 32** SampType: **Sample Matrix Spike** Sample ID: **H12100096-003AMS** Method: **A2320 B**
Analysis Date: **10/04/12 17:52** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	680	4.0	600	127.5	93	80	120				

Associated samples: **H12100099-001A; H12100099-002A; H12100099-003A**

Run ID :Run Order: **MAN-TECH_121004B: 54** SampType: **Sample Duplicate** Sample ID: **H12100099-003ADUP** Method: **A2320 B**
Analysis Date: **10/04/12 19:03** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	93	4.0						92.85	0.4	10	
Bicarbonate as HCO3	110	4.0						113.3	0.4	10	
Carbonate as CO3	ND	4.0								10	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100099
Project: UBMC Surface Water/Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *26-Oct-12*

BatchID: R83460

Run ID :Run Order: **MAN-TECH_121004B: 54** SampType: **Sample Duplicate** Sample ID: **H12100099-003ADUP** Method: **A2320 B**

Analysis Date: **10/04/12 19:03** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12100099-001A; H12100099-002A; H12100099-003A**

Client: MT DEQ-Site Response
Work Order: H12100099
Project: UBMC Surface Water/Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *26-Oct-12*

BatchID: R83467

Run ID :Run Order: **IC102-H_121004A: 13** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV100412-12** Method: **E300.0**

Analysis Date: **10/04/12 17:47** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	100	1.0	100		104	90	110				
Sulfate	410	1.0	400		103	90	110				

Associated samples: **H12100099-001A; H12100099-002A; H12100099-003A; H12100099-004A; H12100099-005A; H12100099-006A; H12100099-007A; H12100099-008A; H12100099-009A; H12100099-010A; H12100099-011A**

Run ID :Run Order: **IC102-H_121004A: 14** SampType: **Method Blank** Sample ID: **ICB100412-13** Method: **E300.0**

Analysis Date: **10/04/12 18:00** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.03									
Sulfate	ND	0.1									

Associated samples: **H12100099-001A; H12100099-002A; H12100099-003A; H12100099-004A; H12100099-005A; H12100099-006A; H12100099-007A; H12100099-008A; H12100099-009A; H12100099-010A; H12100099-011A**

Run ID :Run Order: **IC102-H_121004A: 15** SampType: **Laboratory Fortified Blank** Sample ID: **LFB100412-14** Method: **E300.0**

Analysis Date: **10/04/12 18:13** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	49	1.0	50		98	90	110				
Sulfate	200	1.0	200		99	90	110				

Associated samples: **H12100099-001A; H12100099-002A; H12100099-003A; H12100099-004A; H12100099-005A; H12100099-006A; H12100099-007A; H12100099-008A; H12100099-009A; H12100099-010A; H12100099-011A**

Run ID :Run Order: **IC102-H_121004A: 45** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV100412-44** Method: **E300.0**

Analysis Date: **10/05/12 00:30** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	110	1.0	100		105	90	110				
Sulfate	420	1.0	400		105	90	110				

Associated samples: **H12100099-001A; H12100099-002A; H12100099-003A; H12100099-004A; H12100099-005A; H12100099-006A**

Run ID :Run Order: **IC102-H_121004A: 57** SampType: **Sample Matrix Spike** Sample ID: **H12100099-006AMS** Method: **E300.0**

Analysis Date: **10/05/12 03:02** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	51	1.0	50	0.179	102	90	110				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100099
Project: UBMC Surface Water/Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *26-Oct-12*

BatchID: R83467

Run ID :Run Order: **IC102-H_121004A: 57** SampType: **Sample Matrix Spike** Sample ID: **H12100099-006AMS** Method: **E300.0**
Analysis Date: **10/05/12 03:02** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	240	1.0	200	21.31	109	90	110				

Associated samples: **H12100099-001A; H12100099-002A; H12100099-003A; H12100099-004A; H12100099-005A; H12100099-006A; H12100099-007A; H12100099-008A; H12100099-009A; H12100099-010A; H12100099-011A**

Run ID :Run Order: **IC102-H_121004A: 58** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12100099-006AMSD** Method: **E300.0**
Analysis Date: **10/05/12 03:14** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	51	1.0	50	0.179	102	90	110	51.39	0.7	20	
Sulfate	240	1.0	200	21.31	108	90	110	239.7	0.6	20	

Associated samples: **H12100099-001A; H12100099-002A; H12100099-003A; H12100099-004A; H12100099-005A; H12100099-006A; H12100099-007A; H12100099-008A; H12100099-009A; H12100099-010A; H12100099-011A**

Run ID :Run Order: **IC102-H_121004A: 59** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV100412-58** Method: **E300.0**
Analysis Date: **10/05/12 03:27** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	110	1.0	100		106	90	110				
Sulfate	420	1.0	400		106	90	110				

Associated samples: **H12100099-007A; H12100099-008A; H12100099-009A; H12100099-010A; H12100099-011A**

Run ID :Run Order: **IC102-H_121004A: 71** SampType: **Sample Matrix Spike** Sample ID: **H12090504-002AMS** Method: **E300.0**
Analysis Date: **10/05/12 05:58** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	71	1.0	50	17.12	108	90	110				
Sulfate	260	1.0	200	42.78	109	90	110				

Associated samples: **H12100099-001A; H12100099-002A; H12100099-003A; H12100099-004A; H12100099-005A; H12100099-006A; H12100099-007A; H12100099-008A; H12100099-009A; H12100099-010A; H12100099-011A**

Run ID :Run Order: **IC102-H_121004A: 72** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12090504-002AMSD** Method: **E300.0**
Analysis Date: **10/05/12 06:11** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	72	1.0	50	17.12	109	90	110	71.02	0.8	20	
Sulfate	260	1.0	200	42.78	111	90	110	261.2	1.2	20	S

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100099
Project: UBMC Surface Water/Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R83467

Date: *26-Oct-12*

Run ID :Run Order: **IC102-H_121004A: 72** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12090504-002AMSD** Method: **E300.0**

Analysis Date: **10/05/12 06:11** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12100099-001A; H12100099-002A; H12100099-003A; H12100099-004A; H12100099-005A; H12100099-006A; H12100099-007A; H12100099-008A; H12100099-009A; H12100099-010A; H12100099-011A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100099
Project: UBMC Surface Water/Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *26-Oct-12*

BatchID: R83483

Run ID :Run Order: **ICP2-HE_121005A: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**

Analysis Date: **10/05/12 10:44** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	3.94	0.10	4		99	95	105				
Calcium	39.5	1.0	40		99	95	105				
Magnesium	39.4	1.0	40		99	95	105				

Associated samples: **H12100099-001B; H12100099-002B; H12100099-003B; H12100099-004B; H12100099-005B; H12100099-006B; H12100099-007B; H12100099-008B; H12100099-009B; H12100099-010B; H12100099-011B**

Run ID :Run Order: **ICP2-HE_121005A: 7** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV-1** Method: **E200.7**

Analysis Date: **10/05/12 10:48** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	2.48	0.10	2.5		99	95	105				
Calcium	25.1	1.0	25		100	95	105				
Magnesium	24.7	1.0	25		99	95	105				

Associated samples: **H12100099-001B; H12100099-002B; H12100099-003B; H12100099-004B; H12100099-005B; H12100099-006B; H12100099-007B; H12100099-008B; H12100099-009B; H12100099-010B; H12100099-011B**

Run ID :Run Order: **ICP2-HE_121005A: 10** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.7**

Analysis Date: **10/05/12 10:59** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	504	0.10	500		101	80	120				
Calcium	454	1.0	500		91	80	120				
Magnesium	480	1.0	500		96	80	120				

Associated samples: **H12100099-001B; H12100099-002B; H12100099-003B; H12100099-004B; H12100099-005B; H12100099-006B; H12100099-007B; H12100099-008B; H12100099-009B; H12100099-010B; H12100099-011B**

Run ID :Run Order: **ICP2-HE_121005A: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**

Analysis Date: **10/05/12 11:03** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	516	0.10	500		103	80	120				
Calcium	456	1.0	500		91	80	120				
Magnesium	476	1.0	500		95	80	120				

Associated samples: **H12100099-001B; H12100099-002B; H12100099-003B; H12100099-004B; H12100099-005B; H12100099-006B; H12100099-007B; H12100099-008B; H12100099-009B; H12100099-010B; H12100099-011B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100099
Project: UBMC Surface Water/Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *26-Oct-12*

BatchID: R83483

Run ID :Run Order: **ICP2-HE_121005A: 13** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.7**
Analysis Date: **10/05/12 11:11** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	ND	0.002									
Calcium	0.05	0.02									
Magnesium	ND	0.007									

Associated samples: **H12100099-001B; H12100099-002B; H12100099-003B; H12100099-004B; H12100099-005B; H12100099-006B; H12100099-007B; H12100099-008B; H12100099-009B; H12100099-010B; H12100099-011B**

Run ID :Run Order: **ICP2-HE_121005A: 14** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.7**
Analysis Date: **10/05/12 11:15** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	4.76	0.10	5		95	85	115				
Calcium	46.0	1.0	50	0.04798	92	85	115				
Magnesium	45.2	1.0	50		90	85	115				

Associated samples: **H12100099-001B; H12100099-002B; H12100099-003B; H12100099-004B; H12100099-005B; H12100099-006B; H12100099-007B; H12100099-008B; H12100099-009B; H12100099-010B; H12100099-011B**

Run ID :Run Order: **ICP2-HE_121005A: 110** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV** Method: **E200.7**
Analysis Date: **10/05/12 17:15** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	2.51	0.10	2.5		100	90	110				
Calcium	26.3	1.0	25		105	90	110				
Magnesium	26.3	1.0	25		105	90	110				

Associated samples: **H12100099-001B; H12100099-002B; H12100099-003B; H12100099-004B; H12100099-005B; H12100099-006B; H12100099-007B; H12100099-008B**

Run ID :Run Order: **ICP2-HE_121005A: 112** SampType: **Sample Matrix Spike** Sample ID: **H12100097-012BMS2** Method: **E200.7**
Analysis Date: **10/05/12 17:23** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	5.03	0.030	5	0.06036	99	70	130				
Calcium	83.5	1.0	50	32.98	101	70	130				
Magnesium	62.1	1.0	50	10.25	104	70	130				

Associated samples: **H12100099-001B; H12100099-002B; H12100099-003B; H12100099-004B; H12100099-005B; H12100099-006B; H12100099-007B; H12100099-008B; H12100099-009B; H12100099-010B; H12100099-011B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100099
Project: UBMC Surface Water/Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *26-Oct-12*

BatchID: R83483

Run ID :Run Order: **ICP2-HE_121005A: 113** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12100097-012BMSD2** Method: **E200.7**

Analysis Date: **10/05/12 17:26** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	5.10	0.030	5	0.06036	101	70	130	5.03	1.5	20	
Calcium	84.1	1.0	50	32.98	102	70	130	83.52	0.7	20	
Magnesium	62.5	1.0	50	10.25	105	70	130	62.1	0.7	20	

Associated samples: **H12100099-001B; H12100099-002B; H12100099-003B; H12100099-004B; H12100099-005B; H12100099-006B; H12100099-007B; H12100099-008B; H12100099-009B; H12100099-010B; H12100099-011B**

Run ID :Run Order: **ICP2-HE_121005A: 122** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV** Method: **E200.7**

Analysis Date: **10/05/12 18:01** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	2.51	0.10	2.5		100	90	110				
Calcium	25.5	1.0	25		102	90	110				
Magnesium	25.1	1.0	25		100	90	110				

Associated samples: **H12100099-009B; H12100099-010B; H12100099-011B**

Run ID :Run Order: **ICP2-HE_121005A: 127** SampType: **Sample Matrix Spike** Sample ID: **H12100099-010BMS2** Method: **E200.7**

Analysis Date: **10/05/12 18:19** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	5.02	0.030	5	0.0045	100	70	130				
Calcium	90.2	1.0	50	40.36	100	70	130				
Magnesium	64.5	1.0	50	14.13	101	70	130				

Associated samples: **H12100099-001B; H12100099-002B; H12100099-003B; H12100099-004B; H12100099-005B; H12100099-006B; H12100099-007B; H12100099-008B; H12100099-009B; H12100099-010B; H12100099-011B**

Run ID :Run Order: **ICP2-HE_121005A: 128** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12100099-010BMSD2** Method: **E200.7**

Analysis Date: **10/05/12 18:23** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	5.02	0.030	5	0.0045	100	70	130	5.017	0.0	20	
Calcium	89.7	1.0	50	40.36	99	70	130	90.18	0.6	20	
Magnesium	64.3	1.0	50	14.13	100	70	130	64.53	0.4	20	

Associated samples: **H12100099-001B; H12100099-002B; H12100099-003B; H12100099-004B; H12100099-005B; H12100099-006B; H12100099-007B; H12100099-008B; H12100099-009B; H12100099-010B; H12100099-011B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100099
Project: UBMC Surface Water/Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *26-Oct-12*

BatchID: R83488

Run ID :Run Order: **MAN-TECH_121005B: 8** SampType: **Method Blank** Sample ID: **MBLK** Method: **A2320 B**
Analysis Date: **10/05/12 13:30** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	ND	1									

Associated samples: **H12100099-004A; H12100099-005A; H12100099-006A; H12100099-007A; H12100099-008A; H12100099-009A; H12100099-010A; H12100099-011A**

Run ID :Run Order: **MAN-TECH_121005B: 10** SampType: **Laboratory Control Sample** Sample ID: **LCS-10032012** Method: **A2320 B**
Analysis Date: **10/05/12 13:38** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	630	4.0	600		106	90	110				

Associated samples: **H12100099-004A; H12100099-005A; H12100099-006A; H12100099-007A; H12100099-008A; H12100099-009A; H12100099-010A; H12100099-011A**

Run ID :Run Order: **MAN-TECH_121005B: 30** SampType: **Sample Duplicate** Sample ID: **H12080385-010ADUP** Method: **A2320 B**
Analysis Date: **10/05/12 14:44** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	60	4.0						61.42	2.1	10	
Bicarbonate as HCO3	73	4.0						74.93	2.1	10	
Carbonate as CO3	ND	4.0								10	

Associated samples: **H12100099-004A; H12100099-005A; H12100099-006A; H12100099-007A; H12100099-008A; H12100099-009A; H12100099-010A; H12100099-011A**

Run ID :Run Order: **MAN-TECH_121005B: 34** SampType: **Sample Matrix Spike** Sample ID: **H12080385-011AMS** Method: **A2320 B**
Analysis Date: **10/05/12 14:58** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	650	4.0	600	61.03	98	80	120				

Associated samples: **H12100099-004A; H12100099-005A; H12100099-006A; H12100099-007A; H12100099-008A; H12100099-009A; H12100099-010A; H12100099-011A**

Run ID :Run Order: **MAN-TECH_121005B: 51** SampType: **Sample Duplicate** Sample ID: **H12100099-007ADUP** Method: **A2320 B**
Analysis Date: **10/05/12 16:04** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	110	4.0						108.3	0.3	10	
Bicarbonate as HCO3	130	4.0						129.2	0.3	10	
Carbonate as CO3	1.4	4.0						1.43		10	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100099
Project: UBMC Surface Water/Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *26-Oct-12*

BatchID: R83488

Run ID :Run Order: **MAN-TECH_121005B: 51** SampType: **Sample Duplicate** Sample ID: **H12100099-007ADUP** Method: **A2320 B**
Analysis Date: **10/05/12 16:04** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12100099-004A; H12100099-005A; H12100099-006A; H12100099-007A; H12100099-008A; H12100099-009A; H12100099-010A; H12100099-011A**

Run ID :Run Order: **MAN-TECH_121005B: 56** SampType: **Method Blank** Sample ID: **MBLK** Method: **A2320 B**
Analysis Date: **10/05/12 16:19** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	ND	1									

Associated samples: **H12100099-004A; H12100099-005A; H12100099-006A; H12100099-007A; H12100099-008A; H12100099-009A; H12100099-010A; H12100099-011A**

Run ID :Run Order: **MAN-TECH_121005B: 58** SampType: **Laboratory Control Sample** Sample ID: **LCS-10032012** Method: **A2320 B**
Analysis Date: **10/05/12 16:27** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	630	4.0	600		106	90	110				

Associated samples: **H12100099-004A; H12100099-005A; H12100099-006A; H12100099-007A; H12100099-008A; H12100099-009A; H12100099-010A; H12100099-011A**

Run ID :Run Order: **MAN-TECH_121005B: 66** SampType: **Sample Duplicate** Sample ID: **H12100099-011ADUP** Method: **A2320 B**
Analysis Date: **10/05/12 16:55** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	110	4.0						113.5	0.1	10	
Bicarbonate as HCO3	130	4.0						134.4	0.5	10	
Carbonate as CO3	1.8	4.0						2.02		10	

Associated samples: **H12100099-004A; H12100099-005A; H12100099-006A; H12100099-007A; H12100099-008A; H12100099-009A; H12100099-010A; H12100099-011A**

Run ID :Run Order: **MAN-TECH_121005B: 70** SampType: **Sample Matrix Spike** Sample ID: **H12100107-001AMS** Method: **A2320 B**
Analysis Date: **10/05/12 17:19** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	2200	4.0	600	1566	104	80	120				

Associated samples: **H12100099-004A; H12100099-005A; H12100099-006A; H12100099-007A; H12100099-008A; H12100099-009A; H12100099-010A; H12100099-011A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100099
Project: UBMC Surface Water/Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *26-Oct-12*

BatchID: R83638

Run ID :Run Order: **ICPMS204-B_121010C: 320** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **10/10/12 13:39** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0499	0.0050	0.05		100	90	110				
Cadmium	0.0258	0.0010	0.025		103	90	110				
Copper	0.0516	0.010	0.05		103	90	110				
Iron	0.261	0.030	0.25		104	90	110				
Manganese	0.254	0.010	0.25		102	90	110				
Zinc	0.0519	0.010	0.05		104	90	110				

Associated samples: **H12100099-001C; H12100099-002C; H12100099-003C; H12100099-004C; H12100099-005C; H12100099-006C; H12100099-007C; H12100099-008C; H12100099-010C; H12100099-011C**

Run ID :Run Order: **ICPMS204-B_121010C: 321** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **10/10/12 13:44** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.000146	0.0050									
Cadmium	0.000982	0.0010									
Copper	6.60E-05	0.010									
Iron	99.7	0.030	100		100	70	130				
Manganese	0.000200	0.010									
Zinc	0.00144	0.010									

Associated samples: **H12100099-001C; H12100099-002C; H12100099-003C; H12100099-004C; H12100099-005C; H12100099-006C; H12100099-007C; H12100099-008C; H12100099-010C; H12100099-011C**

Run ID :Run Order: **ICPMS204-B_121010C: 322** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **10/10/12 13:48** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0108	0.0050	0.01		108	70	130				
Cadmium	0.0106	0.0010	0.01		106	70	130				
Iron	99.4	0.030	100		99	70	130				
Manganese	0.0206	0.010	0.02		103	70	130				
Zinc	0.0115	0.010	0.01		115	70	130				

Associated samples: **H12100099-001C; H12100099-002C; H12100099-003C; H12100099-004C; H12100099-005C; H12100099-006C; H12100099-007C; H12100099-008C; H12100099-010C; H12100099-011C**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100099
Project: UBMC Surface Water/Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *26-Oct-12*

BatchID: R83638

Run ID :Run Order: **ICPMS204-B_121010C: 354** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **10/11/12 18:36** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0515	0.0050	0.05		103	90	110				
Cadmium	0.0266	0.0010	0.025		106	90	110				
Copper	0.0534	0.010	0.05		107	90	110				
Iron	0.263	0.030	0.25		105	90	110				
Manganese	0.258	0.010	0.25		103	90	110				
Zinc	0.0535	0.010	0.05		107	90	110				

Associated samples: **H12100099-001C; H12100099-002C; H12100099-003C; H12100099-004C; H12100099-005C; H12100099-006C; H12100099-007C; H12100099-008C; H12100099-010C; H12100099-011C**

Run ID :Run Order: **ICPMS204-B_121010C: 357** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **10/11/12 18:50** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.000767	0.0050									
Cadmium	0.000921	0.0010									
Copper	0.000822	0.010									
Iron	97.8	0.030	100		98	70	130				
Manganese	0.00120	0.010									
Zinc	0.00220	0.010									

Associated samples: **H12100099-001C; H12100099-002C; H12100099-003C; H12100099-004C; H12100099-005C; H12100099-006C; H12100099-007C; H12100099-008C; H12100099-010C; H12100099-011C**

Run ID :Run Order: **ICPMS204-B_121010C: 358** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **10/11/12 18:54** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0105	0.0050	0.01		105	70	130				
Cadmium	0.0106	0.0010	0.01		106	70	130				
Copper	0.0207	0.010	0.02		104	70	130				
Iron	97.8	0.030	100		98	70	130				
Manganese	0.0197	0.010	0.02		99	70	130				
Zinc	0.0120	0.010	0.01		120	70	130				

Associated samples: **H12100099-001C; H12100099-002C; H12100099-003C; H12100099-004C; H12100099-005C; H12100099-006C; H12100099-007C; H12100099-008C; H12100099-010C; H12100099-011C**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100099
Project: UBMC Surface Water/Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *26-Oct-12*

BatchID: R83652

Run ID :Run Order: **IC102-H_121011B: 15** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV101112-12** Method: **E300.0**
Analysis Date: **10/11/12 15:33** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	410	1.0	400		103	90	110				

Associated samples: **H12100099-008A**

Run ID :Run Order: **IC102-H_121011B: 16** SampType: **Method Blank** Sample ID: **ICB101112-13** Method: **E300.0**
Analysis Date: **10/11/12 15:45** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.1									

Associated samples: **H12100099-008A**

Run ID :Run Order: **IC102-H_121011B: 17** SampType: **Laboratory Fortified Blank** Sample ID: **LFB101112-14** Method: **E300.0**
Analysis Date: **10/11/12 15:58** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	200	1.0	200		100	90	110				

Associated samples: **H12100099-008A**

Run ID :Run Order: **IC102-H_121011B: 19** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV101112-15** Method: **E300.0**
Analysis Date: **10/11/12 16:23** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	410	1.0	400		104	90	110				

Associated samples: **H12100099-008A**

Run ID :Run Order: **IC102-H_121011B: 31** SampType: **Sample Matrix Spike** Sample ID: **H12100136-001AMS** Method: **E300.0**
Analysis Date: **10/11/12 18:54** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	250	1.0	200	42.59	105	90	110				

Associated samples: **H12100099-008A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100099
Project: UBMC Surface Water/Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *26-Oct-12*

BatchID: R83652

Run ID :Run Order: **IC102-H_121011B: 32** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12100136-001AMSD** Method: **E300.0**

Analysis Date: **10/11/12 19:07** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	260	1.0	200	42.59	**108**	90	110	253	**2.1**	20	

Associated samples: **H12100099-008A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100099
Project: UBMC Surface Water/Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *26-Oct-12*

BatchID: R83694

Run ID :Run Order: **ICPMS204-B_121015A: 8** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **10/15/12 15:00** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0489	0.0050	0.05		98	90	110				
Cadmium	0.0255	0.0010	0.025		102	90	110				
Copper	0.0530	0.010	0.05		106	90	110				
Iron	0.267	0.030	0.25		107	90	110				
Lead	0.0491	0.010	0.05		98	90	110				
Manganese	0.253	0.010	0.25		101	90	110				
Zinc	0.0534	0.010	0.05		107	90	110				

Associated samples: **H12100099-001C; H12100099-002C; H12100099-003C; H12100099-004C; H12100099-005C; H12100099-006C; H12100099-007C; H12100099-008C; H12100099-009C; H12100099-010C; H12100099-011C**

Run ID :Run Order: **ICPMS204-B_121015A: 9** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **10/15/12 15:04** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	6.90E-05	0.0050									
Cadmium	0.000918	0.0010									
Copper	0.000182	0.010									
Iron	103	0.030	100		103	70	130				
Lead	0.000164	0.010									
Manganese	0.000317	0.010									
Zinc	0.00162	0.010									

Associated samples: **H12100099-001C; H12100099-002C; H12100099-003C; H12100099-004C; H12100099-005C; H12100099-006C; H12100099-007C; H12100099-008C; H12100099-009C; H12100099-010C; H12100099-011C**

Run ID :Run Order: **ICPMS204-B_121015A: 10** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **10/15/12 15:09** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0106	0.0050	0.01		106	70	130				
Cadmium	0.0108	0.0010	0.01		108	70	130				
Copper	0.0209	0.010	0.02		104	70	130				
Iron	97.0	0.030	100		97	70	130				
Lead	0.000168	0.010				0	0				
Manganese	0.0210	0.010	0.02		105	70	130				
Zinc	0.0121	0.010	0.01		121	70	130				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100099
Project: UBMC Surface Water/Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *26-Oct-12*

BatchID: R83694

Run ID :Run Order: **ICPMS204-B_121015A: 10** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **10/15/12 15:09** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12100099-001C; H12100099-002C; H12100099-003C; H12100099-004C; H12100099-005C; H12100099-006C; H12100099-007C; H12100099-008C; H12100099-009C; H12100099-010C; H12100099-011C**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100099
Project: UBMC Surface Water/Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *26-Oct-12*

BatchID: R83743

Run ID :Run Order: **ICP2-HE_121016D: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**

Analysis Date: **10/16/12 12:09** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	4.03	0.10	4		101	90	110				
Arsenic	0.792	0.0092	0.8		99	90	110				
Cadmium	0.384	0.0010	0.4		96	90	110				
Copper	0.801	0.010	0.8		100	90	110				
Iron	4.01	0.030	4		100	90	110				
Manganese	4.05	0.010	4		101	90	110				
Zinc	0.789	0.010	0.8		99	90	110				

Associated samples: **H12100099-012A; H12100099-013A; H12100099-014A; H12100099-015A; H12100099-016A; H12100099-017A; H12100099-018A; H12100099-019A**

Run ID :Run Order: **ICP2-HE_121016D: 10** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.7**

Analysis Date: **10/16/12 12:24** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	518	0.10	500		104	80	120				
Arsenic	0.00754	0.0092				0	0				
Cadmium	0.000200	0.0010				0	0				
Copper	0.00565	0.010				0	0				
Iron	189	0.030	200		94	80	120				
Manganese	-0.00781	0.010				0	0				
Zinc	0.00343	0.010				0	0				

Associated samples: **H12100099-012A; H12100099-013A; H12100099-014A; H12100099-015A; H12100099-016A; H12100099-017A; H12100099-018A; H12100099-019A**

Run ID :Run Order: **ICP2-HE_121016D: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**

Analysis Date: **10/16/12 12:28** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	518	0.10	500		104	80	120				
Arsenic	1.07	0.0092	1		107	80	120				
Cadmium	0.899	0.0010	1		90	80	120				
Copper	0.505	0.010	0.5		101	80	120				
Iron	188	0.030	200		94	80	120				
Manganese	0.471	0.010	0.5		94	80	120				
Zinc	0.989	0.010	1		99	80	120				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100099
Project: UBMC Surface Water/Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R83743

Date: *26-Oct-12*

Run ID :Run Order: **ICP2-HE_121016D: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**

Analysis Date: **10/16/12 12:28** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12100099-012A; H12100099-013A; H12100099-014A; H12100099-015A; H12100099-016A; H12100099-017A; H12100099-018A; H12100099-019A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100099
Project: UBMC Surface Water/Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *26-Oct-12*

BatchID: R83778

Run ID :Run Order: **ICP2-HE_121017B: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**
Analysis Date: **10/17/12 13:00** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	3.98	0.030	4		99	90	110				
Lead	0.795	0.013	0.8		99	90	110				

Associated samples: **H12100099-012A; H12100099-013A; H12100099-014A; H12100099-015A; H12100099-016A; H12100099-017A; H12100099-018A; H12100099-019A**

Run ID :Run Order: **ICP2-HE_121017B: 10** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.7**
Analysis Date: **10/17/12 13:14** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	186	0.030	200		93	80	120				
Lead	0.0654	0.013				0	0				

Associated samples: **H12100099-012A; H12100099-013A; H12100099-014A; H12100099-015A; H12100099-016A; H12100099-017A; H12100099-018A; H12100099-019A**

Run ID :Run Order: **ICP2-HE_121017B: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**
Analysis Date: **10/17/12 13:18** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	187	0.030	200		94	80	120				
Lead	0.954	0.013	1		95	80	120				

Associated samples: **H12100099-012A; H12100099-013A; H12100099-014A; H12100099-015A; H12100099-016A; H12100099-017A; H12100099-018A; H12100099-019A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100099
Project: UBMC Surface Water/Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *26-Oct-12*

BatchID: TDS121004A

Run ID :Run Order: **ACCU-124 (14410200)_121004B: 1** SampType: **Method Blank** Sample ID: **MB-1_121004A** Method: **A2540 C**
Analysis Date: **10/04/12 15:57** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	ND	3									

Associated samples: **H12100099-001A; H12100099-002A; H12100099-003A; H12100099-004A; H12100099-005A; H12100099-006A; H12100099-007A; H12100099-008A; H12100099-009A; H12100099-010A; H12100099-011A**

Run ID :Run Order: **ACCU-124 (14410200)_121004B: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS-2_121004A** Method: **A2540 C**
Analysis Date: **10/04/12 15:57** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2080	10	2000		104	90	110				

Associated samples: **H12100099-001A; H12100099-002A; H12100099-003A; H12100099-004A; H12100099-005A; H12100099-006A; H12100099-007A; H12100099-008A; H12100099-009A; H12100099-010A; H12100099-011A**

Run ID :Run Order: **ACCU-124 (14410200)_121004B: 4** SampType: **Sample Duplicate** Sample ID: **H12100097-001A DUP** Method: **A2540 C**
Analysis Date: **10/04/12 15:58** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	ND	10								5	

Associated samples: **H12100099-001A; H12100099-002A; H12100099-003A; H12100099-004A; H12100099-005A; H12100099-006A; H12100099-007A; H12100099-008A; H12100099-009A; H12100099-010A; H12100099-011A**

Run ID :Run Order: **ACCU-124 (14410200)_121004B: 6** SampType: **Sample Matrix Spike** Sample ID: **H12100097-002A MS** Method: **A2540 C**
Analysis Date: **10/04/12 15:58** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2180	10	2000	125	103	80	120				

Associated samples: **H12100099-001A; H12100099-002A; H12100099-003A; H12100099-004A; H12100099-005A; H12100099-006A; H12100099-007A; H12100099-008A; H12100099-009A; H12100099-010A; H12100099-011A**

Run ID :Run Order: **ACCU-124 (14410200)_121004B: 16** SampType: **Sample Duplicate** Sample ID: **H12100099-004A DUP** Method: **A2540 C**
Analysis Date: **10/04/12 16:01** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	163	10						164	0.6	5	

Associated samples: **H12100099-001A; H12100099-002A; H12100099-003A; H12100099-004A; H12100099-005A; H12100099-006A; H12100099-007A; H12100099-008A; H12100099-009A; H12100099-010A; H12100099-011A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Standard Reporting Procedures

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Workorder Receipt Checklist

MT DEQ-Site Response H12100099

Login completed by: Esther L. Merritt
Date Received: 10/3/2012
Reviewed by: BL2000\sdull
Received by: TLL
Reviewed Date: 10/12/2012
Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	3.3°C On Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Contact and Corrective Action Comments:

None

Chain of Custody and Analytical Request Record

PLEASE PRINT (Provide as much information as possible.)

Company Name:	Project Name, PWS, Permit, Etc.	Sample Origin	EPA/State Compliance:
MDEQ	VBMC Surface Water/Sediment	State: MT	Yes ☐ No ☐
Report Mail Address:	**Contact Name:** / **Phone/Fax:**	**Email:**	**Sampler: (Please Print)**
See Quote H-645	Shallie Haaland 8415033	shaaland@mt.gov	A. Breesbach, M. Towler
Invoice Address:	**Invoice Contact & Phone:**	**Purchase Order:**	**Quote/Bottle Order:**
			10761

Special Report/Formats:

☐ DW ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: _____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids
Vegetation Bioassay Other
DW - Drinking Water

ANALYSIS REQUESTED

Standard Turnaround (TAT)

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

Shipped by: Hand
Cooler ID(s): Y
Receipt Temp 3.3 °C TB
On Ice: (Y) N
Custody Seal: On Bottle Y (N) / On Cooler Y (N)
Intact Y N
Signature Match Y N

LABORATORY USE ONLY

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	SEE ATTACHED
1	BRSW-25	10/2/12	0948	W	X
2	BRSW-26		0959		
3	BRSW-38		1019		
4	BRSW-48		1212		
5	BRSW-23		1245		
6	BRSW-3A		1318		
7	BRSW-3B		1349		
8	BRSW-2		1445		
9	BRSW-22		1528		
10	BRSW-24	10/2/12	1547	W	X

Custody Record MUST be Signed

	Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
1	Alan Breesbach	10/3/12 1613				
2						
Laboratory				Tracy Carroll	10/3/12 16:13	

Sample Disposal: Return to Client: _____ Lab Disposal: _____

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.
This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

Chain of Custody and Analytical Request Record

PLEASE PRINT (Provide as much information as possible.)

Company Name:	Project Name, PWS, Permit, Etc.	Sample Origin	EPA/State Compliance:
MDEQ	UBMC Surface Water/Sediment	State: MT	Yes ☐ No ☐
Report Mail Address:	**Contact Name:** Phone/Fax:	**Email:**	**Sampler: (Please Print)**
See Quote M-645	Shellie Haaland 841-5033	Shaaland@mt.gov	A. Droesbeke, M. Towle
Invoice Address:	**Invoice Contact & Phone:**	**Purchase Order:**	**Quote/Bottle Order:**
			10761

Special Report/Formats:

☐ DW ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP **Format:**
☐ State: ☐ LEVEL IV
☐ Other: ☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids Vegetation Bioassay Other DW - Drinking Water

ANALYSIS REQUESTED

Standard Turnaround (TAT)

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

Shipped by: Hand
Cooler ID(s): Y
Receipt Temp 8.3 °C TB
On Ice: Y N
Custody Seal On Bottle Y N / On Cooler Y N
Intact Y N
Signature Match Y N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	SEE ATTACHED
1	BRSW-1	10/2/12	1620	W	X
2	BRSD-38	10/2/12	1017	S	
3	BRSD-4P		1212		
4	BRSD-23		1245		
5	BRSD-3A		1318		
6	BRSD-3B		1349		
7	BRSD-22		1528		
8	BRSD-24		1541		
9	BRSD-1	10/2/12	1620	S	X
10					

LABORATORY USE ONLY 1210099

Custody Record MUST be Signed

	Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
1	Alan Droesbeke	10/3/12 @ 1613				
2						
Laboratory				Tracy Conrad	10/3/12 16:13	

Sample Disposal: Return to Client: _____ Lab Disposal: _____

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.
This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

Section 35 Quarterly													
	Quantity	Analysis											
Surface Water	7	[1]Disolved Metals	[2]Total Rec. Metals	[5]Cations	Chloride	Sulfate	Alkalinity	Hardness	Acidity	TDS	TSS	pH	EC
Groundwater	9	[3]Disolved Metals		[5]Cations	Chloride	Sulfate	Alkalinity	Hardness	Acidity	TDS	TSS	pH	EC
Sediment	6		[4]Total Rec. Metals										

[1]Aluminum

[2]Arsenic, cadmium, copper, iron, lead, manganese, and zinc

[3]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[4]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[5]Calcium, magnesium, potassium, sodium

UBMC Quarterly													
	Quantity	Analysis											
[6]Surface Water	11	[1]Disolved Metals	[2]Total Rec. Metals	[5]Cations	Chloride	Sulfate	Alkalinity	Hardness	Acidity	TDS	TSS	pH	EC
Groundwater	10	[3]Disolved Metals		[5]Cations	Chloride	Sulfate	Alkalinity	Hardness	Acidity	TDS	TSS	pH	EC
Sediment	9		[4]Total Rec. Metals										

[1]Aluminum

[2]Arsenic, cadmium, copper, iron, lead, manganese, and zinc

[3]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[4]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[5]Calcium, magnesium, potassium, sodium

[6]Additional surface water samples may be collected for seeps.

ANALYTICAL SUMMARY REPORT

October 24, 2012

MT DEQ-Site Response
PO Box 200901
Helena, MT 59620-0901

Workorder No.: H12100143 Quote ID: H645 - UBMC

Project Name: UBMC Groundwater

Energy Laboratories Inc Helena MT received the following 9 samples for MT DEQ-Site Response on 10/8/2012 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H12100143-001	TDMW-7	10/04/12 10:14	10/08/12	Aqueous	Metals by ICP/ICPMS, Dissolved Alkalinity Conductivity Hardness as CaCO3 Anions by Ion Chromatography pH Preparation for TSS Solids, Total Dissolved Solids, Total Suspended
H12100143-002	TDMW-8	10/04/12 10:23	10/08/12	Aqueous	Same As Above
H12100143-003	TDMW-5	10/04/12 10:55	10/08/12	Aqueous	Same As Above
H12100143-004	TDMW-4D	10/04/12 13:40	10/08/12	Aqueous	Same As Above
H12100143-005	TDMW-6	10/04/12 13:55	10/08/12	Aqueous	Same As Above
H12100143-006	TDMW-3D	10/04/12 15:39	10/08/12	Aqueous	Same As Above
H12100143-007	TDMW-1	10/04/12 17:21	10/08/12	Aqueous	Same As Above
H12100143-008	TDMW-2D	10/04/12 18:01	10/08/12	Aqueous	Same As Above
H12100143-009	TDMW-2S	10/04/12 18:45	10/08/12	Aqueous	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID TDMW-7
Lab ID: H12100143-001
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 10/04/12 10:14
DateReceived: 10/08/12
Report Date: 10/24/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.3	s.u.	H	0.1		A4500-H B	10/08/12 14:17 / cmm		PHSC_101-H_121008A	45	R83496
Conductivity @ 25 C	2	umhos/cm		1		A2510 B	10/08/12 14:17 / cmm		PHSC_101-H_121008A	46	R83496
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/08/12 14:38 / cmm	10/08/12 14:26	-124 (14410200)_121008A	18	18299
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	10/08/12 14:45 / cmm		-124 (14410200)_121008B	13	TDS121008A
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	10/09/12 15:57 / cmm		MAN-TECH_121009B	36	R83569
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	10/09/12 15:57 / cmm		MAN-TECH_121009B	36	R83569
Carbonate as CO3	ND	mg/L		4		A2320 B	10/09/12 15:57 / cmm		MAN-TECH_121009B	36	R83569
Chloride	ND	mg/L		1		E300.0	10/11/12 23:32 / cmm		IC102-H_121011B	53	R83652
Sulfate	ND	mg/L		1		E300.0	10/11/12 23:32 / cmm		IC102-H_121011B	53	R83652
Hardness as CaCO3	ND	mg/L		1		A2340 B	10/16/12 12:42 / sld		WATERCALC_121016B	3	R83713
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	10/09/12 17:32 / sld		ICP2-HE_121009B	38	R83570
Arsenic	ND	mg/L		0.003		E200.8	10/12/12 06:15 / dck		ICPMS204-B_121010C	509	R83638
Cadmium	ND	mg/L		0.00008		E200.8	10/12/12 06:15 / dck		ICPMS204-B_121010C	509	R83638
Calcium	ND	mg/L		1		E200.7	10/09/12 17:32 / sld		ICP2-HE_121009B	38	R83570
Copper	ND	mg/L		0.001		E200.8	10/12/12 06:15 / dck		ICPMS204-B_121010C	509	R83638
Iron	ND	mg/L		0.05		E200.8	10/12/12 06:15 / dck		ICPMS204-B_121010C	509	R83638
Lead	ND	mg/L		0.0005		E200.8	10/12/12 06:15 / dck		ICPMS204-B_121010C	509	R83638
Magnesium	ND	mg/L		1		E200.7	10/09/12 17:32 / sld		ICP2-HE_121009B	38	R83570
Manganese	ND	mg/L		0.005		E200.8	10/12/12 06:15 / dck		ICPMS204-B_121010C	509	R83638
Potassium	ND	mg/L		1		E200.7	10/09/12 17:32 / sld		ICP2-HE_121009B	38	R83570
Sodium	ND	mg/L		1		E200.7	10/09/12 17:32 / sld		ICP2-HE_121009B	38	R83570
Zinc	ND	mg/L		0.01		E200.8	10/12/12 06:15 / dck		ICPMS204-B_121010C	509	R83638

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID TDMW-8
Lab ID: H12100143-002
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 10/04/12 10:23
DateReceived: 10/08/12
Report Date: 10/24/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.4	s.u.	H	0.1		A4500-H B	10/08/12 14:19 / cmm		PHSC_101-H_121008A	47	R83496
Conductivity @ 25 C	1	umhos/cm		1		A2510 B	10/08/12 14:19 / cmm		PHSC_101-H_121008A	48	R83496
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/08/12 14:38 / cmm	10/08/12 14:26	-124 (14410200)_121008A	19	18299
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	10/08/12 14:45 / cmm		-124 (14410200)_121008B	14	TDS121008A
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	10/09/12 16:06 / cmm		MAN-TECH_121009B	39	R83569
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	10/09/12 16:06 / cmm		MAN-TECH_121009B	39	R83569
Carbonate as CO3	ND	mg/L		4		A2320 B	10/09/12 16:06 / cmm		MAN-TECH_121009B	39	R83569
Chloride	ND	mg/L		1		E300.0	10/11/12 23:44 / cmm		IC102-H_121011B	54	R83652
Sulfate	ND	mg/L		1		E300.0	10/11/12 23:44 / cmm		IC102-H_121011B	54	R83652
Hardness as CaCO3	ND	mg/L		1		A2340 B	10/16/12 12:42 / sld		WATERCALC_121016B	4	R83713
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	10/09/12 17:35 / sld		ICP2-HE_121009B	39	R83570
Arsenic	ND	mg/L		0.003		E200.8	10/12/12 06:19 / dck		ICPMS204-B_121010C	510	R83638
Cadmium	ND	mg/L		0.00008		E200.8	10/12/12 06:19 / dck		ICPMS204-B_121010C	510	R83638
Calcium	ND	mg/L		1		E200.7	10/09/12 17:35 / sld		ICP2-HE_121009B	39	R83570
Copper	ND	mg/L		0.001		E200.8	10/12/12 06:19 / dck		ICPMS204-B_121010C	510	R83638
Iron	ND	mg/L		0.05		E200.8	10/12/12 06:19 / dck		ICPMS204-B_121010C	510	R83638
Lead	ND	mg/L		0.0005		E200.8	10/12/12 06:19 / dck		ICPMS204-B_121010C	510	R83638
Magnesium	ND	mg/L		1		E200.7	10/09/12 17:35 / sld		ICP2-HE_121009B	39	R83570
Manganese	ND	mg/L		0.005		E200.8	10/12/12 06:19 / dck		ICPMS204-B_121010C	510	R83638
Potassium	ND	mg/L		1		E200.7	10/09/12 17:35 / sld		ICP2-HE_121009B	39	R83570
Sodium	ND	mg/L		1		E200.7	10/09/12 17:35 / sld		ICP2-HE_121009B	39	R83570
Zinc	ND	mg/L		0.01		E200.8	10/12/12 06:19 / dck		ICPMS204-B_121010C	510	R83638

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID TDMW-5
Lab ID: H12100143-003
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 10/04/12 10:55 **DateReceived:** 10/08/12
Report Date: 10/24/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.7	s.u.	H	0.1		A4500-H B	10/08/12 14:23 / cmm		PHSC_101-H_121008A	49	R83496
Conductivity @ 25 C	307	umhos/cm		1		A2510 B	10/08/12 14:23 / cmm		PHSC_101-H_121008A	50	R83496
Solids, Total Suspended TSS @ 105 C	18	mg/L		10		A2540 D	10/08/12 14:38 / cmm	10/08/12 14:26	-124 (14410200)_121008A	20	18299
Solids, Total Dissolved TDS @ 180 C	168	mg/L		10		A2540 C	10/08/12 14:46 / cmm		-124 (14410200)_121008B	15	TDS121008A
INORGANICS											
Alkalinity, Total as CaCO3	130	mg/L		4		A2320 B	10/09/12 16:20 / cmm		MAN-TECH_121009B	42	R83569
Bicarbonate as HCO3	150	mg/L		4		A2320 B	10/09/12 16:20 / cmm		MAN-TECH_121009B	42	R83569
Carbonate as CO3	ND	mg/L		4		A2320 B	10/09/12 16:20 / cmm		MAN-TECH_121009B	42	R83569
Chloride	ND	mg/L		1		E300.0	10/11/12 23:57 / cmm		IC102-H_121011B	55	R83652
Sulfate	44	mg/L		1		E300.0	10/11/12 23:57 / cmm		IC102-H_121011B	55	R83652
Hardness as CaCO3	154	mg/L		1		A2340 B	10/09/12 17:39 / abb		CALC_121013A	159	R83661
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	10/09/12 17:39 / sld		ICP2-HE_121009B	40	R83570
Arsenic	ND	mg/L		0.003		E200.8	10/12/12 06:24 / dck		ICPMS204-B_121010C	511	R83638
Cadmium	0.00014	mg/L		0.00008		E200.8	10/12/12 06:24 / dck		ICPMS204-B_121010C	511	R83638
Calcium	35	mg/L		1		E200.7	10/09/12 17:39 / sld		ICP2-HE_121009B	40	R83570
Copper	ND	mg/L		0.001		E200.8	10/12/12 06:24 / dck		ICPMS204-B_121010C	511	R83638
Iron	ND	mg/L		0.05		E200.8	10/12/12 06:24 / dck		ICPMS204-B_121010C	511	R83638
Lead	ND	mg/L		0.0005		E200.8	10/12/12 06:24 / dck		ICPMS204-B_121010C	511	R83638
Magnesium	16	mg/L		1		E200.7	10/09/12 17:39 / sld		ICP2-HE_121009B	40	R83570
Manganese	ND	mg/L		0.005		E200.8	10/12/12 06:24 / dck		ICPMS204-B_121010C	511	R83638
Potassium	ND	mg/L		1		E200.7	10/09/12 17:39 / sld		ICP2-HE_121009B	40	R83570
Sodium	2	mg/L		1		E200.7	10/09/12 17:39 / sld		ICP2-HE_121009B	40	R83570
Zinc	0.02	mg/L		0.01		E200.8	10/12/12 06:24 / dck		ICPMS204-B_121010C	511	R83638

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID TDMW-4D
Lab ID: H12100143-004
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 10/04/12 13:40
DateReceived: 10/08/12
Report Date: 10/24/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.6	s.u.	H	0.1		A4500-H B	10/08/12 14:36 / cmm		PHSC_101-H_121008A	56	R83496
Conductivity @ 25 C	333	umhos/cm		1		A2510 B	10/08/12 14:36 / cmm		PHSC_101-H_121008A	57	R83496
Solids, Total Suspended TSS @ 105 C	169	mg/L		10		A2540 D	10/08/12 14:39 / cmm	10/08/12 14:26	-124 (14410200)_121008A	22	18299
Solids, Total Dissolved TDS @ 180 C	171	mg/L		10		A2540 C	10/08/12 14:46 / cmm		-124 (14410200)_121008B	17	TDS121008A
INORGANICS											
Alkalinity, Total as CaCO3	150	mg/L		4		A2320 B	10/09/12 16:28 / cmm		MAN-TECH_121009B	43	R83569
Bicarbonate as HCO3	180	mg/L		4		A2320 B	10/09/12 16:28 / cmm		MAN-TECH_121009B	43	R83569
Carbonate as CO3	ND	mg/L		4		A2320 B	10/09/12 16:28 / cmm		MAN-TECH_121009B	43	R83569
Chloride	ND	mg/L		1		E300.0	10/12/12 00:09 / cmm		IC102-H_121011B	56	R83652
Sulfate	27	mg/L		1		E300.0	10/12/12 00:09 / cmm		IC102-H_121011B	56	R83652
Hardness as CaCO3	141	mg/L		1		A2340 B	10/09/12 18:01 / abb		CALC_121013A	171	R83661
METALS, DISSOLVED											
Aluminum	0.03	mg/L		0.03		E200.7	10/09/12 18:01 / sld		ICP2-HE_121009B	46	R83570
Arsenic	ND	mg/L		0.003		E200.8	10/12/12 06:29 / dck		ICPMS204-B_121010C	512	R83638
Cadmium	0.00013	mg/L		0.00008		E200.8	10/12/12 06:29 / dck		ICPMS204-B_121010C	512	R83638
Calcium	25	mg/L		1		E200.7	10/09/12 18:01 / sld		ICP2-HE_121009B	46	R83570
Copper	ND	mg/L		0.001		E200.8	10/12/12 06:29 / dck		ICPMS204-B_121010C	512	R83638
Iron	ND	mg/L		0.05		E200.8	10/12/12 06:29 / dck		ICPMS204-B_121010C	512	R83638
Lead	ND	mg/L		0.0005		E200.8	10/12/12 06:29 / dck		ICPMS204-B_121010C	512	R83638
Magnesium	19	mg/L		1		E200.7	10/09/12 18:01 / sld		ICP2-HE_121009B	46	R83570
Manganese	0.045	mg/L		0.005		E200.8	10/12/12 06:29 / dck		ICPMS204-B_121010C	512	R83638
Potassium	ND	mg/L		1		E200.7	10/09/12 18:01 / sld		ICP2-HE_121009B	46	R83570
Sodium	15	mg/L		1		E200.7	10/09/12 18:01 / sld		ICP2-HE_121009B	46	R83570
Zinc	ND	mg/L		0.01		E200.8	10/12/12 06:29 / dck		ICPMS204-B_121010C	512	R83638

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID TDMW-6
Lab ID: H12100143-005
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 10/04/12 13:55
DateReceived: 10/08/12
Report Date: 10/24/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.8	s.u.	H	0.1		A4500-H B	10/08/12 14:38 / cmm		PHSC_101-H_121008A	58	R83496
Conductivity @ 25 C	331	umhos/cm		1		A2510 B	10/08/12 14:38 / cmm		PHSC_101-H_121008A	59	R83496
Solids, Total Suspended TSS @ 105 C	154	mg/L		10		A2540 D	10/08/12 14:39 / cmm	10/08/12 14:26	-124 (14410200)_121008A	23	18299
Solids, Total Dissolved TDS @ 180 C	170	mg/L		10		A2540 C	10/08/12 14:46 / cmm		-124 (14410200)_121008B	18	TDS121008A
INORGANICS											
Alkalinity, Total as CaCO3	150	mg/L		4		A2320 B	10/09/12 16:35 / cmm		MAN-TECH_121009B	44	R83569
Bicarbonate as HCO3	180	mg/L		4		A2320 B	10/09/12 16:35 / cmm		MAN-TECH_121009B	44	R83569
Carbonate as CO3	ND	mg/L		4		A2320 B	10/09/12 16:35 / cmm		MAN-TECH_121009B	44	R83569
Chloride	ND	mg/L		1		E300.0	10/12/12 00:22 / cmm		IC102-H_121011B	57	R83652
Sulfate	27	mg/L		1		E300.0	10/12/12 00:22 / cmm		IC102-H_121011B	57	R83652
Hardness as CaCO3	142	mg/L		1		A2340 B	10/09/12 18:05 / abb		CALC_121013A	183	R83661
METALS, DISSOLVED											
Aluminum	0.04	mg/L		0.03		E200.7	10/09/12 18:05 / sld		ICP2-HE_121009B	47	R83570
Arsenic	ND	mg/L		0.003		E200.8	10/12/12 06:33 / dck		ICPMS204-B_121010C	513	R83638
Cadmium	0.00013	mg/L		0.00008		E200.8	10/12/12 06:33 / dck		ICPMS204-B_121010C	513	R83638
Calcium	26	mg/L		1		E200.7	10/09/12 18:05 / sld		ICP2-HE_121009B	47	R83570
Copper	ND	mg/L		0.001		E200.8	10/12/12 06:33 / dck		ICPMS204-B_121010C	513	R83638
Iron	ND	mg/L		0.05		E200.8	10/12/12 06:33 / dck		ICPMS204-B_121010C	513	R83638
Lead	ND	mg/L		0.0005		E200.8	10/12/12 06:33 / dck		ICPMS204-B_121010C	513	R83638
Magnesium	19	mg/L		1		E200.7	10/09/12 18:05 / sld		ICP2-HE_121009B	47	R83570
Manganese	0.045	mg/L		0.005		E200.8	10/12/12 06:33 / dck		ICPMS204-B_121010C	513	R83638
Potassium	ND	mg/L		1		E200.7	10/09/12 18:05 / sld		ICP2-HE_121009B	47	R83570
Sodium	15	mg/L		1		E200.7	10/09/12 18:05 / sld		ICP2-HE_121009B	47	R83570
Zinc	ND	mg/L		0.01		E200.8	10/12/12 06:33 / dck		ICPMS204-B_121010C	513	R83638

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID TDMW-3D
Lab ID: H12100143-006
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 10/04/12 15:39
DateReceived: 10/08/12
Report Date: 10/24/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.2	s.u.	H	0.1		A4500-H B	10/08/12 14:41 / cmm		PHSC_101-H_121008A	60	R83496
Conductivity @ 25 C	586	umhos/cm		1		A2510 B	10/08/12 14:41 / cmm		PHSC_101-H_121008A	61	R83496
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/08/12 14:40 / cmm	10/08/12 14:26	-124 (14410200)_121008A	24	18299
Solids, Total Dissolved TDS @ 180 C	403	mg/L		10		A2540 C	10/08/12 14:46 / cmm		-124 (14410200)_121008B	19	TDS121008A
INORGANICS											
Alkalinity, Total as CaCO3	61	mg/L		4		A2320 B	10/09/12 16:42 / cmm		MAN-TECH_121009B	45	R83569
Bicarbonate as HCO3	74	mg/L		4		A2320 B	10/09/12 16:42 / cmm		MAN-TECH_121009B	45	R83569
Carbonate as CO3	ND	mg/L		4		A2320 B	10/09/12 16:42 / cmm		MAN-TECH_121009B	45	R83569
Chloride	ND	mg/L		1		E300.0	10/12/12 00:35 / cmm		IC102-H_121011B	58	R83652
Sulfate	250	mg/L		1		E300.0	10/12/12 00:35 / cmm		IC102-H_121011B	58	R83652
Hardness as CaCO3	294	mg/L		1		A2340 B	10/09/12 18:09 / abb		CALC_121013A	195	R83661
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	10/09/12 18:09 / sld		ICP2-HE_121009B	48	R83570
Arsenic	ND	mg/L		0.003		E200.8	10/16/12 17:00 / dck		ICPMS204-B_121016A	74	R83744
Cadmium	0.00016	mg/L		0.00008		E200.8	10/12/12 06:56 / dck		ICPMS204-B_121010C	518	R83638
Calcium	69	mg/L		1		E200.7	10/09/12 18:09 / sld		ICP2-HE_121009B	48	R83570
Copper	ND	mg/L		0.001		E200.8	10/12/12 06:56 / dck		ICPMS204-B_121010C	518	R83638
Iron	ND	mg/L		0.05		E200.8	10/12/12 06:56 / dck		ICPMS204-B_121010C	518	R83638
Lead	ND	mg/L		0.0005		E200.8	10/12/12 06:56 / dck		ICPMS204-B_121010C	518	R83638
Magnesium	30	mg/L		1		E200.7	10/09/12 18:09 / sld		ICP2-HE_121009B	48	R83570
Manganese	ND	mg/L		0.005		E200.8	10/12/12 06:56 / dck		ICPMS204-B_121010C	518	R83638
Potassium	ND	mg/L		1		E200.7	10/09/12 18:09 / sld		ICP2-HE_121009B	48	R83570
Sodium	2	mg/L		1		E200.7	10/09/12 18:09 / sld		ICP2-HE_121009B	48	R83570
Zinc	0.03	mg/L		0.01		E200.8	10/12/12 06:56 / dck		ICPMS204-B_121010C	518	R83638

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID TDMW-1
Lab ID: H12100143-007
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 10/04/12 17:21
DateReceived: 10/08/12
Report Date: 10/24/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.5	s.u.	H	0.1		A4500-H B	10/08/12 14:43 / cmm		PHSC_101-H_121008A	62	R83496
Conductivity @ 25 C	550	umhos/cm		1		A2510 B	10/08/12 14:43 / cmm		PHSC_101-H_121008A	63	R83496
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/08/12 14:41 / cmm	10/08/12 14:27	-124 (14410200)_121008A	27	18300
Solids, Total Dissolved TDS @ 180 C	352	mg/L		10		A2540 C	10/08/12 14:47 / cmm		-124 (14410200)_121008B	20	TDS121008A
INORGANICS											
Alkalinity, Total as CaCO3	70	mg/L		4		A2320 B	10/09/12 16:48 / cmm		MAN-TECH_121009B	46	R83569
Bicarbonate as HCO3	86	mg/L		4		A2320 B	10/09/12 16:48 / cmm		MAN-TECH_121009B	46	R83569
Carbonate as CO3	ND	mg/L		4		A2320 B	10/09/12 16:48 / cmm		MAN-TECH_121009B	46	R83569
Chloride	ND	mg/L		1		E300.0	10/15/12 13:45 / cmm		IC102-H_121015A	20	R83701
Sulfate	220	mg/L		1		E300.0	10/15/12 13:45 / cmm		IC102-H_121015A	20	R83701
Hardness as CaCO3	276	mg/L		1		A2340 B	10/17/12 13:11 / sld		WATERCALC_121017A	12	R83752
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	10/09/12 18:13 / sld		ICP2-HE_121009B	49	R83570
Arsenic	ND	mg/L		0.003		E200.8	10/16/12 17:35 / dck		ICPMS204-B_121016A	82	R83744
Cadmium	0.00313	mg/L		0.00008		E200.8	10/12/12 07:14 / dck		ICPMS204-B_121010C	522	R83638
Calcium	53	mg/L		1		E200.7	10/09/12 18:13 / sld		ICP2-HE_121009B	49	R83570
Copper	0.001	mg/L		0.001		E200.8	10/12/12 07:14 / dck		ICPMS204-B_121010C	522	R83638
Iron	ND	mg/L		0.05		E200.8	10/12/12 07:14 / dck		ICPMS204-B_121010C	522	R83638
Lead	ND	mg/L		0.0005		E200.8	10/12/12 07:14 / dck		ICPMS204-B_121010C	522	R83638
Magnesium	35	mg/L		1		E200.7	10/09/12 18:13 / sld		ICP2-HE_121009B	49	R83570
Manganese	ND	mg/L		0.005		E200.8	10/12/12 07:14 / dck		ICPMS204-B_121010C	522	R83638
Potassium	1	mg/L		1		E200.7	10/09/12 18:13 / sld		ICP2-HE_121009B	49	R83570
Sodium	2	mg/L		1		E200.7	10/09/12 18:13 / sld		ICP2-HE_121009B	49	R83570
Zinc	1.31	mg/L		0.01		E200.7	10/09/12 18:13 / sld		ICP2-HE_121009B	49	R83570

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID TDMW-2D
Lab ID: H12100143-008
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 10/04/12 18:01
DateReceived: 10/08/12
Report Date: 10/24/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.0	s.u.	H	0.1		A4500-H B	10/08/12 14:45 / cmm		PHSC_101-H_121008A	64	R83496
Conductivity @ 25 C	255	umhos/cm		1		A2510 B	10/08/12 14:45 / cmm		PHSC_101-H_121008A	65	R83496
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/08/12 14:41 / cmm	10/08/12 14:27	-124 (14410200)_121008A	29	18300
Solids, Total Dissolved TDS @ 180 C	130	mg/L		10		A2540 C	10/08/12 14:47 / cmm		-124 (14410200)_121008B	21	TDS121008A
INORGANICS											
Alkalinity, Total as CaCO3	85	mg/L		4		A2320 B	10/09/12 16:55 / cmm		MAN-TECH_121009B	47	R83569
Bicarbonate as HCO3	100	mg/L		4		A2320 B	10/09/12 16:55 / cmm		MAN-TECH_121009B	47	R83569
Carbonate as CO3	ND	mg/L		4		A2320 B	10/09/12 16:55 / cmm		MAN-TECH_121009B	47	R83569
Chloride	ND	mg/L		1		E300.0	10/15/12 13:58 / cmm		IC102-H_121015A	21	R83701
Sulfate	39	mg/L		1		E300.0	10/15/12 13:58 / cmm		IC102-H_121015A	21	R83701
Hardness as CaCO3	125	mg/L		1		A2340 B	10/17/12 13:11 / sld		WATERCALC_121017A	13	R83752
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	10/09/12 18:17 / sld		ICP2-HE_121009B	50	R83570
Arsenic	ND	mg/L		0.003		E200.8	10/16/12 17:40 / dck		ICPMS204-B_121016A	83	R83744
Cadmium	ND	mg/L		0.00008		E200.8	10/12/12 07:19 / dck		ICPMS204-B_121010C	523	R83638
Calcium	26	mg/L		1		E200.7	10/09/12 18:17 / sld		ICP2-HE_121009B	50	R83570
Copper	0.001	mg/L		0.001		E200.8	10/12/12 07:19 / dck		ICPMS204-B_121010C	523	R83638
Iron	ND	mg/L		0.05		E200.8	10/12/12 07:19 / dck		ICPMS204-B_121010C	523	R83638
Lead	ND	mg/L		0.0005		E200.8	10/12/12 07:19 / dck		ICPMS204-B_121010C	523	R83638
Magnesium	15	mg/L		1		E200.7	10/09/12 18:17 / sld		ICP2-HE_121009B	50	R83570
Manganese	ND	mg/L		0.005		E200.8	10/12/12 07:19 / dck		ICPMS204-B_121010C	523	R83638
Potassium	ND	mg/L		1		E200.7	10/09/12 18:17 / sld		ICP2-HE_121009B	50	R83570
Sodium	1	mg/L		1		E200.7	10/09/12 18:17 / sld		ICP2-HE_121009B	50	R83570
Zinc	ND	mg/L		0.01		E200.8	10/12/12 07:19 / dck		ICPMS204-B_121010C	523	R83638

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID TDMW-2S
Lab ID: H12100143-009
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 10/04/12 18:45
DateReceived: 10/08/12
Report Date: 10/24/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.2	s.u.	H	0.1		A4500-H B	10/08/12 14:48 / cmm		PHSC_101-H_121008A	66	R83496
Conductivity @ 25 C	1400	umhos/cm		1		A2510 B	10/08/12 14:48 / cmm		PHSC_101-H_121008A	67	R83496
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/08/12 14:41 / cmm	10/08/12 14:27	-124 (14410200)_121008A	30	18300
Solids, Total Dissolved TDS @ 180 C	1120	mg/L		10		A2540 C	10/08/12 14:47 / cmm		-124 (14410200)_121008B	22	TDS121008A
INORGANICS											
Alkalinity, Total as CaCO3	120	mg/L		4		A2320 B	10/09/12 17:02 / cmm		MAN-TECH_121009B	48	R83569
Bicarbonate as HCO3	150	mg/L		4		A2320 B	10/09/12 17:02 / cmm		MAN-TECH_121009B	48	R83569
Carbonate as CO3	ND	mg/L		4		A2320 B	10/09/12 17:02 / cmm		MAN-TECH_121009B	48	R83569
Chloride	ND	mg/L		1		E300.0	10/15/12 14:10 / cmm		IC102-H_121015A	22	R83701
Sulfate	790	mg/L		1		E300.0	10/15/12 14:10 / cmm		IC102-H_121015A	22	R83701
Hardness as CaCO3	752	mg/L		1		A2340 B	10/17/12 13:11 / sld		WATERCALC_121017A	14	R83752
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	10/09/12 18:20 / sld		ICP2-HE_121009B	51	R83570
Arsenic	ND	mg/L		0.003		E200.8	10/16/12 17:44 / dck		ICPMS204-B_121016A	84	R83744
Cadmium	0.0234	mg/L		0.00008		E200.8	10/12/12 07:23 / dck		ICPMS204-B_121010C	524	R83638
Calcium	133	mg/L		1		E200.7	10/09/12 18:20 / sld		ICP2-HE_121009B	51	R83570
Copper	0.002	mg/L		0.001		E200.8	10/12/12 07:23 / dck		ICPMS204-B_121010C	524	R83638
Iron	0.05	mg/L		0.05		E200.8	10/12/12 07:23 / dck		ICPMS204-B_121010C	524	R83638
Lead	ND	mg/L		0.0005		E200.8	10/12/12 07:23 / dck		ICPMS204-B_121010C	524	R83638
Magnesium	102	mg/L		1		E200.7	10/09/12 18:20 / sld		ICP2-HE_121009B	51	R83570
Manganese	42.9	mg/L		0.005		E200.7	10/09/12 18:20 / sld		ICP2-HE_121009B	51	R83570
Potassium	3	mg/L		1		E200.7	10/09/12 18:20 / sld		ICP2-HE_121009B	51	R83570
Sodium	2	mg/L		1		E200.7	10/09/12 18:20 / sld		ICP2-HE_121009B	51	R83570
Zinc	10.6	mg/L		0.01		E200.7	10/09/12 18:20 / sld		ICP2-HE_121009B	51	R83570

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

Client: MT DEQ-Site Response
Work Order: H12100143
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *24-Oct-12*

BatchID: 18299

Run ID :Run Order: **ACCU-124 (14410200)_121008A: 1** SampType: **Method Blank** Sample ID: **MB-18299** Method: **A2540 D**
Analysis Date: **10/08/12 14:34** Units: **mg/L** **Prep Info:** Prep Date: **10/8/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	2									

Associated samples: **H12100143-001A; H12100143-002A; H12100143-003A; H12100143-004A; H12100143-005A; H12100143-006A**

Run ID :Run Order: **ACCU-124 (14410200)_121008A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS-18299** Method: **A2540 D**
Analysis Date: **10/08/12 14:34** Units: **mg/L** **Prep Info:** Prep Date: **10/8/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	1830	10	2000		91	70	130				

Associated samples: **H12100143-001A; H12100143-002A; H12100143-003A; H12100143-004A; H12100143-005A; H12100143-006A**

Run ID :Run Order: **ACCU-124 (14410200)_121008A: 10** SampType: **Sample Duplicate** Sample ID: **H12100142-001ADUP** Method: **A2540 D**
Analysis Date: **10/08/12 14:36** Units: **mg/L** **Prep Info:** Prep Date: **10/8/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	10								5	

Associated samples: **H12100143-001A; H12100143-002A; H12100143-003A; H12100143-004A; H12100143-005A; H12100143-006A**

Run ID :Run Order: **ACCU-124 (14410200)_121008A: 21** SampType: **Sample Duplicate** Sample ID: **H12100143-003ADUP** Method: **A2540 D**
Analysis Date: **10/08/12 14:39** Units: **mg/L** **Prep Info:** Prep Date: **10/8/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	19.0	10						18	5.4	5	R

Associated samples: **H12100143-001A; H12100143-002A; H12100143-003A; H12100143-004A; H12100143-005A; H12100143-006A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100143
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *24-Oct-12*

BatchID: 18300

Run ID :Run Order: **ACCU-124 (14410200)_121008A: 25** SampType: **Method Blank** Sample ID: **MB-18300** Method: **A2540 D**
Analysis Date: **10/08/12 14:40** Units: **mg/L** **Prep Info:** Prep Date: **10/8/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	2									

Associated samples: **H12100143-007A; H12100143-008A; H12100143-009A**

Run ID :Run Order: **ACCU-124 (14410200)_121008A: 26** SampType: **Laboratory Control Sample** Sample ID: **LCS-18300** Method: **A2540 D**
Analysis Date: **10/08/12 14:40** Units: **mg/L** **Prep Info:** Prep Date: **10/8/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	1780	10	2000		89	70	130				

Associated samples: **H12100143-007A; H12100143-008A; H12100143-009A**

Run ID :Run Order: **ACCU-124 (14410200)_121008A: 28** SampType: **Sample Duplicate** Sample ID: **H12100143-007ADUP** Method: **A2540 D**
Analysis Date: **10/08/12 14:41** Units: **mg/L** **Prep Info:** Prep Date: **10/8/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	10								5	

Associated samples: **H12100143-007A; H12100143-008A; H12100143-009A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100143
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *24-Oct-12*

BatchID: R83496

Run ID :Run Order: **PHSC_101-H_121008A: 2** SampType: **Initial Calibration Verification Standard** Sample ID: **SC 150** Method: **A2510 B**
Analysis Date: **10/08/12 09:37** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	143	1.0	150		95	90	110				

Associated samples: **H12100143-001A; H12100143-002A; H12100143-003A; H12100143-004A; H12100143-005A; H12100143-006A; H12100143-007A; H12100143-008A; H12100143-009A**

Run ID :Run Order: **PHSC_101-H_121008A: 3** SampType: **Initial Calibration Verification Standard** Sample ID: **SC 5000** Method: **A2510 B**
Analysis Date: **10/08/12 09:40** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	5020	1.0	5000		100	90	110				

Associated samples: **H12100143-001A; H12100143-002A; H12100143-003A; H12100143-004A; H12100143-005A; H12100143-006A; H12100143-007A; H12100143-008A; H12100143-009A**

Run ID :Run Order: **PHSC_101-H_121008A: 4** SampType: **Initial Calibration Verification Standard** Sample ID: **SC 20000** Method: **A2510 B**
Analysis Date: **10/08/12 09:42** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	20000	1.0	20000		100	90	110				

Associated samples: **H12100143-001A; H12100143-002A; H12100143-003A; H12100143-004A; H12100143-005A; H12100143-006A; H12100143-007A; H12100143-008A; H12100143-009A**

Run ID :Run Order: **PHSC_101-H_121008A: 5** SampType: **Initial Calibration Verification Standard** Sample ID: **SC 2ND 1000** Method: **A2510 B**
Analysis Date: **10/08/12 09:44** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	1010	1.0	1000		101	90	110				

Associated samples: **H12100143-001A; H12100143-002A; H12100143-003A; H12100143-004A; H12100143-005A; H12100143-006A; H12100143-007A; H12100143-008A; H12100143-009A**

Run ID :Run Order: **PHSC_101-H_121008A: 52** SampType: **Sample Duplicate** Sample ID: **H12100143-003ADUP** Method: **A2510 B**
Analysis Date: **10/08/12 14:25** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	306	1.0						307	0.3	10	

Associated samples: **H12100143-001A; H12100143-002A; H12100143-003A; H12100143-004A; H12100143-005A; H12100143-006A; H12100143-007A; H12100143-008A; H12100143-009A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100143
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R83496

Date: *24-Oct-12*

Run ID :Run Order: **PHSC_101-H_121008A: 54** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV - SC 1413** Method: **A2510 B**

Analysis Date: **10/08/12 14:30** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	1400	1.0	1413		99	90	110				

Associated samples: **H12100143-004A; H12100143-005A; H12100143-006A; H12100143-007A; H12100143-008A; H12100143-009A**

Run ID :Run Order: **PHSC_101-H_121008A: 69** SampType: **Sample Duplicate** Sample ID: **H12100143-009ADUP** Method: **A2510 B**

Analysis Date: **10/08/12 14:50** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	1410	1.0						1402	0.3	10	

Associated samples: **H12100143-001A; H12100143-002A; H12100143-003A; H12100143-004A; H12100143-005A; H12100143-006A; H12100143-007A; H12100143-008A; H12100143-009A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100143
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *24-Oct-12*

BatchID: R83496

Run ID :Run Order: **PHSC_101-H_121008A: 1** SampType: **Initial Calibration Verification Standard** Sample ID: **pH 7** Method: **A4500-H B**
Analysis Date: **10/08/12 09:34** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.0	0.1	7		100	98	102				

Associated samples: **H12100143-001A; H12100143-002A; H12100143-003A; H12100143-004A; H12100143-005A; H12100143-006A; H12100143-007A; H12100143-008A; H12100143-009A**

Run ID :Run Order: **PHSC_101-H_121008A: 51** SampType: **Sample Duplicate** Sample ID: **H12100143-003ADUP** Method: **A4500-H B**
Analysis Date: **10/08/12 14:25** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.7	0.1						7.68	0.3	3	

Associated samples: **H12100143-001A; H12100143-002A; H12100143-003A; H12100143-004A; H12100143-005A; H12100143-006A; H12100143-007A; H12100143-008A; H12100143-009A**

Run ID :Run Order: **PHSC_101-H_121008A: 53** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV - pH 7** Method: **A4500-H B**
Analysis Date: **10/08/12 14:28** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.0	0.1	7		101	98	102				

Associated samples: **H12100143-004A; H12100143-005A; H12100143-006A; H12100143-007A; H12100143-008A; H12100143-009A**

Run ID :Run Order: **PHSC_101-H_121008A: 68** SampType: **Sample Duplicate** Sample ID: **H12100143-009ADUP** Method: **A4500-H B**
Analysis Date: **10/08/12 14:50** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	6.2	0.1						6.2	0.0	3	

Associated samples: **H12100143-001A; H12100143-002A; H12100143-003A; H12100143-004A; H12100143-005A; H12100143-006A; H12100143-007A; H12100143-008A; H12100143-009A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100143
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *24-Oct-12*

BatchID: R83569

Run ID :Run Order: **MAN-TECH_121009B: 8** SampType: **Method Blank** Sample ID: **MBLK** Method: **A2320 B**
Analysis Date: **10/09/12 14:25** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	1	1									

Associated samples: **H12100143-001A; H12100143-002A; H12100143-003A; H12100143-004A; H12100143-005A; H12100143-006A; H12100143-007A; H12100143-008A; H12100143-009A**

Run ID :Run Order: **MAN-TECH_121009B: 10** SampType: **Laboratory Control Sample** Sample ID: **LCS-10032012** Method: **A2320 B**
Analysis Date: **10/09/12 14:33** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	630	4.0	600	1.49	106	90	110				

Associated samples: **H12100143-001A; H12100143-002A; H12100143-003A; H12100143-004A; H12100143-005A; H12100143-006A; H12100143-007A; H12100143-008A; H12100143-009A**

Run ID :Run Order: **MAN-TECH_121009B: 32** SampType: **Sample Duplicate** Sample ID: **H12100142-007ADUP** Method: **A2320 B**
Analysis Date: **10/09/12 15:46** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	200	4.0						195.2	0.4	10	
Bicarbonate as HCO3	240	4.0						238.1	0.4	10	
Carbonate as CO3	ND	4.0								10	

Associated samples: **H12100143-001A; H12100143-002A; H12100143-003A; H12100143-004A; H12100143-005A; H12100143-006A; H12100143-007A; H12100143-008A; H12100143-009A**

Run ID :Run Order: **MAN-TECH_121009B: 37** SampType: **Sample Duplicate** Sample ID: **H12100143-001ADUP** Method: **A2320 B**
Analysis Date: **10/09/12 16:01** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	ND	4.0								10	
Bicarbonate as HCO3	ND	4.0								10	
Carbonate as CO3	ND	4.0								10	

Associated samples: **H12100143-001A; H12100143-002A; H12100143-003A; H12100143-004A; H12100143-005A; H12100143-006A; H12100143-007A; H12100143-008A; H12100143-009A**

Run ID :Run Order: **MAN-TECH_121009B: 40** SampType: **Sample Matrix Spike** Sample ID: **H12100143-002AMS** Method: **A2320 B**
Analysis Date: **10/09/12 16:13** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	580	4.0	600	1.21	97	80	120				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100143
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R83569

Date: *24-Oct-12*

Run ID :Run Order: **MAN-TECH_121009B: 40** SampType: **Sample Matrix Spike** Sample ID: **H12100143-002AMS** Method: **A2320 B**

Analysis Date: **10/09/12 16:13** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12100143-001A; H12100143-002A; H12100143-003A; H12100143-004A; H12100143-005A; H12100143-006A; H12100143-007A; H12100143-008A; H12100143-009A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100143
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *24-Oct-12*

BatchID: R83570

Run ID :Run Order: **ICP2-HE_121009B: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**

Analysis Date: **10/09/12 15:31** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	3.95	0.10	4		99	95	105				
Calcium	39.3	1.0	40		98	95	105				
Magnesium	39.6	1.0	40		99	95	105				
Manganese	4.01	0.010	4		100	95	105				
Potassium	38.8	1.0	40		97	95	105				
Sodium	39.8	1.0	40		99	95	105				
Zinc	0.807	0.010	0.8		101	95	105				

Associated samples: **H12100143-001B; H12100143-002B; H12100143-003B; H12100143-004B; H12100143-005B; H12100143-006B; H12100143-007B; H12100143-008B; H12100143-009B**

Run ID :Run Order: **ICP2-HE_121009B: 7** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV-1** Method: **E200.7**

Analysis Date: **10/09/12 15:35** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	2.50	0.10	2.5		100	95	105				
Calcium	25.0	1.0	25		100	95	105				
Magnesium	24.9	1.0	25		100	95	105				
Manganese	2.49	0.010	2.5		100	95	105				
Potassium	24.6	1.0	25		98	95	105				
Sodium	24.6	1.0	25		99	95	105				
Zinc	2.61	0.010	2.5		104	95	105				

Associated samples: **H12100143-001B; H12100143-002B; H12100143-003B; H12100143-004B; H12100143-005B; H12100143-006B; H12100143-007B; H12100143-008B; H12100143-009B**

Run ID :Run Order: **ICP2-HE_121009B: 10** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.7**

Analysis Date: **10/09/12 15:46** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	518	0.10	500		104	80	120				
Calcium	481	1.0	500		96	80	120				
Magnesium	519	1.0	500		104	80	120				
Manganese	-0.00329	0.010				0	0				
Potassium	0.00443	1.0				0	0				
Sodium	0.0237	1.0				0	0				
Zinc	0.00838	0.010				0	0				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100143
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *24-Oct-12*

BatchID: R83570

Run ID :Run Order: **ICP2-HE_121009B: 10** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.7**
Analysis Date: **10/09/12 15:46** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12100143-001B; H12100143-002B; H12100143-003B; H12100143-004B; H12100143-005B; H12100143-006B; H12100143-007B; H12100143-008B; H12100143-009B**

Run ID :Run Order: **ICP2-HE_121009B: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**
Analysis Date: **10/09/12 15:50** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	524	0.10	500		105	80	120				
Calcium	476	1.0	500		95	80	120				
Magnesium	514	1.0	500		103	80	120				
Manganese	0.480	0.010	0.5		96	80	120				
Potassium	21.0	1.0	20		105	80	120				
Sodium	21.3	1.0	20		106	80	120				
Zinc	1.01	0.010	1		101	80	120				

Associated samples: **H12100143-001B; H12100143-002B; H12100143-003B; H12100143-004B; H12100143-005B; H12100143-006B; H12100143-007B; H12100143-008B; H12100143-009B**

Run ID :Run Order: **ICP2-HE_121009B: 13** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.7**
Analysis Date: **10/09/12 15:58** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	ND	0.002									
Calcium	0.06	0.02									
Magnesium	ND	0.007									
Manganese	ND	0.0005									
Potassium	ND	0.02									
Sodium	ND	0.02									
Zinc	0.004	0.0010									

Associated samples: **H12100143-001B; H12100143-002B; H12100143-003B; H12100143-004B; H12100143-005B; H12100143-006B; H12100143-007B; H12100143-008B; H12100143-009B**

Run ID :Run Order: **ICP2-HE_121009B: 14** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.7**
Analysis Date: **10/09/12 16:01** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	4.80	0.10	5		96	85	115				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100143
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *24-Oct-12*

BatchID: R83570

Run ID :Run Order: **ICP2-HE_121009B: 14** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.7**

Analysis Date: **10/09/12 16:01** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	47.0	1.0	50	0.0615	94	85	115				
Magnesium	47.3	1.0	50		95	85	115				
Manganese	4.83	0.010	5		97	85	115				
Potassium	47.5	1.0	50		95	85	115				
Sodium	48.8	1.0	50		98	85	115				
Zinc	0.968	0.010	1	0.00354	96	85	115				

Associated samples: **H12100143-001B; H12100143-002B; H12100143-003B; H12100143-004B; H12100143-005B; H12100143-006B; H12100143-007B; H12100143-008B; H12100143-009B**

Run ID :Run Order: **ICP2-HE_121009B: 31** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV** Method: **E200.7**

Analysis Date: **10/09/12 17:05** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	2.51	0.10	2.5		100	90	110				
Calcium	24.8	1.0	25		99	90	110				
Magnesium	25.0	1.0	25		100	90	110				
Manganese	2.52	0.010	2.5		101	90	110				
Potassium	24.3	1.0	25		97	90	110				
Sodium	24.5	1.0	25		98	90	110				
Zinc	2.51	0.010	2.5		100	90	110				

Associated samples: **H12100143-001B; H12100143-002B; H12100143-003B**

Run ID :Run Order: **ICP2-HE_121009B: 42** SampType: **Sample Matrix Spike** Sample ID: **H12100143-003BMS2** Method: **E200.7**

Analysis Date: **10/09/12 17:47** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	5.04	0.030	5	0.00865	101	70	130				
Calcium	83.0	1.0	50	35.24	95	70	130				
Magnesium	66.0	1.0	50	15.99	100	70	130				
Manganese	5.08	0.0010	5	0.00077	102	70	130				
Potassium	49.6	1.0	50	0.7264	98	70	130				
Sodium	52.6	1.0	50	2.159	101	70	130				
Zinc	1.08	0.010	1	0.01627	107	70	130				

Associated samples: **H12100143-001B; H12100143-002B; H12100143-003B; H12100143-004B; H12100143-005B; H12100143-006B; H12100143-007B; H12100143-008B; H12100143-009B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100143
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *24-Oct-12*

BatchID: R83570

Run ID :Run Order: **ICP2-HE_121009B: 43** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV** Method: **E200.7**

Analysis Date: **10/09/12 17:51** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	2.52	0.10	2.5		101	90	110				
Calcium	24.0	1.0	25		96	90	110				
Magnesium	23.8	1.0	25		95	90	110				
Manganese	2.48	0.010	2.5		99	90	110				
Potassium	25.8	1.0	25		103	90	110				
Sodium	26.1	1.0	25		104	90	110				
Zinc	2.45	0.010	2.5		98	90	110				

Associated samples: **H12100143-004B; H12100143-005B; H12100143-006B; H12100143-007B; H12100143-008B; H12100143-009B**

Run ID :Run Order: **ICP2-HE_121009B: 45** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12100143-003BMSD2** Method: **E200.7**

Analysis Date: **10/09/12 17:58** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	5.08	0.030	5	0.00865	101	70	130	5.042	0.7	20	
Calcium	81.4	1.0	50	35.24	92	70	130	82.97	1.9	20	
Magnesium	64.4	1.0	50	15.99	97	70	130	66.03	2.6	20	
Manganese	5.04	0.0010	5	0.00077	101	70	130	5.079	0.7	20	
Potassium	51.7	1.0	50	0.7264	102	70	130	49.63	4.1	20	
Sodium	55.0	1.0	50	2.159	106	70	130	52.59	4.5	20	
Zinc	1.02	0.010	1	0.01627	101	70	130	1.084	5.8	20	

Associated samples: **H12100143-001B; H12100143-002B; H12100143-003B; H12100143-004B; H12100143-005B; H12100143-006B; H12100143-007B; H12100143-008B; H12100143-009B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100143
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *24-Oct-12*

BatchID: R83638

Run ID :Run Order: **ICPMS204-B_121010C: 320** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **10/10/12 13:39** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0499	0.0050	0.05		100	90	110				
Cadmium	0.0258	0.0010	0.025		103	90	110				
Copper	0.0516	0.010	0.05		103	90	110				
Iron	0.261	0.030	0.25		104	90	110				
Lead	0.0507	0.010	0.05		101	90	110				
Manganese	0.254	0.010	0.25		102	90	110				
Zinc	0.0519	0.010	0.05		104	90	110				

Associated samples: **H12100143-001B; H12100143-002B; H12100143-003B; H12100143-004B; H12100143-005B; H12100143-006B; H12100143-007B; H12100143-008B; H12100143-009B**

Run ID :Run Order: **ICPMS204-B_121010C: 321** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **10/10/12 13:44** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.000146	0.0050									
Cadmium	0.000982	0.0010									
Copper	6.60E-05	0.010									
Iron	99.7	0.030	100		100	70	130				
Lead	0.000216	0.010									
Manganese	0.000200	0.010									
Zinc	0.00144	0.010									

Associated samples: **H12100143-001B; H12100143-002B; H12100143-003B; H12100143-004B; H12100143-005B; H12100143-006B; H12100143-007B; H12100143-008B; H12100143-009B**

Run ID :Run Order: **ICPMS204-B_121010C: 322** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **10/10/12 13:48** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0108	0.0050	0.01		108	70	130				
Cadmium	0.0106	0.0010	0.01		106	70	130				
Iron	99.4	0.030	100		99	70	130				
Lead	0.000223	0.010				0	0				
Manganese	0.0206	0.010	0.02		103	70	130				
Zinc	0.0115	0.010	0.01		115	70	130				

Associated samples: **H12100143-001B; H12100143-002B; H12100143-003B; H12100143-004B; H12100143-005B; H12100143-006B; H12100143-007B; H12100143-008B; H12100143-009B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100143
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *24-Oct-12*

BatchID: R83638

Run ID :Run Order: **ICPMS204-B_121010C: 331** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.8**

Analysis Date: **10/10/12 14:28** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	7E-05	5E-05									
Cadmium	1.0E-05	5E-06									
Copper	ND	2E-05									
Iron	0.003	0.0002									
Lead	3E-05	1E-05									
Manganese	ND	5E-05									
Zinc	0.0009	0.0004									

Associated samples: **H12100143-001B; H12100143-002B; H12100143-003B; H12100143-004B; H12100143-005B; H12100143-006B; H12100143-007B; H12100143-008B; H12100143-009B**

Run ID :Run Order: **ICPMS204-B_121010C: 332** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**

Analysis Date: **10/10/12 14:33** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0499	0.0050	0.05	0.0000714	100	85	115				
Cadmium	0.0455	0.0010	0.05	0.0000096	91	85	115				
Copper	0.0474	0.010	0.05		95	85	115				
Iron	4.85	0.030	5	0.003395	97	85	115				
Lead	0.0495	0.010	0.05	0.0000323	99	85	115				
Manganese	0.0498	0.010	0.05		100	85	115				
Zinc	0.0485	0.010	0.05	0.0008917	95	85	115				

Associated samples: **H12100143-001B; H12100143-002B; H12100143-003B; H12100143-004B; H12100143-005B; H12100143-006B; H12100143-007B; H12100143-008B; H12100143-009B**

Run ID :Run Order: **ICPMS204-B_121010C: 354** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **10/11/12 18:36** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0515	0.0050	0.05		103	90	110				
Cadmium	0.0266	0.0010	0.025		106	90	110				
Copper	0.0534	0.010	0.05		107	90	110				
Iron	0.263	0.030	0.25		105	90	110				
Lead	0.0509	0.010	0.05		102	90	110				
Manganese	0.258	0.010	0.25		103	90	110				
Zinc	0.0535	0.010	0.05		107	90	110				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100143
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *24-Oct-12*

BatchID: R83638

Run ID :Run Order: **ICPMS204-B_121010C: 354** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**
Analysis Date: **10/11/12 18:36** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12100143-001B; H12100143-002B; H12100143-003B; H12100143-004B; H12100143-005B; H12100143-006B; H12100143-007B; H12100143-008B; H12100143-009B**

Run ID :Run Order: **ICPMS204-B_121010C: 357** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**
Analysis Date: **10/11/12 18:50** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.000767	0.0050									
Cadmium	0.000921	0.0010									
Copper	0.000822	0.010									
Iron	97.8	0.030	100		98	70	130				
Lead	0.000439	0.010									
Manganese	0.00120	0.010									
Zinc	0.00220	0.010									

Associated samples: **H12100143-001B; H12100143-002B; H12100143-003B; H12100143-004B; H12100143-005B; H12100143-006B; H12100143-007B; H12100143-008B; H12100143-009B**

Run ID :Run Order: **ICPMS204-B_121010C: 358** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**
Analysis Date: **10/11/12 18:54** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0105	0.0050	0.01		105	70	130				
Cadmium	0.0106	0.0010	0.01		106	70	130				
Copper	0.0207	0.010	0.02		104	70	130				
Iron	97.8	0.030	100		98	70	130				
Lead	0.000236	0.010				0	0				
Manganese	0.0197	0.010	0.02		99	70	130				
Zinc	0.0120	0.010	0.01		120	70	130				

Associated samples: **H12100143-001B; H12100143-002B; H12100143-003B; H12100143-004B; H12100143-005B; H12100143-006B; H12100143-007B; H12100143-008B; H12100143-009B**

Run ID :Run Order: **ICPMS204-B_121010C: 499** SampType: **Sample Matrix Spike** Sample ID: **H12100142-004BMS** Method: **E200.8**
Analysis Date: **10/12/12 05:29** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0549	0.0010	0.05	0.00197	106	70	130				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100143
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *24-Oct-12*

BatchID: R83638

Run ID :Run Order: **ICPMS204-B_121010C: 499** SampType: **Sample Matrix Spike** Sample ID: **H12100142-004BMS** Method: **E200.8**

Analysis Date: **10/12/12 05:29** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.0512	0.0010	0.05	0.0000664	102	70	130				
Copper	0.0472	0.0050	0.05	0.0002474	94	70	130				
Iron	4.78	0.030	5	0.02097	95	70	130				
Lead	0.0505	0.0010	0.05	0.0001049	101	70	130				
Manganese	0.0519	0.0010	0.05	0.003378	97	70	130				
Zinc	0.0551	0.010	0.05	0.004416	101	70	130				

Associated samples: **H12100143-001B; H12100143-002B; H12100143-003B; H12100143-004B; H12100143-005B; H12100143-006B; H12100143-007B; H12100143-008B; H12100143-009B**

Run ID :Run Order: **ICPMS204-B_121010C: 500** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12100142-004BMSD** Method: **E200.8**

Analysis Date: **10/12/12 05:34** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0556	0.0010	0.05	0.00197	107	70	130	0.05488	1.2	20	
Cadmium	0.0521	0.0010	0.05	0.0000664	104	70	130	0.05116	1.7	20	
Copper	0.0471	0.0050	0.05	0.0002474	94	70	130	0.04722	0.2	20	
Iron	4.87	0.030	5	0.02097	97	70	130	4.785	1.7	20	
Lead	0.0508	0.0010	0.05	0.0001049	101	70	130	0.05051	0.6	20	
Manganese	0.0532	0.0010	0.05	0.003378	100	70	130	0.05192	2.5	20	
Zinc	0.0547	0.010	0.05	0.004416	101	70	130	0.05511	0.7	20	

Associated samples: **H12100143-001B; H12100143-002B; H12100143-003B; H12100143-004B; H12100143-005B; H12100143-006B; H12100143-007B; H12100143-008B; H12100143-009B**

Run ID :Run Order: **ICPMS204-B_121010C: 519** SampType: **Sample Matrix Spike** Sample ID: **H12100143-006BMS** Method: **E200.8**

Analysis Date: **10/12/12 07:00** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0575	0.0010	0.05	0.0001826	115	70	130				
Cadmium	0.0504	0.0010	0.05	0.0001612	100	70	130				
Copper	0.0458	0.0050	0.05	0.000065	91	70	130				
Iron	4.57	0.030	5	0.003644	91	70	130				
Lead	0.0499	0.0010	0.05	0.0000461	100	70	130				
Manganese	0.0495	0.0010	0.05	0.002081	95	70	130				
Zinc	0.0844	0.010	0.05	0.02787	113	70	130				

Associated samples: **H12100143-001B; H12100143-002B; H12100143-003B; H12100143-004B; H12100143-005B; H12100143-006B; H12100143-007B; H12100143-008B; H12100143-009B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100143
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *24-Oct-12*

BatchID: R83638

Run ID :Run Order: **ICPMS204-B_121010C: 520** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12100143-006BMSD** Method: **E200.8**

Analysis Date: **10/12/12 07:05** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0560	0.0010	0.05	0.0001826	112	70	130	0.05752	2.7	20	
Cadmium	0.0505	0.0010	0.05	0.0001612	101	70	130	0.05035	0.4	20	
Copper	0.0460	0.0050	0.05	0.000065	92	70	130	0.04577	0.6	20	
Iron	4.72	0.030	5	0.003644	94	70	130	4.569	3.2	20	
Lead	0.0493	0.0010	0.05	0.0000461	99	70	130	0.0499	1.1	20	
Manganese	0.0499	0.0010	0.05	0.002081	96	70	130	0.04954	0.7	20	
Zinc	0.0764	0.010	0.05	0.02787	97	70	130	0.08436	9.9	20	

Associated samples: **H12100143-001B; H12100143-002B; H12100143-003B; H12100143-004B; H12100143-005B; H12100143-006B; H12100143-007B; H12100143-008B; H12100143-009B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100143
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *24-Oct-12*

BatchID: R83652

Run ID :Run Order: **IC102-H_121011B: 15** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV101112-12** Method: **E300.0**
Analysis Date: **10/11/12 15:33** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	100	1.0	100		103	90	110				
Sulfate	410	1.0	400		103	90	110				

Associated samples: **H12100143-001A; H12100143-002A; H12100143-003A; H12100143-004A; H12100143-005A; H12100143-006A**

Run ID :Run Order: **IC102-H_121011B: 16** SampType: **Method Blank** Sample ID: **ICB101112-13** Method: **E300.0**
Analysis Date: **10/11/12 15:45** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.03									
Sulfate	ND	0.1									

Associated samples: **H12100143-001A; H12100143-002A; H12100143-003A; H12100143-004A; H12100143-005A; H12100143-006A**

Run ID :Run Order: **IC102-H_121011B: 17** SampType: **Laboratory Fortified Blank** Sample ID: **LFB101112-14** Method: **E300.0**
Analysis Date: **10/11/12 15:58** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	47	1.0	50		95	90	110				
Sulfate	200	1.0	200		100	90	110				

Associated samples: **H12100143-001A; H12100143-002A; H12100143-003A; H12100143-004A; H12100143-005A; H12100143-006A**

Run ID :Run Order: **IC102-H_121011B: 48** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV101112-44** Method: **E300.0**
Analysis Date: **10/11/12 22:29** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	110	1.0	100		107	90	110				
Sulfate	420	1.0	400		104	90	110				

Associated samples: **H12100143-001A; H12100143-002A; H12100143-003A; H12100143-004A; H12100143-005A; H12100143-006A**

Run ID :Run Order: **IC102-H_121011B: 59** SampType: **Sample Matrix Spike** Sample ID: **H12100143-006AMS** Method: **E300.0**
Analysis Date: **10/12/12 00:47** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	51	1.0	50	0.267	102	90	110				
Sulfate	470	1.0	200	250.1	111	90	110				S

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100143
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *24-Oct-12*

BatchID: R83652

Run ID :Run Order: **IC102-H_121011B: 59** SampType: **Sample Matrix Spike** Sample ID: **H12100143-006AMS** Method: **E300.0**

Analysis Date: **10/12/12 00:47** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12100143-001A; H12100143-002A; H12100143-003A; H12100143-004A; H12100143-005A; H12100143-006A**

Run ID :Run Order: **IC102-H_121011B: 60** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12100143-006AMSD** Method: **E300.0**

Analysis Date: **10/12/12 01:00** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	51	1.0	50	0.267	101	90	110	51.12	0.9	20	
Sulfate	470	1.0	200	250.1	111	90	110	472.3	0.1	20	S

Associated samples: **H12100143-001A; H12100143-002A; H12100143-003A; H12100143-004A; H12100143-005A; H12100143-006A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100143
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *24-Oct-12*

BatchID: R83701

Run ID :Run Order: **IC102-H_121015A: 14** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV101512-12** Method: **E300.0**
Analysis Date: **10/15/12 12:29** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	100	1.0	100		105	90	110				
Sulfate	420	1.0	400		106	90	110				

Associated samples: **H12100143-007A; H12100143-008A; H12100143-009A**

Run ID :Run Order: **IC102-H_121015A: 15** SampType: **Method Blank** Sample ID: **ICB101512-13** Method: **E300.0**
Analysis Date: **10/15/12 12:42** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.03									
Sulfate	ND	0.1									

Associated samples: **H12100143-007A; H12100143-008A; H12100143-009A**

Run ID :Run Order: **IC102-H_121015A: 16** SampType: **Laboratory Fortified Blank** Sample ID: **LFB101512-14** Method: **E300.0**
Analysis Date: **10/15/12 12:55** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	48	1.0	50		96	90	110				
Sulfate	200	1.0	200		100	90	110				

Associated samples: **H12100143-007A; H12100143-008A; H12100143-009A**

Run ID :Run Order: **IC102-H_121015A: 18** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV101512-15** Method: **E300.0**
Analysis Date: **10/15/12 13:20** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	100	1.0	100		105	90	110				
Sulfate	420	1.0	400		106	90	110				

Associated samples: **H12100143-007A; H12100143-008A; H12100143-009A**

Run ID :Run Order: **IC102-H_121015A: 31** SampType: **Sample Matrix Spike** Sample ID: **H12100201-010AMS** Method: **E300.0**
Analysis Date: **10/15/12 16:04** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	50	1.0	50	0.675	98	90	110				
Sulfate	210	1.0	200	1.022	102	90	110				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100143
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *24-Oct-12*

BatchID: R83701

Run ID :Run Order: **IC102-H_121015A: 31** SampType: **Sample Matrix Spike** Sample ID: **H12100201-010AMS** Method: **E300.0**

Analysis Date: **10/15/12 16:04** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12100143-007A; H12100143-008A; H12100143-009A**

Run ID :Run Order: **IC102-H_121015A: 32** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12100201-010AMSD** Method: **E300.0**

Analysis Date: **10/15/12 16:16** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	50	1.0	50	0.675	98	90	110	49.68	0.5	20	
Sulfate	210	1.0	200	1.022	103	90	110	205.6	0.5	20	

Associated samples: **H12100143-007A; H12100143-008A; H12100143-009A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100143
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *24-Oct-12*

BatchID: R83744

Run ID :Run Order: **ICPMS204-B_121016A: 9** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**
Analysis Date: **10/16/12 12:14** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.00108	0.0050									

Associated samples: **H12100143-006B; H12100143-007B; H12100143-008B; H12100143-009B**

Run ID :Run Order: **ICPMS204-B_121016A: 10** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**
Analysis Date: **10/16/12 12:18** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0103	0.0050	0.01		103	70	130				

Associated samples: **H12100143-006B; H12100143-007B; H12100143-008B; H12100143-009B**

Run ID :Run Order: **ICPMS204-B_121016A: 16** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**
Analysis Date: **10/16/12 12:45** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0504	0.0050	0.05		101	90	110				

Associated samples: **H12100143-006B; H12100143-007B; H12100143-008B; H12100143-009B**

Run ID :Run Order: **ICPMS204-B_121016A: 19** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.8**
Analysis Date: **10/16/12 12:58** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	5E-05									

Associated samples: **H12100143-006B; H12100143-007B; H12100143-008B; H12100143-009B**

Run ID :Run Order: **ICPMS204-B_121016A: 20** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**
Analysis Date: **10/16/12 13:03** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0506	0.0050	0.05		101	85	115				

Associated samples: **H12100143-006B; H12100143-007B; H12100143-008B; H12100143-009B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100143
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *24-Oct-12*

BatchID: R83744

Run ID :Run Order: **ICPMS204-B_121016A: 75** SampType: **Sample Matrix Spike** Sample ID: **H12100143-006BMS** Method: **E200.8**

Analysis Date: **10/16/12 17:04** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0485	0.0010	0.05	0.0001142	97	70	130				

Associated samples: **H12100143-006B; H12100143-007B; H12100143-008B; H12100143-009B**

Run ID :Run Order: **ICPMS204-B_121016A: 76** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12100143-006BMSD** Method: **E200.8**

Analysis Date: **10/16/12 17:09** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0503	0.0010	0.05	0.0001142	100	70	130	0.04851	3.7	20	

Associated samples: **H12100143-006B; H12100143-007B; H12100143-008B; H12100143-009B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12100143
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *24-Oct-12*

BatchID: TDS121008A

Run ID :Run Order: **ACCU-124 (14410200)_121008B: 1** SampType: **Method Blank** Sample ID: **MB-1_121008A** Method: **A2540 C**
Analysis Date: **10/08/12 14:43** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	8	3									

Associated samples: **H12100143-001A; H12100143-002A; H12100143-003A; H12100143-004A; H12100143-005A; H12100143-006A; H12100143-007A; H12100143-008A; H12100143-009A**

Run ID :Run Order: **ACCU-124 (14410200)_121008B: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS-2_121008A** Method: **A2540 C**
Analysis Date: **10/08/12 14:43** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2010	10	2000	8	100	90	110				

Associated samples: **H12100143-001A; H12100143-002A; H12100143-003A; H12100143-004A; H12100143-005A; H12100143-006A; H12100143-007A; H12100143-008A; H12100143-009A**

Run ID :Run Order: **ACCU-124 (14410200)_121008B: 4** SampType: **Sample Duplicate** Sample ID: **H12100142-001A DUP** Method: **A2540 C**
Analysis Date: **10/08/12 14:43** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	ND	10								5	

Associated samples: **H12100143-001A; H12100143-002A; H12100143-003A; H12100143-004A; H12100143-005A; H12100143-006A; H12100143-007A; H12100143-008A; H12100143-009A**

Run ID :Run Order: **ACCU-124 (14410200)_121008B: 6** SampType: **Sample Matrix Spike** Sample ID: **H12100142-002A MS** Method: **A2540 C**
Analysis Date: **10/08/12 14:44** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2010	10	2000		100	80	120				

Associated samples: **H12100143-001A; H12100143-002A; H12100143-003A; H12100143-004A; H12100143-005A; H12100143-006A; H12100143-007A; H12100143-008A; H12100143-009A**

Run ID :Run Order: **ACCU-124 (14410200)_121008B: 16** SampType: **Sample Duplicate** Sample ID: **H12100143-003A DUP** Method: **A2540 C**
Analysis Date: **10/08/12 14:46** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	173	10						168	2.9	5	

Associated samples: **H12100143-001A; H12100143-002A; H12100143-003A; H12100143-004A; H12100143-005A; H12100143-006A; H12100143-007A; H12100143-008A; H12100143-009A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Standard Reporting Procedures

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Workorder Receipt Checklist

MT DEQ-Site Response H12100143

Login completed by: Wanda Johnson
Date Received: 10/8/2012
Reviewed by: BL2000\sdull
Received by: wjj
Reviewed Date: 10/17/2012
Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	0.4°C On Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Contact and Corrective Action Comments:

Collection time for sample TDMW-2D is 18:01 on COC, bottle states 18:07. Used sample time on the COC. Wj 10/08/12

Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT (Provide as much information as possible.)

Company Name: MDEQ	Project Name, PWS, Permit, Etc.: VMBC Groundwater	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: See Quote H-645	Contact Name: Shellie Hatland 841-5037 Shatland@mt.gov Phone/Fax: Email:		Sampler: (Please Print) A. Dreesbach M. Towle
Invoice Address:	Invoice Contact & Phone:	Purchase Order:	Quote/Bottle Order: 10761

Special Report/Formats:

☐ DW ☐ POTW/WWTP ☐ State: _____ ☐ Other: _____

☐ EDD/EDT (Electronic Data) Format: _____ ☐ LEVEL IV ☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids Vegetation Bioassay Other DW - Drinking Water

ANALYSIS REQUESTED

Standard Turnaround (TAT) → RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

Shipped by: handdel

Cooler ID(s): Y

Receipt Temp: 0.4 °C TB

On Ice: Y N

Custody Seal: On Bottle Y N; On Cooler Y N

Intact: Y N

Signature Match: Y N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	SEE ATTACHED
1	TDMW-7	10/4/12	1017	W	X
2	TDMW-8		1023		
3	TDMW-5		1055		
4	TDMW-4D		1340		
5	TDMW-6		1355		
6	TDMW-3D		1539		
7	TDMW-1		1721		
8	TDMW-2D		1801		
9	TDMW-25	10/4/12	1845	W	X
10					

LABORATORY USE ONLY: H12100143

Custody Record MUST be Signed

Relinquished by (print): Alan Dreesbach	Date/Time: 10/5/12 1034	Signature:	
Relinquished by (print):	Date/Time:	Signature:	
Sample Disposal: Return to Client: _____	Lab Disposal: _____		

Received by (print):	Date/Time:	Signature:
Received by (print):	Date/Time:	Signature:
Received by Laboratory: Wanda Dow	Date/Time: 10-8-12 10:54	Signature:

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.
This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

Section 35 Quarterly													
	Quantity	Analysis											
Surface Water	7	[1]Disolved Metals	[2]Total Metals	[5]Cations	Chloride	Sulfate	Alkalinity	Hardness	Acidity	TDS	TSS	pH	EC
Groundwater	9	[3]Dissolved Metals		[5]Cations	Chloride	Sulfate	Alkalinity	Hardness	Acidity	TDS	TSS	pH	EC
Sediment	6		[4]Total Metals										

[1]Aluminum

[2]Arsenic, cadmium, copper, iron, lead, manganese, and zinc

[3]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[4]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[5]Calcium, magnesium, potassium, sodium

UBMC Quarterly													
	Quantity	Analysis											
[6]Surface Water	11	[1]Disolved Metals	[2]Total Metals	[5]Cations	Chloride	Sulfate	Alkalinity	Hardness	Acidity	TDS	TSS	pH	EC
Groundwater	10	[3]Dissolved Metals		[5]Cations	Chloride	Sulfate	Alkalinity	Hardness	Acidity	TDS	TSS	pH	EC
Sediment	9		[4]Total Metals										

[1]Aluminum

[2]Arsenic, cadmium, copper, iron, lead, manganese, and zinc

[3]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[4]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[5]Calcium, magnesium, potassium, sodium

[6]Additional surface water samples may be collected for seeps.

ANALYTICAL SUMMARY REPORT

December 21, 2012

MT DEQ-Site Response
PO Box 200901
Helena, MT 59620-0901

Workorder No.: H12120184 Quote ID: H645 - UBMC

Project Name: UBMC Sediment

Energy Laboratories Inc Helena MT received the following 8 samples for MT DEQ-Site Response on 12/11/2012 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H12120184-001	BRSD-38	12/10/12 11:06	12/11/12	Sediment	Metals by ICP/ICPMS, Total Digestion, Total Metals Soil Preparation
H12120184-002	BRSD-48	12/10/12 12:25	12/11/12	Sediment	Same As Above
H12120184-003	BRSD-23	12/10/12 13:08	12/11/12	Sediment	Same As Above
H12120184-004	BRSD-3A	12/10/12 13:36	12/11/12	Sediment	Same As Above
H12120184-005	BRSD-3B	12/10/12 14:02	12/11/12	Sediment	Same As Above
H12120184-006	BRSD-22	12/10/12 15:10	12/11/12	Sediment	Same As Above
H12120184-007	BRSD-24	12/10/12 15:20	12/11/12	Sediment	Same As Above
H12120184-008	BRSD-1	12/10/12 16:08	12/11/12	Sediment	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: BRSD-38
Lab ID: H12120184-001
Matrix: Sediment

Project: UBMC Sediment
Collection Date: 12/10/12 11:06
DateReceived: 12/11/12
Report Date: 12/21/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	4420	mg/kg		5		SW6010B	12/17/12 21:02 / sld	12/12/12 14:26	ICP2-HE_121217C	84	18996
Arsenic	29	mg/kg		5		SW6010B	12/18/12 19:22 / sld	12/12/12 14:26	ICP2-HE_121218B	83	18996
Cadmium	17	mg/kg		1		SW6010B	12/18/12 19:22 / sld	12/12/12 14:26	ICP2-HE_121218B	83	18996
Copper	242	mg/kg		5		SW6010B	12/17/12 21:02 / sld	12/12/12 14:26	ICP2-HE_121217C	84	18996
Iron	16800	mg/kg		5		SW6010B	12/18/12 19:22 / sld	12/12/12 14:26	ICP2-HE_121218B	83	18996
Lead	593	mg/kg		5		SW6010B	12/18/12 19:22 / sld	12/12/12 14:26	ICP2-HE_121218B	83	18996
Manganese	3820	mg/kg		5		SW6010B	12/18/12 19:22 / sld	12/12/12 14:26	ICP2-HE_121218B	83	18996
Zinc	2780	mg/kg		5		SW6010B	12/17/12 21:02 / sld	12/12/12 14:26	ICP2-HE_121217C	84	18996

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: BRSD-48
Lab ID: H12120184-002
Matrix: Sediment

Project: UBMC Sediment
Collection Date: 12/10/12 12:25
DateReceived: 12/11/12
Report Date: 12/21/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	5810	mg/kg		5		SW6010B	12/18/12 19:26 / sld	12/12/12 14:26	ICP2-HE_121218B	84	18996
Arsenic	48	mg/kg		5		SW6010B	12/18/12 19:26 / sld	12/12/12 14:26	ICP2-HE_121218B	84	18996
Cadmium	34	mg/kg		1		SW6010B	12/18/12 19:26 / sld	12/12/12 14:26	ICP2-HE_121218B	84	18996
Copper	612	mg/kg		5		SW6010B	12/18/12 19:26 / sld	12/12/12 14:26	ICP2-HE_121218B	84	18996
Iron	28800	mg/kg		5		SW6010B	12/19/12 14:17 / sld	12/12/12 14:26	ICP2-HE_121219A	33	18996
Lead	4490	mg/kg		5		SW6010B	12/18/12 19:26 / sld	12/12/12 14:26	ICP2-HE_121218B	84	18996
Manganese	5110	mg/kg		5		SW6010B	12/18/12 19:26 / sld	12/12/12 14:26	ICP2-HE_121218B	84	18996
Zinc	5500	mg/kg		5		SW6010B	12/18/12 19:26 / sld	12/12/12 14:26	ICP2-HE_121218B	84	18996

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: BRSD-23
Lab ID: H12120184-003
Matrix: Sediment

Project: UBMC Sediment
Collection Date: 12/10/12 13:08
DateReceived: 12/11/12
Report Date: 12/21/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	4840	mg/kg		5		SW6010B	12/18/12 19:29 / sld	12/12/12 14:26	ICP2-HE_121218B	85	18996
Arsenic	48	mg/kg		5		SW6010B	12/18/12 19:29 / sld	12/12/12 14:26	ICP2-HE_121218B	85	18996
Cadmium	16	mg/kg		1		SW6010B	12/18/12 19:29 / sld	12/12/12 14:26	ICP2-HE_121218B	85	18996
Copper	297	mg/kg		5		SW6010B	12/18/12 19:29 / sld	12/12/12 14:26	ICP2-HE_121218B	85	18996
Iron	25000	mg/kg		5		SW6010B	12/18/12 19:29 / sld	12/12/12 14:26	ICP2-HE_121218B	85	18996
Lead	1970	mg/kg		5		SW6010B	12/18/12 19:29 / sld	12/12/12 14:26	ICP2-HE_121218B	85	18996
Manganese	4460	mg/kg		5		SW6010B	12/18/12 19:29 / sld	12/12/12 14:26	ICP2-HE_121218B	85	18996
Zinc	3180	mg/kg		5		SW6010B	12/18/12 19:29 / sld	12/12/12 14:26	ICP2-HE_121218B	85	18996

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: BRSD-3A
Lab ID: H12120184-004
Matrix: Sediment

Project: UBMC Sediment
Collection Date: 12/10/12 13:36
DateReceived: 12/11/12
Report Date: 12/21/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	4110	mg/kg		5		SW6010B	12/18/12 19:33 / sld	12/12/12 14:26	ICP2-HE_121218B : 86		18996
Arsenic	59	mg/kg		5		SW6010B	12/18/12 19:33 / sld	12/12/12 14:26	ICP2-HE_121218B : 86		18996
Cadmium	21	mg/kg		1		SW6010B	12/18/12 19:33 / sld	12/12/12 14:26	ICP2-HE_121218B : 86		18996
Copper	442	mg/kg		5		SW6010B	12/18/12 19:33 / sld	12/12/12 14:26	ICP2-HE_121218B : 86		18996
Iron	23700	mg/kg		5		SW6010B	12/18/12 19:33 / sld	12/12/12 14:26	ICP2-HE_121218B : 86		18996
Lead	532	mg/kg		5		SW6010B	12/18/12 19:33 / sld	12/12/12 14:26	ICP2-HE_121218B : 86		18996
Manganese	10300	mg/kg		5		SW6010B	12/18/12 19:33 / sld	12/12/12 14:26	ICP2-HE_121218B : 86		18996
Zinc	4420	mg/kg		5		SW6010B	12/18/12 19:33 / sld	12/12/12 14:26	ICP2-HE_121218B : 86		18996

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: BRSD-3B
Lab ID: H12120184-005
Matrix: Sediment

Project: UBMC Sediment
Collection Date: 12/10/12 14:02
DateReceived: 12/11/12
Report Date: 12/21/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	2940	mg/kg		5		SW6010B	12/17/12 21:17 / sld	12/12/12 14:26	ICP2-HE_121217C	88	18996
Arsenic	5	mg/kg		5		SW6010B	12/19/12 14:21 / sld	12/12/12 14:26	ICP2-HE_121219A	34	18996
Cadmium	ND	mg/kg		1		SW6010B	12/18/12 19:37 / sld	12/12/12 14:26	ICP2-HE_121218B	87	18996
Copper	50	mg/kg		5		SW6010B	12/17/12 21:17 / sld	12/12/12 14:26	ICP2-HE_121217C	88	18996
Iron	19000	mg/kg		5		SW6010B	12/18/12 19:37 / sld	12/12/12 14:26	ICP2-HE_121218B	87	18996
Lead	34	mg/kg		5		SW6010B	12/19/12 14:21 / sld	12/12/12 14:26	ICP2-HE_121219A	34	18996
Manganese	371	mg/kg		5		SW6010B	12/18/12 19:37 / sld	12/12/12 14:26	ICP2-HE_121218B	87	18996
Zinc	114	mg/kg		5		SW6010B	12/17/12 21:17 / sld	12/12/12 14:26	ICP2-HE_121217C	88	18996

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: BRSD-22
Lab ID: H12120184-006
Matrix: Sediment

Project: UBMC Sediment
Collection Date: 12/10/12 15:10
DateReceived: 12/11/12
Report Date: 12/21/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	7620	mg/kg		5		SW6010B	12/17/12 21:21 / sld	12/12/12 14:26	ICP2-HE_121217C	89	18996
Arsenic	40	mg/kg		5		SW6010B	12/18/12 19:40 / sld	12/12/12 14:26	ICP2-HE_121218B	88	18996
Cadmium	14	mg/kg		1		SW6010B	12/18/12 19:40 / sld	12/12/12 14:26	ICP2-HE_121218B	88	18996
Copper	1070	mg/kg		5		SW6010B	12/17/12 21:21 / sld	12/12/12 14:26	ICP2-HE_121217C	89	18996
Iron	23500	mg/kg		5		SW6010B	12/18/12 19:40 / sld	12/12/12 14:26	ICP2-HE_121218B	88	18996
Lead	1300	mg/kg		5		SW6010B	12/18/12 19:40 / sld	12/12/12 14:26	ICP2-HE_121218B	88	18996
Manganese	3630	mg/kg		5		SW6010B	12/18/12 19:40 / sld	12/12/12 14:26	ICP2-HE_121218B	88	18996
Zinc	2070	mg/kg		5		SW6010B	12/17/12 21:21 / sld	12/12/12 14:26	ICP2-HE_121217C	89	18996

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: BRSD-24
Lab ID: H12120184-007
Matrix: Sediment

Project: UBMC Sediment
Collection Date: 12/10/12 15:20
DateReceived: 12/11/12
Report Date: 12/21/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	6700	mg/kg		5		SW6010B	12/17/12 21:24 / sld	12/12/12 14:26	ICP2-HE_121217C	90	18996
Arsenic	53	mg/kg		5		SW6010B	12/18/12 19:44 / sld	12/12/12 14:26	ICP2-HE_121218B	89	18996
Cadmium	10	mg/kg		1		SW6010B	12/18/12 19:44 / sld	12/12/12 14:26	ICP2-HE_121218B	89	18996
Copper	971	mg/kg		5		SW6010B	12/17/12 21:24 / sld	12/12/12 14:26	ICP2-HE_121217C	90	18996
Iron	23300	mg/kg		5		SW6010B	12/18/12 19:44 / sld	12/12/12 14:26	ICP2-HE_121218B	89	18996
Lead	969	mg/kg		5		SW6010B	12/18/12 19:44 / sld	12/12/12 14:26	ICP2-HE_121218B	89	18996
Manganese	3340	mg/kg		5		SW6010B	12/18/12 19:44 / sld	12/12/12 14:26	ICP2-HE_121218B	89	18996
Zinc	1710	mg/kg		5		SW6010B	12/17/12 21:24 / sld	12/12/12 14:26	ICP2-HE_121217C	90	18996

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: BRSD-1
Lab ID: H12120184-008
Matrix: Sediment

Project: UBMC Sediment
Collection Date: 12/10/12 16:08
DateReceived: 12/11/12
Report Date: 12/21/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	4990	mg/kg		5		SW6010B	12/17/12 21:28 / sld	12/12/12 14:26	ICP2-HE_121217C	91	18996
Arsenic	20	mg/kg		5		SW6010B	12/18/12 19:48 / sld	12/12/12 14:26	ICP2-HE_121218B	90	18996
Cadmium	ND	mg/kg		1		SW6010B	12/18/12 19:48 / sld	12/12/12 14:26	ICP2-HE_121218B	90	18996
Copper	14	mg/kg		5		SW6010B	12/17/12 21:28 / sld	12/12/12 14:26	ICP2-HE_121217C	91	18996
Iron	11200	mg/kg		5		SW6010B	12/18/12 19:48 / sld	12/12/12 14:26	ICP2-HE_121218B	90	18996
Lead	21	mg/kg		5		SW6010B	12/18/12 19:48 / sld	12/12/12 14:26	ICP2-HE_121218B	90	18996
Manganese	254	mg/kg		5		SW6010B	12/18/12 19:48 / sld	12/12/12 14:26	ICP2-HE_121218B	90	18996
Zinc	75	mg/kg		5		SW6010B	12/17/12 21:28 / sld	12/12/12 14:26	ICP2-HE_121217C	91	18996

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

Client: MT DEQ-Site Response
Work Order: H12120184
Project: UBMC Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *21-Dec-12*

BatchID: 18996

Run ID :Run Order: **ICP2-HE_121217C: 67** SampType: **Method Blank** Sample ID: **MB-18996** Method: **SW6010B**

Analysis Date: **12/17/12 19:59** Units: **mg/kg** **Prep Info:** Prep Date: **12/12/2012** Prep Method: **SW3050 B**

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.4	0.3									
Arsenic	0.8	0.4									
Cadmium	0.03	0.01									
Copper	ND	0.2									
Iron	2	0.7									
Lead	ND	1									
Manganese	0.1	0.04									
Zinc	0.2	0.1									

Associated samples: **H12120184-001A; H12120184-002A; H12120184-003A; H12120184-004A; H12120184-005A; H12120184-006A; H12120184-007A; H12120184-008A**

Run ID :Run Order: **ICP2-HE_121217C: 68** SampType: **Laboratory Fortified Blank** Sample ID: **LFB-18996** Method: **SW6010B**

Analysis Date: **12/17/12 20:03** Units: **mg/kg** **Prep Info:** Prep Date: **12/12/2012** Prep Method: **SW3050 B**

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	252	5.0	250	0.3685	101	80	120				
Arsenic	49.1	1.0	50	0.7675	97	80	120				
Cadmium	23.8	1.0	25	0.028	95	80	120				
Copper	49.4	1.0	50		99	80	120				
Iron	242	5.0	250	2.416	96	80	120				
Lead	47.0	1.0	50		94	80	120				
Manganese	247	1.0	250	0.1495	99	80	120				
Zinc	49.4	1.0	50	0.205	98	80	120				

Associated samples: **H12120184-001A; H12120184-002A; H12120184-003A; H12120184-004A; H12120184-005A; H12120184-006A; H12120184-007A; H12120184-008A**

Run ID :Run Order: **ICP2-HE_121217C: 71** SampType: **Laboratory Control Sample** Sample ID: **LCS-18996** Method: **SW6010B**

Analysis Date: **12/17/12 20:14** Units: **mg/kg** **Prep Info:** Prep Date: **12/12/2012** Prep Method: **SW3050 B**

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	12400	5.0	14410	0.3685	86	50.7	131.3				
Arsenic	276	1.5	336.3	0.7675	82	72.3	106.4				
Cadmium	119	1.0	134.3	0.028	89	73	105.1				
Copper	247	1.0	274.5		90	77.5	109.6				
Iron	18500	5.0	22550	2.416	82	39.6	138.3				
Lead	175	3.0	183.3		95	75.9	108.6				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limit
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120184
Project: UBMC Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *21-Dec-12*

BatchID: 18996

Run ID :Run Order: **ICP2-HE_121217C: 71** SampType: **Laboratory Control Sample** Sample ID: **LCS-18996** Method: **SW6010B**
Analysis Date: **12/17/12 20:14** Units: **mg/kg** **Prep Info:** Prep Date: **12/12/2012** Prep Method: **SW3050 B**

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	350	1.0	361.8	0.1495	97	80.8	115.7				
Zinc	192	1.0	208.8	0.205	92	74.2	109.9				

Associated samples: **H12120184-001A; H12120184-002A; H12120184-003A; H12120184-004A; H12120184-005A; H12120184-006A; H12120184-007A; H12120184-008A**

Run ID :Run Order: **ICP2-HE_121217C: 96** SampType: **Sample Matrix Spike** Sample ID: **H12120184-008AMS** Method: **SW6010B**
Analysis Date: **12/17/12 21:46** Units: **mg/kg** **Prep Info:** Prep Date: **12/12/2012** Prep Method: **SW3050 B**

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	7290	5.0	123.2	4985		75	125				A
Copper	38.7	1.0	24.63	14.01	100	75	125				

Associated samples: **H12120184-001A; H12120184-002A; H12120184-003A; H12120184-004A; H12120184-005A; H12120184-006A; H12120184-007A; H12120184-008A**

Run ID :Run Order: **ICP2-HE_121217C: 97** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12120184-008AMSD** Method: **SW6010B**
Analysis Date: **12/17/12 21:50** Units: **mg/kg** **Prep Info:** Prep Date: **12/12/2012** Prep Method: **SW3050 B**

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	7180	5.0	123.2	4985		75	125	7295	1.6	20	A
Copper	32.5	1.0	24.63	14.01	75	75	125	38.65	17	20	

Associated samples: **H12120184-001A; H12120184-002A; H12120184-003A; H12120184-004A; H12120184-005A; H12120184-006A; H12120184-007A; H12120184-008A**

Run ID :Run Order: **ICP2-HE_121218B: 66** SampType: **Method Blank** Sample ID: **MB-18996** Method: **SW6010B**
Analysis Date: **12/18/12 18:19** Units: **mg/kg** **Prep Info:** Prep Date: **12/12/2012** Prep Method: **SW3050 B**

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	ND	0.8									
Arsenic	ND	0.4									
Cadmium	ND	0.01									
Copper	ND	0.2									
Iron	3	0.7									
Lead	2	1									
Manganese	0.1	0.04									
Zinc	0.3	0.1									

Associated samples: **H12120184-001A; H12120184-002A; H12120184-003A; H12120184-004A; H12120184-005A; H12120184-006A; H12120184-007A; H12120184-008A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limit
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120184
Project: UBMC Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *21-Dec-12*

BatchID: 18996

Run ID :Run Order: **ICP2-HE_121218B: 69** SampType: **Laboratory Fortified Blank** Sample ID: **LFB-18996** Method: **SW6010B**

Analysis Date: **12/18/12 18:31** Units: **mg/kg** **Prep Info:** Prep Date: **12/12/2012** Prep Method: **SW3050 B**

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	253	5.0	250		101	80	120				
Arsenic	47.3	1.0	50		95	80	120				
Cadmium	23.6	1.0	25		94	80	120				
Copper	50.2	1.0	50		100	80	120				
Iron	254	5.0	250	2.624	101	80	120				
Lead	48.4	1.0	50	1.792	93	80	120				
Manganese	251	1.0	250	0.1135	101	80	120				
Zinc	48.7	1.0	50	0.2995	97	80	120				

Associated samples: **H12120184-001A; H12120184-002A; H12120184-003A; H12120184-004A; H12120184-005A; H12120184-006A; H12120184-007A; H12120184-008A**

Run ID :Run Order: **ICP2-HE_121218B: 70** SampType: **Laboratory Control Sample** Sample ID: **LCS-18996** Method: **SW6010B**

Analysis Date: **12/18/12 18:34** Units: **mg/kg** **Prep Info:** Prep Date: **12/12/2012** Prep Method: **SW3050 B**

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	13000	5.0	14410		90	50.7	131.3				
Arsenic	283	1.5	336.3		84	72.3	106.4				
Cadmium	123	1.0	134.3		92	73	105.1				
Copper	258	1.0	274.5		94	77.5	109.6				
Iron	19900	5.0	22550	2.624	88	39.6	138.3				
Lead	190	3.0	183.3	1.792	103	75.9	108.6				
Manganese	369	1.0	361.8	0.1135	102	80.8	115.7				
Zinc	199	1.0	208.8	0.2995	95	74.2	109.9				

Associated samples: **H12120184-001A; H12120184-002A; H12120184-003A; H12120184-004A; H12120184-005A; H12120184-006A; H12120184-007A; H12120184-008A**

Run ID :Run Order: **ICP2-HE_121218B: 95** SampType: **Sample Matrix Spike** Sample ID: **H12120184-008AMS** Method: **SW6010B**

Analysis Date: **12/18/12 20:06** Units: **mg/kg** **Prep Info:** Prep Date: **12/12/2012** Prep Method: **SW3050 B**

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	7860	5.0	123.2	5434		75	125				A
Arsenic	31.2	1.0	24.63	20.48	44	75	125				S
Cadmium	11.2	1.0	12.32	0.05271	91	75	125				
Copper	42.1	1.0	24.63	15.85	106	75	125				
Iron	11600	5.0	123.2	11200		75	125				A
Lead	45.2	1.5	24.63	21.38	97	75	125				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limit
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120184
Project: UBMC Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: 18996

Date: *21-Dec-12*

Run ID :Run Order: **ICP2-HE_121218B: 95** SampType: **Sample Matrix Spike** Sample ID: **H12120184-008AMS** Method: **SW6010B**
Analysis Date: **12/18/12 20:06** Units: **mg/kg** **Prep Info:** Prep Date: **12/12/2012** Prep Method: **SW3050 B**

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	467	1.0	123.2	254.4	173	75	125				S
Zinc	101	1.0	24.63	80.54	84	75	125				

Associated samples: **H12120184-001A; H12120184-002A; H12120184-003A; H12120184-004A; H12120184-005A; H12120184-006A; H12120184-007A; H12120184-008A**

Run ID :Run Order: **ICP2-HE_121218B: 96** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12120184-008AMSD** Method: **SW6010B**
Analysis Date: **12/18/12 20:10** Units: **mg/kg** **Prep Info:** Prep Date: **12/12/2012** Prep Method: **SW3050 B**

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	7780	5.0	123.2	5434		75	125	7865	1.0	20	A
Arsenic	30.9	1.0	24.63	20.48	42	75	125	31.2	1.1	20	S
Cadmium	11.6	1.0	12.32	0.05271	94	75	125	11.23	3.0	20	
Copper	36.4	1.0	24.63	15.85	83	75	125	42.08	14	20	
Iron	10200	5.0	123.2	11200		75	125	11580	13	20	A
Lead	46.2	1.5	24.63	21.38	101	75	125	45.24	2.0	20	
Manganese	404	1.0	123.2	254.4	121	75	125	467.1	15	20	
Zinc	102	1.0	24.63	80.54	86	75	125	101.3	0.5	20	

Associated samples: **H12120184-001A; H12120184-002A; H12120184-003A; H12120184-004A; H12120184-005A; H12120184-006A; H12120184-007A; H12120184-008A**

Run ID :Run Order: **ICP2-HE_121219A: 30** SampType: **Method Blank** Sample ID: **MB-18996** Method: **SW6010B**
Analysis Date: **12/19/12 14:06** Units: **mg/kg** **Prep Info:** Prep Date: **12/12/2012** Prep Method: **SW3050 B**

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.7	0.3									
Arsenic	ND	0.4									
Cadmium	ND	0.01									
Copper	ND	0.2									
Iron	3	0.7									
Lead	ND	1									
Manganese	0.1	0.04									
Zinc	0.3	0.1									

Associated samples: **H12120184-001A; H12120184-002A; H12120184-003A; H12120184-004A; H12120184-005A; H12120184-006A; H12120184-007A; H12120184-008A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limit
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120184
Project: UBMC Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *21-Dec-12*

BatchID: R85191

Run ID :Run Order: **ICP2-HE_121217C: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**

Analysis Date: **12/17/12 14:19** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	4.09	0.10	4		102	90	110				
Copper	0.810	0.010	0.8		101	90	110				
Zinc	0.810	0.010	0.8		101	90	110				

Associated samples: **H12120184-001A; H12120184-005A; H12120184-006A; H12120184-007A; H12120184-008A**

Run ID :Run Order: **ICP2-HE_121217C: 10** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.7**

Analysis Date: **12/17/12 14:34** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	531	0.10	500		106	80	120				
Copper	0.00133	0.010				0	0				
Zinc	0.00957	0.010				0	0				

Associated samples: **H12120184-001A; H12120184-005A; H12120184-006A; H12120184-007A; H12120184-008A**

Run ID :Run Order: **ICP2-HE_121217C: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**

Analysis Date: **12/17/12 14:38** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	533	0.10	500		107	80	120				
Copper	0.510	0.010	0.5		102	80	120				
Zinc	0.994	0.010	1		99	80	120				

Associated samples: **H12120184-001A; H12120184-005A; H12120184-006A; H12120184-007A; H12120184-008A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limit
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120184
Project: UBMC Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *21-Dec-12*

BatchID: R85224

Run ID :Run Order: **ICP2-HE_121218B: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**

Analysis Date: **12/18/12 13:22** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	4.01	0.10	4		100	90	110				
Arsenic	0.852	0.0092	0.8		107	90	110				
Cadmium	0.416	0.0010	0.4		104	90	110				
Copper	0.798	0.010	0.8		100	90	110				
Iron	4.04	0.030	4		101	90	110				
Lead	0.820	0.013	0.8		103	90	110				
Manganese	4.06	0.010	4		102	90	110				
Zinc	0.847	0.010	0.8		106	90	110				

Associated samples: **H12120184-001A; H12120184-002A; H12120184-003A; H12120184-004A; H12120184-005A; H12120184-006A; H12120184-007A; H12120184-008A**

Run ID :Run Order: **ICP2-HE_121218B: 10** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.7**

Analysis Date: **12/18/12 13:37** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	517	0.10	500		103	80	120				
Arsenic	0.00444	0.0092				0	0				
Cadmium	0.00140	0.0010				0	0				
Copper	0.00505	0.010				0	0				
Iron	190	0.030	200		95	80	120				
Lead	0.0759	0.013				0	0				
Manganese	-0.00168	0.010				0	0				
Zinc	0.0154	0.010				0	0				

Associated samples: **H12120184-001A; H12120184-002A; H12120184-003A; H12120184-004A; H12120184-005A; H12120184-006A; H12120184-007A; H12120184-008A**

Run ID :Run Order: **ICP2-HE_121218B: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**

Analysis Date: **12/18/12 13:41** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	518	0.10	500		104	80	120				
Arsenic	1.13	0.0092	1		113	80	120				
Cadmium	0.958	0.0010	1		96	80	120				
Copper	0.494	0.010	0.5		99	80	120				
Iron	190	0.030	200		95	80	120				
Lead	1.02	0.013	1		102	80	120				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limit
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120184
Project: UBMC Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *21-Dec-12*

BatchID: R85224

Run ID :Run Order: **ICP2-HE_121218B: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**

Analysis Date: **12/18/12 13:41** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.482	0.010	0.5		96	80	120				
Zinc	1.04	0.010	1		104	80	120				

Associated samples: **H12120184-001A; H12120184-002A; H12120184-003A; H12120184-004A; H12120184-005A; H12120184-006A; H12120184-007A; H12120184-008A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limit
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120184
Project: UBMC Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *21-Dec-12*

BatchID: R85250

Run ID :Run Order: **ICP2-HE_121219A: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**

Analysis Date: **12/19/12 12:36** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.819	0.0092	0.8		102	90	110				
Iron	4.00	0.030	4		100	90	110				
Lead	0.799	0.013	0.8		100	90	110				

Associated samples: **H12120184-002A; H12120184-005A**

Run ID :Run Order: **ICP2-HE_121219A: 10** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.7**

Analysis Date: **12/19/12 12:51** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	-0.0208	0.0092				0	0				
Iron	184	0.030	200		92	80	120				
Lead	0.0376	0.013				0	0				

Associated samples: **H12120184-002A; H12120184-005A**

Run ID :Run Order: **ICP2-HE_121219A: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**

Analysis Date: **12/19/12 12:55** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	1.09	0.0092	1		109	80	120				
Iron	184	0.030	200		92	80	120				
Lead	1.02	0.013	1		102	80	120				

Associated samples: **H12120184-002A; H12120184-005A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limit
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120184
Project: UBMC Sediment

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R85250

Date: *21-Dec-12*

Standard Reporting Procedures

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Workorder Receipt Checklist

MT DEQ-Site Response H12120184

Login completed by: Wanda Johnson
Date Received: 12/11/2012
Reviewed by: BL2000\jweidemoyer
Received by: elm
Reviewed Date: 12/14/2012
Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	0.4°C On Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Contact and Corrective Action Comments:

None

ENERGY

Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT (Provide as much information as possible.)

Company Name: MDEQ	Project Name, PWS, Permit, Etc.: UBMC Sediment	Sample Origin State: Mt	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: See Quote H-645	Contact Name: Phone/Fax: Shollie Haaland, 841-5033, shaaland@Mt.gov	Email:	Sampler: (Please Print) A. Dreesbach M. Towles
Invoice Address:	Invoice Contact & Phone:	Purchase Order:	Quote/Bottle Order: 11146

Special Report/Formats:

- ☐ DW
- ☐ POTW/WWTP
- ☐ State: _____
- ☐ Other: _____
- ☐ EDD/EDT (Electronic Data) Format: _____
- ☐ LEVEL IV
- ☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids
Vegetation Bioassay Other
DW - Drinking Water

ANALYSIS REQUESTED

Standard Turnaround (TAT)

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

Shipped by: Hand
Cooler ID(s): Y
Receipt Temp: 0.4 °C
On Ice: Y N
Custody Seal: On Bottle Y N; On Cooler Y N
Intact Y N
Signature Match Y N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	SEE ATTACHED	Standard Turnaround (TAT)	RUSH	Comments
1	BRSD-38	12/10/12	1106	S	X			
2	BRSD-48	12/10/12	1225					
3	BRSD-23		1308					
4	BRSD-3A		1336					
5	BRSD-3B		1402					
6	BRSD-22		1510					
7	BRSD-24		1520					
8	BRSD-1	12/10/12	1608	S	X			
9								
10								

12/10/12

LABORATORY USE ONLY: H12120184

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Alan Dreesbach	12/11/12 @ 1708	[signature]			
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory: Esther Merritt	Date/Time: 12/11/12 17:08	Signature: [signature]

Sample Disposal: Return to Client: _____ Lab Disposal: _____

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.
This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

Section 35 Quarterly													
	Quantity	Analysis											
Surface Water	7	[1]Disolved Metals	[2]Total Rec. Metals	[5]Cations	Chloride	Sulfate	Alkalinity	Hardness	Acidity	TDS	TSS	pH	EC
Groundwater	9	[3]Disolved Metals		[5]Cations	Chloride	Sulfate	Alkalinity	Hardness	Acidity	TDS	TSS	pH	EC
Sediment	6		[4]Total Rec. Metals										

[1]Aluminum

[2]Arsenic, cadmium, copper, iron, lead, manganese, and zinc

[3]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[4]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[5]Calcium, magnesium, potassium, sodium

UBMC Quarterly													
	Quantity	Analysis											
[6]Surface Water	11	[1]Disolved Metals	[2]Total Rec. Metals	[5]Cations	Chloride	Sulfate	Alkalinity	Hardness	Acidity	TDS	TSS	pH	EC
Groundwater	10	[3]Disolved Metals		[5]Cations	Chloride	Sulfate	Alkalinity	Hardness	Acidity	TDS	TSS	pH	EC
Sediment	9		[4]Total Rec. Metals										

[1]Aluminum

[2]Arsenic, cadmium, copper, iron, lead, manganese, and zinc

[3]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[4]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[5]Calcium, magnesium, potassium, sodium

[6]Additional surface water samples may be collected for seeps.

ANALYTICAL SUMMARY REPORT

January 11, 2013

MT DEQ-Site Response
PO Box 200901
Helena, MT 59620-0901

Workorder No.: H12120185 Quote ID: H645 - UBMC

Project Name: UBMC Surface Water

Energy Laboratories Inc Helena MT received the following 10 samples for MT DEQ-Site Response on 12/11/2012 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H12120185-001	BRSW-25	12/10/12 10:19	12/11/12	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Hardness as CaCO3 Anions by Ion Chromatography pH Metals Digestion by EPA 200.2 Preparation for TSS Solids, Total Dissolved Solids, Total Suspended
H12120185-002	BRSW-26	12/10/12 10:34	12/11/12	Surface Water	Same As Above
H12120185-003	BRSW-38	12/10/12 11:06	12/11/12	Surface Water	Same As Above
H12120185-004	BRSW-48	12/10/12 12:25	12/11/12	Surface Water	Same As Above
H12120185-005	BRSW-23	12/10/12 13:08	12/11/12	Surface Water	Same As Above
H12120185-006	BRSW-3A	12/10/12 13:36	12/11/12	Surface Water	Same As Above
H12120185-007	BRSW-3B	12/10/12 14:02	12/11/12	Surface Water	Same As Above
H12120185-008	BRSW-22	12/10/12 15:10	12/11/12	Surface Water	Same As Above
H12120185-009	BRSW-24	12/10/12 15:20	12/11/12	Surface Water	Same As Above
H12120185-010	BRSW-1	12/10/12 16:08	12/11/12	Surface Water	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: BRSW-25
Lab ID: H12120185-001
Matrix: Surface Water

Project: UBMC Surface Water
Collection Date: 12/10/12 10:19
DateReceived: 12/11/12
Report Date: 01/11/13

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.4	s.u.	H	0.1		A4500-H B	12/12/12 11:33 / cm		PHSC_101-H_121212A : 12		R85072
Conductivity @ 25 C	1	umhos/cm		1		A2510 B	12/12/12 11:33 / cm		PHSC_101-H_121212A : 13		R85072
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/13/12 13:05 / cm	12/13/12 11:01	-124 (14410200)_121213A : 3		19013
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	12/13/12 13:24 / cm		-124 (14410200)_121213B : 3		TDS121213A
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	12/13/12 18:28 / cm		MAN-TECH_121213A : 135		R85122
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	12/13/12 18:28 / cm		MAN-TECH_121213A : 135		R85122
Carbonate as CO3	ND	mg/L		4		A2320 B	12/13/12 18:28 / cm		MAN-TECH_121213A : 135		R85122
Chloride	ND	mg/L		1		E300.0	12/13/12 15:10 / cm		IC102-H_121213A : 23		R85125
Sulfate	ND	mg/L		1		E300.0	12/13/12 15:10 / cm		IC102-H_121213A : 23		R85125
Hardness as CaCO3	ND	mg/L		1		A2340 B	12/13/12 15:17 / sld		WATERCALC_121213B : 1		R85117
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	12/13/12 10:57 / sld		ICP2-HE_121213A : 15		R85116
Calcium	ND	mg/L		1		E200.7	12/13/12 10:57 / sld		ICP2-HE_121213A : 15		R85116
Magnesium	ND	mg/L		1		E200.7	12/13/12 10:57 / sld		ICP2-HE_121213A : 15		R85116
Potassium	ND	mg/L		1		E200.7	12/13/12 10:57 / sld		ICP2-HE_121213A : 15		R85116
Sodium	ND	mg/L		1		E200.7	12/13/12 10:57 / sld		ICP2-HE_121213A : 15		R85116
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	12/14/12 15:05 / dck	12/13/12 08:50	ICPMS204-B_121210B : 633		19011
Cadmium	ND	mg/L		0.00008		E200.8	12/14/12 15:05 / dck	12/13/12 08:50	ICPMS204-B_121210B : 633		19011
Copper	0.005	mg/L		0.001		E200.8	12/14/12 15:05 / dck	12/13/12 08:50	ICPMS204-B_121210B : 633		19011
Iron	ND	mg/L		0.03		E200.8	12/14/12 15:05 / dck	12/13/12 08:50	ICPMS204-B_121210B : 633		19011
Lead	ND	mg/L		0.0005		E200.8	12/14/12 15:05 / dck	12/13/12 08:50	ICPMS204-B_121210B : 633		19011
Manganese	ND	mg/L		0.005		E200.8	12/14/12 15:05 / dck	12/13/12 08:50	ICPMS204-B_121210B : 633		19011
Zinc	ND	mg/L		0.01		E200.8	12/14/12 15:05 / dck	12/13/12 08:50	ICPMS204-B_121210B : 633		19011

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: BRSW-26
Lab ID: H12120185-002
Matrix: Surface Water

Project: UBMC Surface Water
Collection Date: 12/10/12 10:34
DateReceived: 12/11/12
Report Date: 01/11/13

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.6	s.u.	H	0.1		A4500-H B	12/13/12 18:37 / cm		MAN-TECH_121213A : 140		R85122
Conductivity @ 25 C	1.0	umhos/cm		1.0		A2510 B	12/31/12 10:08 / cm		PHSC_101-H_121231A : 8		R85412
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/13/12 13:05 / cm	12/13/12 11:01	-124 (14410200)_121213A : 5		19013
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	12/13/12 13:24 / cm		-124 (14410200)_121213B : 5		TDS121213A
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	12/13/12 18:37 / cm		MAN-TECH_121213A : 139		R85122
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	12/13/12 18:37 / cm		MAN-TECH_121213A : 139		R85122
Carbonate as CO3	ND	mg/L		4		A2320 B	12/13/12 18:37 / cm		MAN-TECH_121213A : 139		R85122
Chloride	ND	mg/L		1		E300.0	12/13/12 15:22 / cm		IC102-H_121213A : 24		R85125
Sulfate	ND	mg/L		1		E300.0	12/13/12 15:22 / cm		IC102-H_121213A : 24		R85125
Hardness as CaCO3	ND	mg/L		1		A2340 B	12/13/12 15:17 / sld		WATERCALC_121213B : 2		R85117
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	12/13/12 11:19 / sld		ICP2-HE_121213A : 21		R85116
Calcium	ND	mg/L		1		E200.7	12/13/12 11:19 / sld		ICP2-HE_121213A : 21		R85116
Magnesium	ND	mg/L		1		E200.7	12/13/12 11:19 / sld		ICP2-HE_121213A : 21		R85116
Potassium	ND	mg/L		1		E200.7	12/13/12 11:19 / sld		ICP2-HE_121213A : 21		R85116
Sodium	ND	mg/L		1		E200.7	12/13/12 11:19 / sld		ICP2-HE_121213A : 21		R85116
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	12/14/12 15:27 / dck	12/13/12 08:50	ICPMS204-B_121210B : 638		19011
Cadmium	ND	mg/L		0.00008		E200.8	12/14/12 15:27 / dck	12/13/12 08:50	ICPMS204-B_121210B : 638		19011
Copper	0.004	mg/L		0.001		E200.8	12/14/12 15:27 / dck	12/13/12 08:50	ICPMS204-B_121210B : 638		19011
Iron	ND	mg/L		0.03		E200.8	12/14/12 15:27 / dck	12/13/12 08:50	ICPMS204-B_121210B : 638		19011
Lead	ND	mg/L		0.0005		E200.8	12/14/12 15:27 / dck	12/13/12 08:50	ICPMS204-B_121210B : 638		19011
Manganese	ND	mg/L		0.005		E200.8	12/14/12 15:27 / dck	12/13/12 08:50	ICPMS204-B_121210B : 638		19011
Zinc	ND	mg/L		0.01		E200.8	12/14/12 15:27 / dck	12/13/12 08:50	ICPMS204-B_121210B : 638		19011

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: BRSW-38
Lab ID: H12120185-003
Matrix: Surface Water

Project: UBMC Surface Water
Collection Date: 12/10/12 11:06
DateReceived: 12/11/12
Report Date: 01/11/13

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.1	s.u.	H	0.1		A4500-H B	12/12/12 11:38 / cm		PHSC_101-H_121212A	16	R85072
Conductivity @ 25 C	396	umhos/cm		1		A2510 B	12/12/12 11:38 / cm		PHSC_101-H_121212A	17	R85072
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/13/12 13:06 / cm	12/13/12 11:01	-124 (14410200)_121213A	6	19013
Solids, Total Dissolved TDS @ 180 C	264	mg/L		10		A2540 C	12/13/12 13:24 / cm		-124 (14410200)_121213B	7	TDS121213A
INORGANICS											
Alkalinity, Total as CaCO3	80	mg/L		4		A2320 B	12/13/12 18:59 / cm		MAN-TECH_121213A	146	R85122
Bicarbonate as HCO3	97	mg/L		4		A2320 B	12/13/12 18:59 / cm		MAN-TECH_121213A	146	R85122
Carbonate as CO3	ND	mg/L		4		A2320 B	12/13/12 18:59 / cm		MAN-TECH_121213A	146	R85122
Chloride	ND	mg/L		1		E300.0	12/13/12 15:35 / cm		IC102-H_121213A	25	R85125
Sulfate	110	mg/L		1		E300.0	12/13/12 15:35 / cm		IC102-H_121213A	25	R85125
Hardness as CaCO3	191	mg/L		1		A2340 B	12/13/12 15:17 / sld		WATERCALC_121213B	3	R85117
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	12/13/12 11:23 / sld		ICP2-HE_121213A	22	R85116
Calcium	39	mg/L		1		E200.7	12/13/12 11:23 / sld		ICP2-HE_121213A	22	R85116
Magnesium	23	mg/L		1		E200.7	12/13/12 11:23 / sld		ICP2-HE_121213A	22	R85116
Potassium	ND	mg/L		1		E200.7	12/13/12 11:23 / sld		ICP2-HE_121213A	22	R85116
Sodium	2	mg/L		1		E200.7	12/13/12 11:23 / sld		ICP2-HE_121213A	22	R85116
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	12/14/12 15:32 / dck	12/13/12 08:50	ICPMS204-B_121210B	639	19011
Cadmium	0.00838	mg/L		0.00008		E200.8	12/14/12 15:32 / dck	12/13/12 08:50	ICPMS204-B_121210B	639	19011
Copper	0.027	mg/L		0.001		E200.8	12/14/12 15:32 / dck	12/13/12 08:50	ICPMS204-B_121210B	639	19011
Iron	1.63	mg/L		0.03		E200.8	12/14/12 15:32 / dck	12/13/12 08:50	ICPMS204-B_121210B	639	19011
Lead	0.0252	mg/L		0.0005		E200.8	12/14/12 15:32 / dck	12/13/12 08:50	ICPMS204-B_121210B	639	19011
Manganese	2.48	mg/L		0.005		E200.8	12/14/12 15:32 / dck	12/13/12 08:50	ICPMS204-B_121210B	639	19011
Zinc	2.04	mg/L		0.01		E200.8	12/14/12 15:32 / dck	12/13/12 08:50	ICPMS204-B_121210B	639	19011

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: BRSW-48
Lab ID: H12120185-004
Matrix: Surface Water

Project: UBMC Surface Water
Collection Date: 12/10/12 12:25
DateReceived: 12/11/12
Report Date: 01/11/13

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.0	s.u.	H	0.1		A4500-H B	12/12/12 11:41 / cm		PHSC_101-H_121212A	18	R85072
Conductivity @ 25 C	358	umhos/cm		1		A2510 B	12/12/12 11:41 / cm		PHSC_101-H_121212A	19	R85072
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/13/12 13:06 / cm	12/13/12 11:01	-124 (14410200)_121213A	7	19013
Solids, Total Dissolved TDS @ 180 C	224	mg/L		10		A2540 C	12/13/12 13:24 / cm		-124 (14410200)_121213B	8	TDS121213A
INORGANICS											
Alkalinity, Total as CaCO3	92	mg/L		4		A2320 B	12/13/12 19:06 / cm		MAN-TECH_121213A	148	R85122
Bicarbonate as HCO3	110	mg/L		4		A2320 B	12/13/12 19:06 / cm		MAN-TECH_121213A	148	R85122
Carbonate as CO3	ND	mg/L		4		A2320 B	12/13/12 19:06 / cm		MAN-TECH_121213A	148	R85122
Chloride	ND	mg/L		1		E300.0	12/13/12 15:48 / cm		IC102-H_121213A	26	R85125
Sulfate	82	mg/L		1		E300.0	12/13/12 15:48 / cm		IC102-H_121213A	26	R85125
Hardness as CaCO3	173	mg/L		1		A2340 B	12/13/12 15:17 / sld		WATERCALC_121213B	4	R85117
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	12/13/12 11:27 / sld		ICP2-HE_121213A	23	R85116
Calcium	35	mg/L		1		E200.7	12/13/12 11:27 / sld		ICP2-HE_121213A	23	R85116
Magnesium	21	mg/L		1		E200.7	12/13/12 11:27 / sld		ICP2-HE_121213A	23	R85116
Potassium	ND	mg/L		1		E200.7	12/13/12 11:27 / sld		ICP2-HE_121213A	23	R85116
Sodium	1	mg/L		1		E200.7	12/13/12 11:27 / sld		ICP2-HE_121213A	23	R85116
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	12/14/12 15:37 / dck	12/13/12 08:50	ICPMS204-B_121210B	640	19011
Cadmium	0.00627	mg/L		0.00008		E200.8	12/14/12 15:37 / dck	12/13/12 08:50	ICPMS204-B_121210B	640	19011
Copper	0.044	mg/L		0.001		E200.8	12/14/12 15:37 / dck	12/13/12 08:50	ICPMS204-B_121210B	640	19011
Iron	3.35	mg/L		0.03		E200.8	12/14/12 15:37 / dck	12/13/12 08:50	ICPMS204-B_121210B	640	19011
Lead	0.0371	mg/L		0.0005		E200.8	12/14/12 15:37 / dck	12/13/12 08:50	ICPMS204-B_121210B	640	19011
Manganese	2.96	mg/L		0.005		E200.8	12/14/12 15:37 / dck	12/13/12 08:50	ICPMS204-B_121210B	640	19011
Zinc	1.50	mg/L		0.01		E200.8	12/14/12 15:37 / dck	12/13/12 08:50	ICPMS204-B_121210B	640	19011

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: BRSW-23
Lab ID: H12120185-005
Matrix: Surface Water

Project: UBMC Surface Water
Collection Date: 12/10/12 13:08 **DateReceived:** 12/11/12
Report Date: 01/11/13

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.5	s.u.	H	0.1		A4500-H B	12/12/12 11:43 / cm		PHSC_101-H_121212A	20	R85072
Conductivity @ 25 C	295	umhos/cm		1		A2510 B	12/12/12 11:43 / cm		PHSC_101-H_121212A	21	R85072
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/13/12 13:06 / cm	12/13/12 11:01	-124 (14410200)_121213A	8	19013
Solids, Total Dissolved TDS @ 180 C	165	mg/L		10		A2540 C	12/13/12 13:25 / cm		-124 (14410200)_121213B	9	TDS121213A
INORGANICS											
Alkalinity, Total as CaCO3	100	mg/L		4		A2320 B	12/13/12 19:14 / cm		MAN-TECH_121213A	150	R85122
Bicarbonate as HCO3	120	mg/L		4		A2320 B	12/13/12 19:14 / cm		MAN-TECH_121213A	150	R85122
Carbonate as CO3	5	mg/L		4		A2320 B	12/13/12 19:14 / cm		MAN-TECH_121213A	150	R85122
Chloride	ND	mg/L		1		E300.0	12/13/12 16:00 / cm		IC102-H_121213A	27	R85125
Sulfate	43	mg/L		1		E300.0	12/13/12 16:00 / cm		IC102-H_121213A	27	R85125
Hardness as CaCO3	148	mg/L		1		A2340 B	12/13/12 15:17 / sld		WATERCALC_121213B	5	R85117
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	12/13/12 11:30 / sld		ICP2-HE_121213A	24	R85116
Calcium	30	mg/L		1		E200.7	12/13/12 11:30 / sld		ICP2-HE_121213A	24	R85116
Magnesium	18	mg/L		1		E200.7	12/13/12 11:30 / sld		ICP2-HE_121213A	24	R85116
Potassium	ND	mg/L		1		E200.7	12/13/12 11:30 / sld		ICP2-HE_121213A	24	R85116
Sodium	1	mg/L		1		E200.7	12/13/12 11:30 / sld		ICP2-HE_121213A	24	R85116
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	12/14/12 15:41 / dck	12/13/12 08:50	ICPMS204-B_121210B	641	19011
Cadmium	0.00234	mg/L		0.00008		E200.8	12/14/12 15:41 / dck	12/13/12 08:50	ICPMS204-B_121210B	641	19011
Copper	0.007	mg/L		0.001		E200.8	12/14/12 15:41 / dck	12/13/12 08:50	ICPMS204-B_121210B	641	19011
Iron	0.13	mg/L		0.03		E200.8	12/14/12 15:41 / dck	12/13/12 08:50	ICPMS204-B_121210B	641	19011
Lead	0.0054	mg/L		0.0005		E200.8	12/14/12 15:41 / dck	12/13/12 08:50	ICPMS204-B_121210B	641	19011
Manganese	0.889	mg/L		0.005		E200.8	12/14/12 15:41 / dck	12/13/12 08:50	ICPMS204-B_121210B	641	19011
Zinc	0.73	mg/L		0.01		E200.8	12/14/12 15:41 / dck	12/13/12 08:50	ICPMS204-B_121210B	641	19011

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: BRSW-3A
Lab ID: H12120185-006
Matrix: Surface Water

Project: UBMC Surface Water
Collection Date: 12/10/12 13:36
DateReceived: 12/11/12
Report Date: 01/11/13

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.4	s.u.	H	0.1		A4500-H B	12/12/12 11:46 / cm		PHSC_101-H_121212A	22	R85072
Conductivity @ 25 C	310	umhos/cm		1		A2510 B	12/12/12 11:46 / cm		PHSC_101-H_121212A	23	R85072
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/13/12 13:06 / cm	12/13/12 11:01	-124 (14410200)_121213A	9	19013
Solids, Total Dissolved TDS @ 180 C	177	mg/L		10		A2540 C	12/13/12 13:25 / cm		l24 (14410200)_121213B	10	TDS121213A
INORGANICS											
Alkalinity, Total as CaCO3	110	mg/L		4		A2320 B	12/13/12 19:21 / cm		MAN-TECH_121213A	152	R85122
Bicarbonate as HCO3	120	mg/L		4		A2320 B	12/13/12 19:21 / cm		MAN-TECH_121213A	152	R85122
Carbonate as CO3	5	mg/L		4		A2320 B	12/13/12 19:21 / cm		MAN-TECH_121213A	152	R85122
Chloride	ND	mg/L		1		E300.0	12/13/12 16:13 / cm		IC102-H_121213A	28	R85125
Sulfate	47	mg/L		1		E300.0	12/13/12 16:13 / cm		IC102-H_121213A	28	R85125
Hardness as CaCO3	154	mg/L		1		A2340 B	12/13/12 15:17 / sld		WATERCALC_121213B	6	R85117
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	12/13/12 11:34 / sld		ICP2-HE_121213A	25	R85116
Calcium	32	mg/L		1		E200.7	12/13/12 11:34 / sld		ICP2-HE_121213A	25	R85116
Magnesium	18	mg/L		1		E200.7	12/13/12 11:34 / sld		ICP2-HE_121213A	25	R85116
Potassium	ND	mg/L		1		E200.7	12/13/12 11:34 / sld		ICP2-HE_121213A	25	R85116
Sodium	1	mg/L		1		E200.7	12/13/12 11:34 / sld		ICP2-HE_121213A	25	R85116
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	12/14/12 16:04 / dck	12/13/12 08:50	ICPMS204-B_121210B	646	19011
Cadmium	0.00164	mg/L		0.00008		E200.8	12/14/12 16:04 / dck	12/13/12 08:50	ICPMS204-B_121210B	646	19011
Copper	0.004	mg/L		0.001		E200.8	12/14/12 16:04 / dck	12/13/12 08:50	ICPMS204-B_121210B	646	19011
Iron	0.08	mg/L		0.03		E200.8	12/14/12 16:04 / dck	12/13/12 08:50	ICPMS204-B_121210B	646	19011
Lead	0.0007	mg/L		0.0005		E200.8	12/14/12 16:04 / dck	12/13/12 08:50	ICPMS204-B_121210B	646	19011
Manganese	0.958	mg/L		0.005		E200.8	12/14/12 16:04 / dck	12/13/12 08:50	ICPMS204-B_121210B	646	19011
Zinc	0.82	mg/L		0.01		E200.8	12/14/12 16:04 / dck	12/13/12 08:50	ICPMS204-B_121210B	646	19011

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: BRSW-3B
Lab ID: H12120185-007
Matrix: Surface Water

Project: UBMC Surface Water
Collection Date: 12/10/12 14:02
DateReceived: 12/11/12
Report Date: 01/11/13

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.9	s.u.	H	0.1		A4500-H B	12/12/12 11:48 / cm		PHSC_101-H_121212A	24	R85072
Conductivity @ 25 C	212	umhos/cm		1		A2510 B	12/12/12 11:48 / cm		PHSC_101-H_121212A	25	R85072
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/13/12 13:07 / cm	12/13/12 11:01	24 (14410200)_121213A	10	19013
Solids, Total Dissolved TDS @ 180 C	109	mg/L		10		A2540 C	12/13/12 13:25 / cm		24 (14410200)_121213B	11	TDS121213A
INORGANICS											
Alkalinity, Total as CaCO3	100	mg/L		4		A2320 B	12/13/12 19:28 / cm		MAN-TECH_121213A	154	R85122
Bicarbonate as HCO3	120	mg/L		4		A2320 B	12/13/12 19:28 / cm		MAN-TECH_121213A	154	R85122
Carbonate as CO3	5	mg/L		4		A2320 B	12/13/12 19:28 / cm		MAN-TECH_121213A	154	R85122
Chloride	ND	mg/L		1		E300.0	12/13/12 16:25 / cm		IC102-H_121213A	29	R85125
Sulfate	10	mg/L		1		E300.0	12/13/12 16:25 / cm		IC102-H_121213A	29	R85125
Hardness as CaCO3	109	mg/L		1		A2340 B	12/13/12 15:17 / sld		WATERCALC_121213B	7	R85117
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	12/13/12 11:38 / sld		ICP2-HE_121213A	26	R85116
Calcium	23	mg/L		1		E200.7	12/13/12 11:38 / sld		ICP2-HE_121213A	26	R85116
Magnesium	13	mg/L		1		E200.7	12/13/12 11:38 / sld		ICP2-HE_121213A	26	R85116
Potassium	ND	mg/L		1		E200.7	12/13/12 11:38 / sld		ICP2-HE_121213A	26	R85116
Sodium	1	mg/L		1		E200.7	12/13/12 11:38 / sld		ICP2-HE_121213A	26	R85116
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	12/14/12 16:09 / dck	12/13/12 08:50	ICPMS204-B_121210B	647	19011
Cadmium	0.00009	mg/L		0.00008		E200.8	12/14/12 16:09 / dck	12/13/12 08:50	ICPMS204-B_121210B	647	19011
Copper	ND	mg/L		0.001		E200.8	12/14/12 16:09 / dck	12/13/12 08:50	ICPMS204-B_121210B	647	19011
Iron	ND	mg/L		0.03		E200.8	12/14/12 16:09 / dck	12/13/12 08:50	ICPMS204-B_121210B	647	19011
Lead	ND	mg/L		0.0005		E200.8	12/14/12 16:09 / dck	12/13/12 08:50	ICPMS204-B_121210B	647	19011
Manganese	0.084	mg/L		0.005		E200.8	12/14/12 16:09 / dck	12/13/12 08:50	ICPMS204-B_121210B	647	19011
Zinc	0.21	mg/L		0.01		E200.8	12/14/12 16:09 / dck	12/13/12 08:50	ICPMS204-B_121210B	647	19011

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: BRSW-22
Lab ID: H12120185-008
Matrix: Surface Water

Project: UBMC Surface Water
Collection Date: 12/10/12 15:10
DateReceived: 12/11/12
Report Date: 01/11/13

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.3	s.u.	H	0.1		A4500-H B	12/12/12 11:51 / cm		PHSC_101-H_121212A	26	R85072
Conductivity @ 25 C	475	umhos/cm		1		A2510 B	12/12/12 11:51 / cm		PHSC_101-H_121212A	27	R85072
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/13/12 13:07 / cm	12/13/12 11:01	24 (14410200)_121213A	11	19013
Solids, Total Dissolved TDS @ 180 C	309	mg/L		10		A2540 C	12/13/12 13:25 / cm		24 (14410200)_121213B	12	TDS121213A
INORGANICS											
Alkalinity, Total as CaCO3	100	mg/L		4		A2320 B	12/13/12 19:36 / cm		MAN-TECH_121213A	156	R85122
Bicarbonate as HCO3	120	mg/L		4		A2320 B	12/13/12 19:36 / cm		MAN-TECH_121213A	156	R85122
Carbonate as CO3	5	mg/L		4		A2320 B	12/13/12 19:36 / cm		MAN-TECH_121213A	156	R85122
Chloride	ND	mg/L		1		E300.0	12/13/12 16:38 / cm		IC102-H_121213A	30	R85125
Sulfate	130	mg/L		1		E300.0	12/13/12 16:38 / cm		IC102-H_121213A	30	R85125
Hardness as CaCO3	241	mg/L		1		A2340 B	12/13/12 15:17 / sld		WATERCALC_121213B	8	R85117
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	12/13/12 11:41 / sld		ICP2-HE_121213A	27	R85116
Calcium	64	mg/L		1		E200.7	12/13/12 11:41 / sld		ICP2-HE_121213A	27	R85116
Magnesium	20	mg/L		1		E200.7	12/13/12 11:41 / sld		ICP2-HE_121213A	27	R85116
Potassium	1	mg/L		1		E200.7	12/13/12 11:41 / sld		ICP2-HE_121213A	27	R85116
Sodium	1	mg/L		1		E200.7	12/13/12 11:41 / sld		ICP2-HE_121213A	27	R85116
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	12/14/12 16:13 / dck	12/13/12 08:50	ICPMS204-B_121210B	648	19011
Cadmium	0.00904	mg/L		0.00008		E200.8	12/14/12 16:13 / dck	12/13/12 08:50	ICPMS204-B_121210B	648	19011
Copper	0.016	mg/L		0.001		E200.8	12/14/12 16:13 / dck	12/13/12 08:50	ICPMS204-B_121210B	648	19011
Iron	ND	mg/L		0.03		E200.8	12/14/12 16:13 / dck	12/13/12 08:50	ICPMS204-B_121210B	648	19011
Lead	0.0049	mg/L		0.0005		E200.8	12/14/12 16:13 / dck	12/13/12 08:50	ICPMS204-B_121210B	648	19011
Manganese	ND	mg/L		0.005		E200.8	12/14/12 16:13 / dck	12/13/12 08:50	ICPMS204-B_121210B	648	19011
Zinc	2.03	mg/L		0.01		E200.8	12/14/12 16:13 / dck	12/13/12 08:50	ICPMS204-B_121210B	648	19011

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: BRSW-24
Lab ID: H12120185-009
Matrix: Surface Water

Project: UBMC Surface Water
Collection Date: 12/10/12 15:20
DateReceived: 12/11/12
Report Date: 01/11/13

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.3	s.u.	H	0.1		A4500-H B	12/12/12 11:53 / cm		PHSC_101-H_121212A	28	R85072
Conductivity @ 25 C	474	umhos/cm		1		A2510 B	12/12/12 11:53 / cm		PHSC_101-H_121212A	29	R85072
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/13/12 13:07 / cm	12/13/12 11:01	24 (14410200)_121213A	12	19013
Solids, Total Dissolved TDS @ 180 C	300	mg/L		10		A2540 C	12/13/12 13:25 / cm		24 (14410200)_121213B	13	TDS121213A
INORGANICS											
Alkalinity, Total as CaCO3	100	mg/L		4		A2320 B	12/13/12 19:43 / cm		MAN-TECH_121213A	158	R85122
Bicarbonate as HCO3	120	mg/L		4		A2320 B	12/13/12 19:43 / cm		MAN-TECH_121213A	158	R85122
Carbonate as CO3	5	mg/L		4		A2320 B	12/13/12 19:43 / cm		MAN-TECH_121213A	158	R85122
Chloride	ND	mg/L		1		E300.0	12/13/12 17:41 / cm		IC102-H_121213A	35	R85125
Sulfate	130	mg/L		1		E300.0	12/13/12 17:41 / cm		IC102-H_121213A	35	R85125
Hardness as CaCO3	241	mg/L		1		A2340 B	12/13/12 15:17 / sld		WATERCALC_121213B	9	R85117
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	12/13/12 11:45 / sld		ICP2-HE_121213A	28	R85116
Calcium	64	mg/L		1		E200.7	12/13/12 11:45 / sld		ICP2-HE_121213A	28	R85116
Magnesium	20	mg/L		1		E200.7	12/13/12 11:45 / sld		ICP2-HE_121213A	28	R85116
Potassium	ND	mg/L		1		E200.7	12/13/12 11:45 / sld		ICP2-HE_121213A	28	R85116
Sodium	1	mg/L		1		E200.7	12/13/12 11:45 / sld		ICP2-HE_121213A	28	R85116
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	12/14/12 16:18 / dck	12/13/12 08:50	ICPMS204-B_121210B	649	19011
Cadmium	0.00909	mg/L		0.00008		E200.8	12/14/12 16:18 / dck	12/13/12 08:50	ICPMS204-B_121210B	649	19011
Copper	0.016	mg/L		0.001		E200.8	12/14/12 16:18 / dck	12/13/12 08:50	ICPMS204-B_121210B	649	19011
Iron	ND	mg/L		0.03		E200.8	12/14/12 16:18 / dck	12/13/12 08:50	ICPMS204-B_121210B	649	19011
Lead	0.0049	mg/L		0.0005		E200.8	12/14/12 16:18 / dck	12/13/12 08:50	ICPMS204-B_121210B	649	19011
Manganese	ND	mg/L		0.005		E200.8	12/14/12 16:18 / dck	12/13/12 08:50	ICPMS204-B_121210B	649	19011
Zinc	2.06	mg/L		0.01		E200.8	12/14/12 16:18 / dck	12/13/12 08:50	ICPMS204-B_121210B	649	19011

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: BRSW-1
Lab ID: H12120185-010
Matrix: Surface Water

Project: UBMC Surface Water
Collection Date: 12/10/12 16:08
DateReceived: 12/11/12
Report Date: 01/11/13

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.8	s.u.	H	0.1		A4500-H B	12/12/12 11:56 / cm		PHSC_101-H_121212A	30	R85072
Conductivity @ 25 C	204	umhos/cm		1		A2510 B	12/12/12 11:56 / cm		PHSC_101-H_121212A	31	R85072
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/13/12 13:14 / cm	12/13/12 11:01	24 (14410200)_121213A	13	19013
Solids, Total Dissolved TDS @ 180 C	101	mg/L		10		A2540 C	12/13/12 13:25 / cm		24 (14410200)_121213B	14	TDS121213A
INORGANICS											
Alkalinity, Total as CaCO3	110	mg/L		4		A2320 B	12/13/12 19:58 / cm		MAN-TECH_121213A	162	R85122
Bicarbonate as HCO3	120	mg/L		4		A2320 B	12/13/12 19:58 / cm		MAN-TECH_121213A	162	R85122
Carbonate as CO3	5	mg/L		4		A2320 B	12/13/12 19:58 / cm		MAN-TECH_121213A	162	R85122
Chloride	ND	mg/L		1		E300.0	12/13/12 17:54 / cm		IC102-H_121213A	36	R85125
Sulfate	5	mg/L		1		E300.0	12/13/12 17:54 / cm		IC102-H_121213A	36	R85125
Hardness as CaCO3	105	mg/L		1		A2340 B	12/13/12 15:17 / sld		WATERCALC_121213B	10	R85117
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	12/13/12 11:49 / sld		ICP2-HE_121213A	29	R85116
Calcium	21	mg/L		1		E200.7	12/13/12 11:49 / sld		ICP2-HE_121213A	29	R85116
Magnesium	13	mg/L		1		E200.7	12/13/12 11:49 / sld		ICP2-HE_121213A	29	R85116
Potassium	ND	mg/L		1		E200.7	12/13/12 11:49 / sld		ICP2-HE_121213A	29	R85116
Sodium	1	mg/L		1		E200.7	12/13/12 11:49 / sld		ICP2-HE_121213A	29	R85116
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	12/14/12 16:23 / dck	12/13/12 08:50	ICPMS204-B_121210B	650	19011
Cadmium	ND	mg/L		0.00008		E200.8	12/14/12 16:23 / dck	12/13/12 08:50	ICPMS204-B_121210B	650	19011
Copper	ND	mg/L		0.001		E200.8	12/14/12 16:23 / dck	12/13/12 08:50	ICPMS204-B_121210B	650	19011
Iron	ND	mg/L		0.03		E200.8	12/14/12 16:23 / dck	12/13/12 08:50	ICPMS204-B_121210B	650	19011
Lead	ND	mg/L		0.0005		E200.8	12/14/12 16:23 / dck	12/13/12 08:50	ICPMS204-B_121210B	650	19011
Manganese	ND	mg/L		0.005		E200.8	12/14/12 16:23 / dck	12/13/12 08:50	ICPMS204-B_121210B	650	19011
Zinc	ND	mg/L		0.01		E200.8	12/14/12 16:23 / dck	12/13/12 08:50	ICPMS204-B_121210B	650	19011

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

Client: MT DEQ-Site Response
Work Order: H12120185
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *11-Jan-13*

BatchID: 19011

Run ID :Run Order: **ICPMS204-B_121210B: 601** SampType: **Method Blank** Sample ID: **MB-19011** Method: **E200.8**

Analysis Date: **12/14/12 12:38** Units: **mg/L** **Prep Info:** Prep Date: **12/13/2012** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	3E-05									
Cadmium	ND	2E-05									
Copper	ND	0.0003									
Iron	ND	0.0007									
Lead	ND	2E-05									
Manganese	ND	5E-05									
Zinc	0.0008	0.0007									

Associated samples: **H12120185-001C; H12120185-002C; H12120185-003C; H12120185-004C; H12120185-005C; H12120185-006C; H12120185-007C; H12120185-008C; H12120185-009C; H12120185-010C**

Run ID :Run Order: **ICPMS204-B_121210B: 602** SampType: **Laboratory Control Sample** Sample ID: **LCS-19011** Method: **E200.8**

Analysis Date: **12/14/12 12:42** Units: **mg/L** **Prep Info:** Prep Date: **12/13/2012** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.520	0.0010	0.5		104	85	115				
Cadmium	0.277	0.0010	0.25		111	85	115				
Copper	0.515	0.0050	0.5		103	85	115				
Iron	2.69	0.030	2.5		108	85	115				
Lead	0.538	0.0010	0.5		108	85	115				
Manganese	2.66	0.0010	2.5		106	85	115				
Zinc	0.531	0.010	0.5	0.0008227	106	85	115				

Associated samples: **H12120185-001C; H12120185-002C; H12120185-003C; H12120185-004C; H12120185-005C; H12120185-006C; H12120185-007C; H12120185-008C; H12120185-009C; H12120185-010C**

Run ID :Run Order: **ICPMS204-B_121210B: 634** SampType: **Sample Matrix Spike** Sample ID: **H12120185-001CMS3** Method: **E200.8**

Analysis Date: **12/14/12 15:09** Units: **mg/L** **Prep Info:** Prep Date: **12/13/2012** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.510	0.0010	0.5	0.0000514	102	70	130				
Cadmium	0.274	0.0010	0.25	0.0000305	110	70	130				
Copper	0.512	0.0050	0.5	0.004608	102	70	130				
Iron	2.62	0.030	2.5	0.001092	105	70	130				
Lead	0.535	0.0010	0.5	0.0000721	107	70	130				
Manganese	2.68	0.0010	2.5	0.0006838	107	70	130				
Zinc	0.525	0.010	0.5	0.007412	104	70	130				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limit
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120185
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *11-Jan-13*

BatchID: 19011

Run ID :Run Order: **ICPMS204-B_121210B: 634** SampType: **Sample Matrix Spike** Sample ID: **H12120185-001CMS3** Method: **E200.8**
Analysis Date: **12/14/12 15:09** Units: **mg/L** **Prep Info:** Prep Date: **12/13/2012** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12120185-001C; H12120185-002C; H12120185-003C; H12120185-004C; H12120185-005C; H12120185-006C; H12120185-007C; H12120185-008C; H12120185-009C; H12120185-010C**

Run ID :Run Order: **ICPMS204-B_121210B: 635** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12120185-001CMSD3** Method: **E200.8**
Analysis Date: **12/14/12 15:14** Units: **mg/L** **Prep Info:** Prep Date: **12/13/2012** Prep Method: **E200.2**

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.514	0.0010	0.5	0.0000514	103	70	130	0.5099	0.7	20	
Cadmium	0.274	0.0010	0.25	0.0000305	110	70	130	0.2741	0.0	20	
Copper	0.518	0.0050	0.5	0.004608	103	70	130	0.5125	1.0	20	
Iron	2.58	0.030	2.5	0.001092	103	70	130	2.616	1.4	20	
Lead	0.534	0.0010	0.5	0.0000721	107	70	130	0.535	0.2	20	
Manganese	2.69	0.0010	2.5	0.0006838	108	70	130	2.685	0.2	20	
Zinc	0.531	0.010	0.5	0.007412	105	70	130	0.5251	1.1	20	

Associated samples: **H12120185-001C; H12120185-002C; H12120185-003C; H12120185-004C; H12120185-005C; H12120185-006C; H12120185-007C; H12120185-008C; H12120185-009C; H12120185-010C**

Run ID :Run Order: **ICPMS204-B_121210B: 652** SampType: **Sample Matrix Spike** Sample ID: **H12120202-001CMS3** Method: **E200.8**
Analysis Date: **12/14/12 16:32** Units: **mg/L** **Prep Info:** Prep Date: **12/14/2012** Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.509	0.0010	0.5	0.0000368	102	70	130				
Cadmium	0.272	0.0010	0.25		109	70	130				
Copper	0.512	0.0050	0.5	0.004182	102	70	130				
Iron	2.62	0.030	2.5	0.001239	105	70	130				
Lead	0.537	0.0010	0.5	0.0000366	107	70	130				
Manganese	2.66	0.0010	2.5	0.0005461	107	70	130				
Zinc	0.532	0.010	0.5	0.007772	105	70	130				

Associated samples: **H12120185-001C; H12120185-002C; H12120185-003C; H12120185-004C; H12120185-005C; H12120185-006C; H12120185-007C; H12120185-008C; H12120185-009C; H12120185-010C**

Run ID :Run Order: **ICPMS204-B_121210B: 653** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12120202-001CMSD3** Method: **E200.8**
Analysis Date: **12/14/12 16:36** Units: **mg/L** **Prep Info:** Prep Date: **12/14/2012** Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.500	0.0010	0.5	0.0000368	100	70	130	0.5093	1.7	20	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limit
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120185
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *11-Jan-13*

BatchID: 19011

Run ID :Run Order: **ICPMS204-B_121210B: 653** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12120202-001CMSD3** Method: **E200.8**

Analysis Date: **12/14/12 16:36** Units: **mg/L** **Prep Info:** Prep Date: **12/14/2012** Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.274	0.0010	0.25		109	70	130	0.272	0.5	20	
Copper	0.507	0.0050	0.5	0.004182	101	70	130	0.5117	0.9	20	
Iron	2.58	0.030	2.5	0.001239	103	70	130	2.624	1.6	20	
Lead	0.534	0.0010	0.5	0.0000366	107	70	130	0.5368	0.5	20	
Manganese	2.64	0.0010	2.5	0.0005461	106	70	130	2.665	0.8	20	
Zinc	0.521	0.010	0.5	0.007772	103	70	130	0.5319	2.1	20	

Associated samples: **H12120185-001C; H12120185-002C; H12120185-003C; H12120185-004C; H12120185-005C; H12120185-006C; H12120185-007C; H12120185-008C; H12120185-009C; H12120185-010C**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limit
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120185
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *11-Jan-13*

BatchID: 19013

Run ID :Run Order: **ACCU-124 (14410200)_121213A: 1** SampType: **Method Blank** Sample ID: **MB-19013** Method: **A2540 D**
Analysis Date: **12/13/12 13:04** Units: **mg/L** **Prep Info:** Prep Date: **12/13/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	2									

Associated samples: **H12120185-001A; H12120185-002A; H12120185-003A; H12120185-004A; H12120185-005A; H12120185-006A; H12120185-007A; H12120185-008A; H12120185-009A; H12120185-010A**

Run ID :Run Order: **ACCU-124 (14410200)_121213A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS-19013** Method: **A2540 D**
Analysis Date: **12/13/12 13:04** Units: **mg/L** **Prep Info:** Prep Date: **12/13/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	2020	10	2000		101	70	130				

Associated samples: **H12120185-001A; H12120185-002A; H12120185-003A; H12120185-004A; H12120185-005A; H12120185-006A; H12120185-007A; H12120185-008A; H12120185-009A; H12120185-010A**

Run ID :Run Order: **ACCU-124 (14410200)_121213A: 4** SampType: **Sample Duplicate** Sample ID: **H12120185-001ADUP** Method: **A2540 D**
Analysis Date: **12/13/12 13:05** Units: **mg/L** **Prep Info:** Prep Date: **12/13/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	10								5	

Associated samples: **H12120185-001A; H12120185-002A; H12120185-003A; H12120185-004A; H12120185-005A; H12120185-006A; H12120185-007A; H12120185-008A; H12120185-009A; H12120185-010A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limit
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120185
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *11-Jan-13*

BatchID: R85054

Run ID :Run Order: **ICPMS204-B_121210B: 9** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **12/10/12 12:34** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0504	0.0050	0.05		101	90	110				
Cadmium	0.0262	0.0010	0.025		105	90	110				
Copper	0.0515	0.010	0.05		103	90	110				
Iron	0.268	0.030	0.25		107	90	110				
Lead	0.0495	0.010	0.05		99	90	110				
Manganese	0.254	0.010	0.25		102	90	110				
Zinc	0.0542	0.010	0.05		108	90	110				

Associated samples: **H12120185-001C; H12120185-002C; H12120185-003C; H12120185-004C; H12120185-005C; H12120185-006C; H12120185-007C; H12120185-008C; H12120185-009C; H12120185-010C**

Run ID :Run Order: **ICPMS204-B_121210B: 10** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **12/10/12 12:39** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.000142	0.0050									
Cadmium	0.00107	0.0010									
Copper	0.000254	0.010									
Iron	100	0.030	100		100	70	130				
Lead	0.000160	0.010									
Manganese	0.000559	0.010									
Zinc	0.00108	0.010									

Associated samples: **H12120185-001C; H12120185-002C; H12120185-003C; H12120185-004C; H12120185-005C; H12120185-006C; H12120185-007C; H12120185-008C; H12120185-009C; H12120185-010C**

Run ID :Run Order: **ICPMS204-B_121210B: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **12/10/12 12:44** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0110	0.0050	0.01		110	70	130				
Cadmium	0.0111	0.0010	0.01		111	70	130				
Copper	0.0212	0.010	0.02		106	70	130				
Iron	106	0.030	100		106	70	130				
Lead	0.000260	0.010				0	0				
Manganese	0.0218	0.010	0.02		109	70	130				
Zinc	0.0115	0.010	0.01		115	70	130				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limit
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120185
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *11-Jan-13*

BatchID: R85054

Run ID :Run Order: **ICPMS204-B_121210B: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**
Analysis Date: **12/10/12 12:44** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12120185-001C; H12120185-002C; H12120185-003C; H12120185-004C; H12120185-005C; H12120185-006C; H12120185-007C; H12120185-008C; H12120185-009C; H12120185-010C**

Run ID :Run Order: **ICPMS204-B_121210B: 55** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**
Analysis Date: **12/11/12 11:44** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0499	0.0050	0.05		100	90	110				
Cadmium	0.0252	0.0010	0.025		101	90	110				
Copper	0.0516	0.010	0.05		103	90	110				
Iron	0.258	0.030	0.25		103	90	110				
Lead	0.0484	0.010	0.05		97	90	110				
Manganese	0.246	0.010	0.25		98	90	110				
Zinc	0.0532	0.010	0.05		106	90	110				

Associated samples: **H12120185-001C; H12120185-002C; H12120185-003C; H12120185-004C; H12120185-005C; H12120185-006C; H12120185-007C; H12120185-008C; H12120185-009C; H12120185-010C**

Run ID :Run Order: **ICPMS204-B_121210B: 56** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**
Analysis Date: **12/11/12 11:49** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.000160	0.0050									
Cadmium	0.000874	0.0010									
Copper	0.000218	0.010									
Iron	100	0.030	100		100	70	130				
Lead	0.000159	0.010									
Manganese	0.000547	0.010									
Zinc	0.000959	0.010									

Associated samples: **H12120185-001C; H12120185-002C; H12120185-003C; H12120185-004C; H12120185-005C; H12120185-006C; H12120185-007C; H12120185-008C; H12120185-009C; H12120185-010C**

Run ID :Run Order: **ICPMS204-B_121210B: 57** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**
Analysis Date: **12/11/12 11:54** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0109	0.0050	0.01		109	70	130				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limit
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120185
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *11-Jan-13*

BatchID: R85054

Run ID :Run Order: **ICPMS204-B_121210B: 57** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **12/11/12 11:54** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.0109	0.0010	0.01		109	70	130				
Copper	0.0209	0.010	0.02		105	70	130				
Iron	107	0.030	100		107	70	130				
Lead	0.000229	0.010				0	0				
Manganese	0.0215	0.010	0.02		108	70	130				
Zinc	0.0119	0.010	0.01		119	70	130				

Associated samples: **H12120185-001C; H12120185-002C; H12120185-003C; H12120185-004C; H12120185-005C; H12120185-006C; H12120185-007C; H12120185-008C; H12120185-009C; H12120185-010C**

Run ID :Run Order: **ICPMS204-B_121210B: 251** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **12/12/12 03:37** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0486	0.0050	0.05		97	90	110				
Cadmium	0.0252	0.0010	0.025		101	90	110				
Copper	0.0499	0.010	0.05		100	90	110				
Iron	0.269	0.030	0.25		108	90	110				
Lead	0.0476	0.010	0.05		95	90	110				
Manganese	0.248	0.010	0.25		99	90	110				
Zinc	0.0509	0.010	0.05		102	90	110				

Associated samples: **H12120185-001C; H12120185-002C; H12120185-003C; H12120185-004C; H12120185-005C; H12120185-006C; H12120185-007C; H12120185-008C; H12120185-009C; H12120185-010C**

Run ID :Run Order: **ICPMS204-B_121210B: 252** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **12/12/12 03:42** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.000117	0.0050									
Cadmium	0.00103	0.0010									
Copper	0.000206	0.010									
Iron	97.0	0.030	100		97	70	130				
Lead	0.000154	0.010									
Manganese	0.000489	0.010									
Zinc	0.00113	0.010									

Associated samples: **H12120185-001C; H12120185-002C; H12120185-003C; H12120185-004C; H12120185-005C; H12120185-006C; H12120185-007C; H12120185-008C; H12120185-009C; H12120185-010C**

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limit
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120185
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *11-Jan-13*

BatchID: R85054

Run ID :Run Order: **ICPMS204-B_121210B: 253** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **12/12/12 03:46** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0105	0.0050	0.01		105	70	130				
Cadmium	0.0108	0.0010	0.01		107	70	130				
Copper	0.0203	0.010	0.02		102	70	130				
Iron	104	0.030	100		104	70	130				
Lead	0.000227	0.010				0	0				
Manganese	0.0212	0.010	0.02		106	70	130				
Zinc	0.0112	0.010	0.01		112	70	130				

Associated samples: **H12120185-001C; H12120185-002C; H12120185-003C; H12120185-004C; H12120185-005C; H12120185-006C; H12120185-007C; H12120185-008C; H12120185-009C; H12120185-010C**

Run ID :Run Order: **ICPMS204-B_121210B: 318** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **12/12/12 10:49** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0500	0.0050	0.05		100	90	110				
Cadmium	0.0266	0.0010	0.025		106	90	110				
Copper	0.0513	0.010	0.05		103	90	110				
Iron	0.273	0.030	0.25		109	90	110				
Lead	0.0502	0.010	0.05		100	90	110				
Manganese	0.253	0.010	0.25		101	90	110				
Zinc	0.0532	0.010	0.05		106	90	110				

Associated samples: **H12120185-001C; H12120185-002C; H12120185-003C; H12120185-004C; H12120185-005C; H12120185-006C; H12120185-007C; H12120185-008C; H12120185-009C; H12120185-010C**

Run ID :Run Order: **ICPMS204-B_121210B: 319** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **12/12/12 10:53** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.000124	0.0050									
Cadmium	0.000992	0.0010									
Copper	0.000219	0.010									
Iron	104	0.030	100		104	70	130				
Lead	0.000178	0.010									
Manganese	0.000559	0.010									
Zinc	0.00106	0.010									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limit
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120185
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *11-Jan-13*

BatchID: R85054

Run ID :Run Order: **ICPMS204-B_121210B: 319** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**
Analysis Date: **12/12/12 10:53** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12120185-001C; H12120185-002C; H12120185-003C; H12120185-004C; H12120185-005C; H12120185-006C; H12120185-007C; H12120185-008C; H12120185-009C; H12120185-010C**

Run ID :Run Order: **ICPMS204-B_121210B: 320** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**
Analysis Date: **12/12/12 10:58** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0115	0.0050	0.01		115	70	130				
Cadmium	0.0114	0.0010	0.01		114	70	130				
Copper	0.0213	0.010	0.02		107	70	130				
Iron	112	0.030	100		112	70	130				
Lead	0.000251	0.010				0	0				
Manganese	0.0221	0.010	0.02		111	70	130				
Zinc	0.0117	0.010	0.01		117	70	130				

Associated samples: **H12120185-001C; H12120185-002C; H12120185-003C; H12120185-004C; H12120185-005C; H12120185-006C; H12120185-007C; H12120185-008C; H12120185-009C; H12120185-010C**

Run ID :Run Order: **ICPMS204-B_121210B: 510** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**
Analysis Date: **12/13/12 04:48** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0515	0.0050	0.05		103	90	110				
Cadmium	0.0260	0.0010	0.025		104	90	110				
Copper	0.0529	0.010	0.05		106	90	110				
Iron	0.266	0.030	0.25		106	90	110				
Lead	0.0498	0.010	0.05		100	90	110				
Manganese	0.253	0.010	0.25		101	90	110				
Zinc	0.0537	0.010	0.05		107	90	110				

Associated samples: **H12120185-001C; H12120185-002C; H12120185-003C; H12120185-004C; H12120185-005C; H12120185-006C; H12120185-007C; H12120185-008C; H12120185-009C; H12120185-010C**

Run ID :Run Order: **ICPMS204-B_121210B: 541** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**
Analysis Date: **12/13/12 07:32** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.000164	0.0050									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limit
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120185
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *11-Jan-13*

BatchID: R85054

Run ID :Run Order: **ICPMS204-B_121210B: 541** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **12/13/12 07:32** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.000958	0.0010									
Copper	0.000215	0.010									
Iron	91.4	0.030	100		91	70	130				
Lead	0.000133	0.010									
Manganese	0.000701	0.010									
Zinc	0.000954	0.010									

Associated samples: **H12120185-001C; H12120185-002C; H12120185-003C; H12120185-004C; H12120185-005C; H12120185-006C; H12120185-007C; H12120185-008C; H12120185-009C; H12120185-010C**

Run ID :Run Order: **ICPMS204-B_121210B: 542** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **12/13/12 07:37** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0106	0.0050	0.01		106	70	130				
Cadmium	0.0105	0.0010	0.01		105	70	130				
Copper	0.0210	0.010	0.02		105	70	130				
Iron	98.2	0.030	100		98	70	130				
Lead	0.000209	0.010				0	0				
Manganese	0.0207	0.010	0.02		104	70	130				
Zinc	0.0110	0.010	0.01		110	70	130				

Associated samples: **H12120185-001C; H12120185-002C; H12120185-003C; H12120185-004C; H12120185-005C; H12120185-006C; H12120185-007C; H12120185-008C; H12120185-009C; H12120185-010C**

Run ID :Run Order: **ICPMS204-B_121210B: 584** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **12/14/12 01:49** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0494	0.0050	0.05		99	90	110				
Cadmium	0.0260	0.0010	0.025		104	90	110				
Copper	0.0516	0.010	0.05		103	90	110				
Iron	0.259	0.030	0.25		103	90	110				
Lead	0.0499	0.010	0.05		100	90	110				
Manganese	0.260	0.010	0.25		104	90	110				
Zinc	0.0529	0.010	0.05		106	90	110				

Associated samples: **H12120185-001C; H12120185-002C; H12120185-003C; H12120185-004C; H12120185-005C; H12120185-006C; H12120185-007C; H12120185-008C; H12120185-009C; H12120185-010C**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limit
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120185
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *11-Jan-13*

BatchID: R85054

Run ID :Run Order: **ICPMS204-B_121210B: 585** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **12/14/12 01:54** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.000108	0.0050									
Cadmium	0.000831	0.0010									
Copper	0.000181	0.010									
Iron	93.6	0.030	100		94	70	130				
Lead	0.000153	0.010									
Manganese	0.000567	0.010									
Zinc	0.00102	0.010									

Associated samples: **H12120185-001C; H12120185-002C; H12120185-003C; H12120185-004C; H12120185-005C; H12120185-006C; H12120185-007C; H12120185-008C; H12120185-009C; H12120185-010C**

Run ID :Run Order: **ICPMS204-B_121210B: 586** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **12/14/12 01:59** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0104	0.0050	0.01		104	70	130				
Cadmium	0.0105	0.0010	0.01		105	70	130				
Copper	0.0198	0.010	0.02		99	70	130				
Iron	100	0.030	100		100	70	130				
Lead	0.000218	0.010				0	0				
Manganese	0.0204	0.010	0.02		102	70	130				
Zinc	0.0110	0.010	0.01		110	70	130				

Associated samples: **H12120185-001C; H12120185-002C; H12120185-003C; H12120185-004C; H12120185-005C; H12120185-006C; H12120185-007C; H12120185-008C; H12120185-009C; H12120185-010C**

Run ID :Run Order: **ICPMS204-B_121210B: 677** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **12/14/12 18:44** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0503	0.0050	0.05		101	90	110				
Cadmium	0.0263	0.0010	0.025		105	90	110				
Copper	0.0513	0.010	0.05		103	90	110				
Iron	0.262	0.030	0.25		105	90	110				
Lead	0.0497	0.010	0.05		99	90	110				
Manganese	0.261	0.010	0.25		105	90	110				
Zinc	0.0508	0.010	0.05		102	90	110				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limit
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120185
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *11-Jan-13*

BatchID: R85054

Run ID :Run Order: **ICPMS204-B_121210B: 677** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **12/14/12 18:44** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12120185-001C; H12120185-002C; H12120185-003C; H12120185-004C; H12120185-005C; H12120185-006C; H12120185-007C; H12120185-008C; H12120185-009C; H12120185-010C**

Run ID :Run Order: **ICPMS204-B_121210B: 678** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **12/14/12 18:49** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	8.10E-05	0.0050									
Cadmium	0.000837	0.0010									
Copper	0.000186	0.010									
Iron	94.0	0.030	100		94	70	130				
Lead	0.000137	0.010									
Manganese	0.000448	0.010									
Zinc	0.000903	0.010									

Associated samples: **H12120185-001C; H12120185-002C; H12120185-003C; H12120185-004C; H12120185-005C; H12120185-006C; H12120185-007C; H12120185-008C; H12120185-009C; H12120185-010C**

Run ID :Run Order: **ICPMS204-B_121210B: 679** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **12/14/12 18:53** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0106	0.0050	0.01		106	70	130				
Cadmium	0.0102	0.0010	0.01		102	70	130				
Copper	0.0201	0.010	0.02		100	70	130				
Iron	99.7	0.030	100		100	70	130				
Lead	0.000214	0.010				0	0				
Manganese	0.0197	0.010	0.02		98	70	130				
Zinc	0.0109	0.010	0.01		109	70	130				

Associated samples: **H12120185-001C; H12120185-002C; H12120185-003C; H12120185-004C; H12120185-005C; H12120185-006C; H12120185-007C; H12120185-008C; H12120185-009C; H12120185-010C**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limit
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120185
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R85072

Date: *11-Jan-13*

Run ID :Run Order: **PHSC_101-H_121212A: 2** SampType: **Initial Calibration Verification Standard** Sample ID: **SC 150** Method: **A2510 B**
Analysis Date: **12/12/12 09:55** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	143	1.0	150		95	90	110				

Associated samples: **H12120185-001A; H12120185-003A; H12120185-004A; H12120185-005A; H12120185-006A; H12120185-007A; H12120185-008A; H12120185-009A; H12120185-010A**

Run ID :Run Order: **PHSC_101-H_121212A: 3** SampType: **Initial Calibration Verification Standard** Sample ID: **SC 5000** Method: **A2510 B**
Analysis Date: **12/12/12 09:58** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	5000	1.0	5000		100	90	110				

Associated samples: **H12120185-001A; H12120185-003A; H12120185-004A; H12120185-005A; H12120185-006A; H12120185-007A; H12120185-008A; H12120185-009A; H12120185-010A**

Run ID :Run Order: **PHSC_101-H_121212A: 4** SampType: **Initial Calibration Verification Standard** Sample ID: **SC 20000** Method: **A2510 B**
Analysis Date: **12/12/12 10:00** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	19900	1.0	20000		100	90	110				

Associated samples: **H12120185-001A; H12120185-003A; H12120185-004A; H12120185-005A; H12120185-006A; H12120185-007A; H12120185-008A; H12120185-009A; H12120185-010A**

Run ID :Run Order: **PHSC_101-H_121212A: 5** SampType: **Initial Calibration Verification Standard** Sample ID: **SC 2ND 1000** Method: **A2510 B**
Analysis Date: **12/12/12 10:03** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	1000	1.0	1000		100	90	110				

Associated samples: **H12120185-001A; H12120185-003A; H12120185-004A; H12120185-005A; H12120185-006A; H12120185-007A; H12120185-008A; H12120185-009A; H12120185-010A**

Run ID :Run Order: **PHSC_101-H_121212A: 33** SampType: **Sample Duplicate** Sample ID: **H12120185-010ADUP** Method: **A2510 B**
Analysis Date: **12/12/12 11:58** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	204	1.0						204	0.0	10	

Associated samples: **H12120185-001A; H12120185-003A; H12120185-004A; H12120185-005A; H12120185-006A; H12120185-007A; H12120185-008A; H12120185-009A; H12120185-010A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limit
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120185
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *11-Jan-13*

BatchID: R85072

Run ID :Run Order: **PHSC_101-H_121212A: 1** SampType: **Initial Calibration Verification Standard** Sample ID: **pH 7** Method: **A4500-H B**

Analysis Date: **12/12/12 09:53** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.0	0.1	7		100	98	102				

Associated samples: **H12120185-001A; H12120185-003A; H12120185-004A; H12120185-005A; H12120185-006A; H12120185-007A; H12120185-008A; H12120185-009A; H12120185-010A**

Run ID :Run Order: **PHSC_101-H_121212A: 32** SampType: **Sample Duplicate** Sample ID: **H12120185-010ADUP** Method: **A4500-H B**

Analysis Date: **12/12/12 11:58** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.8	0.1						7.78	0.1	3	

Associated samples: **H12120185-001A; H12120185-003A; H12120185-004A; H12120185-005A; H12120185-006A; H12120185-007A; H12120185-008A; H12120185-009A; H12120185-010A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limit
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120185
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *11-Jan-13*

BatchID: R85116

Run ID :Run Order: **ICP2-HE_121213A: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**

Analysis Date: **12/13/12 10:22** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	4.06	0.10	4		102	95	105				
Calcium	40.0	1.0	40		100	95	105				
Magnesium	39.6	1.0	40		99	95	105				
Potassium	40.6	1.0	40		101	95	105				
Sodium	40.8	1.0	40		102	95	105				

Associated samples: **H12120185-001B; H12120185-002B; H12120185-003B; H12120185-004B; H12120185-005B; H12120185-006B; H12120185-007B; H12120185-008B; H12120185-009B; H12120185-010B**

Run ID :Run Order: **ICP2-HE_121213A: 7** SampType: **Continuing Calibration Verification Standar** Sample ID: **CCV-1** Method: **E200.7**

Analysis Date: **12/13/12 10:26** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	2.54	0.10	2.5		101	95	105				
Calcium	25.2	1.0	25		101	95	105				
Magnesium	24.7	1.0	25		99	95	105				
Potassium	25.4	1.0	25		102	95	105				
Sodium	25.4	1.0	25		102	95	105				

Associated samples: **H12120185-001B; H12120185-002B; H12120185-003B; H12120185-004B; H12120185-005B; H12120185-006B; H12120185-007B; H12120185-008B; H12120185-009B; H12120185-010B**

Run ID :Run Order: **ICP2-HE_121213A: 10** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.7**

Analysis Date: **12/13/12 10:37** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	518	0.10	500		104	80	120				
Calcium	478	1.0	500		96	80	120				
Magnesium	514	1.0	500		103	80	120				
Potassium	-0.0642	1.0				0	0				
Sodium	0.0178	1.0				0	0				

Associated samples: **H12120185-001B; H12120185-002B; H12120185-003B; H12120185-004B; H12120185-005B; H12120185-006B; H12120185-007B; H12120185-008B; H12120185-009B; H12120185-010B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limit
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120185
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *11-Jan-13*

BatchID: R85116

Run ID :Run Order: **ICP2-HE_121213A: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**
Analysis Date: **12/13/12 10:41** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	528	0.10	500		106	80	120				
Calcium	479	1.0	500		96	80	120				
Magnesium	514	1.0	500		103	80	120				
Potassium	22.2	1.0	20		111	80	120				
Sodium	22.3	1.0	20		112	80	120				

Associated samples: **H12120185-001B; H12120185-002B; H12120185-003B; H12120185-004B; H12120185-005B; H12120185-006B; H12120185-007B; H12120185-008B; H12120185-009B; H12120185-010B**

Run ID :Run Order: **ICP2-HE_121213A: 13** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.7**
Analysis Date: **12/13/12 10:49** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	ND	0.002									
Calcium	0.02	0.02									
Magnesium	ND	0.007									
Potassium	ND	0.02									
Sodium	ND	0.02									

Associated samples: **H12120185-001B; H12120185-002B; H12120185-003B; H12120185-004B; H12120185-005B; H12120185-006B; H12120185-007B; H12120185-008B; H12120185-009B; H12120185-010B**

Run ID :Run Order: **ICP2-HE_121213A: 14** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.7**
Analysis Date: **12/13/12 10:53** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	4.92	0.10	5		98	85	115				
Calcium	48.9	1.0	50	0.02126	98	85	115				
Magnesium	49.0	1.0	50		98	85	115				
Potassium	49.2	1.0	50		98	85	115				
Sodium	49.3	1.0	50		99	85	115				

Associated samples: **H12120185-001B; H12120185-002B; H12120185-003B; H12120185-004B; H12120185-005B; H12120185-006B; H12120185-007B; H12120185-008B; H12120185-009B; H12120185-010B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limit
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120185
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *11-Jan-13*

BatchID: R85116

Run ID :Run Order: **ICP2-HE_121213A: 17** SampType: **Sample Matrix Spike** Sample ID: **H12120185-001BMS2** Method: **E200.7**

Analysis Date: **12/13/12 11:04** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	5.00	0.030	5		100	70	130				
Calcium	49.5	1.0	50	0.03696	99	70	130				
Magnesium	49.5	1.0	50	0.00911	99	70	130				
Potassium	50.7	1.0	50		101	70	130				
Sodium	50.8	1.0	50		102	70	130				

Associated samples: **H12120185-001B; H12120185-002B; H12120185-003B; H12120185-004B; H12120185-005B; H12120185-006B; H12120185-007B; H12120185-008B; H12120185-009B; H12120185-010B**

Run ID :Run Order: **ICP2-HE_121213A: 18** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12120185-001BMSD2** Method: **E200.7**

Analysis Date: **12/13/12 11:08** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	4.99	0.030	5		100	70	130	4.998	0.1	20	
Calcium	49.2	1.0	50	0.03696	98	70	130	49.45	0.4	20	
Magnesium	49.2	1.0	50	0.00911	98	70	130	49.51	0.6	20	
Potassium	50.3	1.0	50		101	70	130	50.67	0.7	20	
Sodium	50.4	1.0	50		101	70	130	50.77	0.7	20	

Associated samples: **H12120185-001B; H12120185-002B; H12120185-003B; H12120185-004B; H12120185-005B; H12120185-006B; H12120185-007B; H12120185-008B; H12120185-009B; H12120185-010B**

Run ID :Run Order: **ICP2-HE_121213A: 19** SampType: **Continuing Calibration Verification Standar** Sample ID: **CCV** Method: **E200.7**

Analysis Date: **12/13/12 11:12** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	2.53	0.10	2.5		101	90	110				
Calcium	25.1	1.0	25		100	90	110				
Magnesium	24.9	1.0	25		100	90	110				
Potassium	25.4	1.0	25		102	90	110				
Sodium	25.4	1.0	25		102	90	110				

Associated samples: **H12120185-002B; H12120185-003B; H12120185-004B; H12120185-005B; H12120185-006B; H12120185-007B; H12120185-008B; H12120185-009B; H12120185-010B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limit
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120185
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *11-Jan-13*

BatchID: R85116

Run ID :Run Order: **ICP2-HE_121213A: 35** SampType: **Sample Matrix Spike** Sample ID: **H12120194-011CMS2** Method: **E200.7**

Analysis Date: **12/13/12 12:11** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	10.5	0.030	10	0.4276	101	70	130				
Calcium	197	1.0	100	101.4	95	70	130				
Magnesium	127	1.0	100	27.63	99	70	130				
Potassium	139	1.0	100	38.34	100	70	130				
Sodium	144	1.0	100	44.59	100	70	130				

Associated samples: **H12120185-001B; H12120185-002B; H12120185-003B; H12120185-004B; H12120185-005B; H12120185-006B; H12120185-007B; H12120185-008B; H12120185-009B; H12120185-010B**

Run ID :Run Order: **ICP2-HE_121213A: 36** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12120194-011CMSD2** Method: **E200.7**

Analysis Date: **12/13/12 12:15** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	10.7	0.030	10	0.4276	103	70	130	10.55	1.5	20	
Calcium	200	1.0	100	101.4	98	70	130	196.7	1.5	20	
Magnesium	128	1.0	100	27.63	100	70	130	126.6	1.0	20	
Potassium	142	1.0	100	38.34	104	70	130	138.6	2.3	20	
Sodium	148	1.0	100	44.59	103	70	130	144.4	2.4	20	

Associated samples: **H12120185-001B; H12120185-002B; H12120185-003B; H12120185-004B; H12120185-005B; H12120185-006B; H12120185-007B; H12120185-008B; H12120185-009B; H12120185-010B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limit
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120185
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

BatchID: R85122

Date: *11-Jan-13*

Run ID :Run Order: **MAN-TECH_121213A: 8** SampType: **Method Blank** Sample ID: **MBLK** Method: **A2320 B**
Analysis Date: **12/13/12 08:58** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	2	1									

Associated samples: **H12120185-001A; H12120185-002A; H12120185-003A; H12120185-004A; H12120185-005A; H12120185-006A; H12120185-007A; H12120185-008A; H12120185-009A; H12120185-010A**

Run ID :Run Order: **MAN-TECH_121213A: 10** SampType: **Laboratory Control Sample** Sample ID: **LCS-12072012** Method: **A2320 B**
Analysis Date: **12/13/12 09:06** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	630	4.0	600	2.49	105	90	110				

Associated samples: **H12120185-001A; H12120185-002A; H12120185-003A; H12120185-004A; H12120185-005A; H12120185-006A; H12120185-007A; H12120185-008A; H12120185-009A; H12120185-010A**

Run ID :Run Order: **MAN-TECH_121213A: 115** SampType: **Sample Matrix Spike** Sample ID: **H12120120-020AMS** Method: **A2320 B**
Analysis Date: **12/13/12 16:53** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	1400	4.0	600	916.1	77	80	120				S

Associated samples: **H12120185-001A; H12120185-002A; H12120185-003A; H12120185-004A; H12120185-005A; H12120185-006A; H12120185-007A; H12120185-008A; H12120185-009A; H12120185-010A**

Run ID :Run Order: **MAN-TECH_121213A: 137** SampType: **Sample Duplicate** Sample ID: **H12120185-001ADUP** Method: **A2320 B**
Analysis Date: **12/13/12 18:32** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	ND	4.0								10	
Bicarbonate as HCO3	ND	4.0								10	
Carbonate as CO3	ND	4.0								10	

Associated samples: **H12120185-001A; H12120185-002A; H12120185-003A; H12120185-004A; H12120185-005A; H12120185-006A; H12120185-007A; H12120185-008A; H12120185-009A; H12120185-010A**

Run ID :Run Order: **MAN-TECH_121213A: 160** SampType: **Sample Duplicate** Sample ID: **H12120185-009ADUP** Method: **A2320 B**
Analysis Date: **12/13/12 19:50** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	100	4.0						102.2	0.1	10	
Bicarbonate as HCO3	120	4.0						115.5	0.0	10	
Carbonate as CO3	4.6	4.0						4.51	1.1	10	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limit
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120185
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *11-Jan-13*

BatchID: R85122

Run ID :Run Order: **MAN-TECH_121213A: 160** SampType: **Sample Duplicate** Sample ID: **H12120185-009ADUP** Method: **A2320 B**

Analysis Date: **12/13/12 19:50** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12120185-001A; H12120185-002A; H12120185-003A; H12120185-004A; H12120185-005A; H12120185-006A; H12120185-007A; H12120185-008A; H12120185-009A; H12120185-010A**

Run ID :Run Order: **MAN-TECH_121213A: 164** SampType: **Sample Matrix Spike** Sample ID: **H12120185-010AMS** Method: **A2320 B**

Analysis Date: **12/13/12 20:06** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	730	4.0	600	109.4	104	80	120				

Associated samples: **H12120185-001A; H12120185-002A; H12120185-003A; H12120185-004A; H12120185-005A; H12120185-006A; H12120185-007A; H12120185-008A; H12120185-009A; H12120185-010A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limit
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120185
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *11-Jan-13*

BatchID: R85122

Run ID :Run Order: **MAN-TECH_121213A: 2** SampType: **Continuing Calibration Verification Standar** Sample ID: **CCV1-3075** Method: **A4500-H B**
Analysis Date: **12/13/12 08:41** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	4.0	0.1	4		99	97	103				

Associated samples: **H12120185-001A; H12120185-002A; H12120185-003A; H12120185-004A; H12120185-005A; H12120185-006A; H12120185-007A; H12120185-008A; H12120185-009A; H12120185-010A**

Run ID :Run Order: **MAN-TECH_121213A: 4** SampType: **Continuing Calibration Verification Standar** Sample ID: **CCV3-2796** Method: **A4500-H B**
Analysis Date: **12/13/12 08:47** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	10.2	0.1	10		102	99	101				S

Associated samples: **H12120185-001A; H12120185-002A; H12120185-003A; H12120185-004A; H12120185-005A; H12120185-006A; H12120185-007A; H12120185-008A; H12120185-009A; H12120185-010A**

Run ID :Run Order: **MAN-TECH_121213A: 5** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV-2978** Method: **A4500-H B**
Analysis Date: **12/13/12 08:50** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.1	0.1	7		101	98	102				

Associated samples: **H12120185-001A; H12120185-002A; H12120185-003A; H12120185-004A; H12120185-005A; H12120185-006A; H12120185-007A; H12120185-008A; H12120185-009A; H12120185-010A**

Run ID :Run Order: **MAN-TECH_121213A: 90** SampType: **Continuing Calibration Verification Standar** Sample ID: **CCV-3087** Method: **A4500-H B**
Analysis Date: **12/13/12 15:08** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.2	0.1	7		102	98	102				

Associated samples: **H12120185-001A; H12120185-002A**

Run ID :Run Order: **MAN-TECH_121213A: 138** SampType: **Sample Duplicate** Sample ID: **H12120185-001ADUP** Method: **A4500-H B**
Analysis Date: **12/13/12 18:32** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	5.7	0.1						5.95	4.6	3	R

Associated samples: **H12120185-002A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limit
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120185
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *11-Jan-13*

BatchID: R85122

Run ID :Run Order: **MAN-TECH_121213A: 141** SampType: **Continuing Calibration Verification Standar** Sample ID: **CCV-3087** Method: **A4500-H B**

Analysis Date: **12/13/12 18:40** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.2	0.1	7		102	98	102				

Associated samples: **H12120185-003A; H12120185-004A; H12120185-005A; H12120185-006A; H12120185-007A; H12120185-008A; H12120185-009A; H12120185-010A**

Run ID :Run Order: **MAN-TECH_121213A: 161** SampType: **Sample Duplicate** Sample ID: **H12120185-009ADUP** Method: **A4500-H B**

Analysis Date: **12/13/12 19:50** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	8.4	0.1						8.42	0.1	3	

Associated samples: **H12120185-002A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limit
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120185
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *11-Jan-13*

BatchID: R85125

Run ID :Run Order: **IC102-H_121213A: 15** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV121312-12** Method: **E300.0**

Analysis Date: **12/13/12 13:29** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	96	1.0	100		96	90	110				
Sulfate	380	1.0	400		95	90	110				

Associated samples: **H12120185-001A; H12120185-002A; H12120185-003A; H12120185-004A; H12120185-005A; H12120185-006A; H12120185-007A; H12120185-008A; H12120185-009A; H12120185-010A**

Run ID :Run Order: **IC102-H_121213A: 16** SampType: **Method Blank** Sample ID: **ICB121312-13** Method: **E300.0**

Analysis Date: **12/13/12 13:42** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.03									
Sulfate	ND	0.1									

Associated samples: **H12120185-001A; H12120185-002A; H12120185-003A; H12120185-004A; H12120185-005A; H12120185-006A; H12120185-007A; H12120185-008A; H12120185-009A; H12120185-010A**

Run ID :Run Order: **IC102-H_121213A: 17** SampType: **Laboratory Fortified Blank** Sample ID: **LFB121312-14** Method: **E300.0**

Analysis Date: **12/13/12 13:54** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	47	1.0	50		93	90	110				
Sulfate	180	1.0	200		92	90	110				

Associated samples: **H12120185-001A; H12120185-002A; H12120185-003A; H12120185-004A; H12120185-005A; H12120185-006A; H12120185-007A; H12120185-008A; H12120185-009A; H12120185-010A**

Run ID :Run Order: **IC102-H_121213A: 18** SampType: **Continuing Calibration Verification Standar** Sample ID: **CCV121312-15** Method: **E300.0**

Analysis Date: **12/13/12 14:07** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	95	1.0	100		95	90	110				
Sulfate	380	1.0	400		95	90	110				

Associated samples: **H12120185-001A; H12120185-002A; H12120185-003A; H12120185-004A; H12120185-005A; H12120185-006A; H12120185-007A; H12120185-008A**

Run ID :Run Order: **IC102-H_121213A: 31** SampType: **Sample Matrix Spike** Sample ID: **H12120185-008AMS** Method: **E300.0**

Analysis Date: **12/13/12 16:51** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	45	1.0	50	0.221	89	90	110				S

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limit
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120185
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *11-Jan-13*

BatchID: R85125

Run ID :Run Order: **IC102-H_121213A: 31** SampType: **Sample Matrix Spike** Sample ID: **H12120185-008AMS** Method: **E300.0**
Analysis Date: **12/13/12 16:51** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	330	1.0	200	131	102	90	110				

Associated samples: **H12120185-001A; H12120185-002A; H12120185-003A; H12120185-004A; H12120185-005A; H12120185-006A; H12120185-007A; H12120185-008A; H12120185-009A; H12120185-010A**

Run ID :Run Order: **IC102-H_121213A: 32** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12120185-008AMSD** Method: **E300.0**
Analysis Date: **12/13/12 17:03** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	46	1.0	50	0.221	91	90	110	44.94	1.3	20	
Sulfate	340	1.0	200	131	103	90	110	334.7	0.8	20	

Associated samples: **H12120185-001A; H12120185-002A; H12120185-003A; H12120185-004A; H12120185-005A; H12120185-006A; H12120185-007A; H12120185-008A; H12120185-009A; H12120185-010A**

Run ID :Run Order: **IC102-H_121213A: 33** SampType: **Continuing Calibration Verification Standar** Sample ID: **CCV121312-30** Method: **E300.0**
Analysis Date: **12/13/12 17:16** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	94	1.0	100		94	90	110				
Sulfate	380	1.0	400		94	90	110				

Associated samples: **H12120185-009A; H12120185-010A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limit
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120185
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *11-Jan-13*

BatchID: R85412

Run ID :Run Order: **PHSC_101-H_121231A: 2** SampType: **Initial Calibration Verification Standard** Sample ID: **SC 150** Method: **A2510 B**
Analysis Date: **12/31/12 09:52** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	143	1.0	150		95	90	110				

Associated samples: **H12120185-002A**

Run ID :Run Order: **PHSC_101-H_121231A: 3** SampType: **Initial Calibration Verification Standard** Sample ID: **SC 5000** Method: **A2510 B**
Analysis Date: **12/31/12 09:55** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	5000	1.0	5000		101	90	110				

Associated samples: **H12120185-002A**

Run ID :Run Order: **PHSC_101-H_121231A: 4** SampType: **Initial Calibration Verification Standard** Sample ID: **SC 20000** Method: **A2510 B**
Analysis Date: **12/31/12 09:57** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	20000	1.0	20000		100	90	110				

Associated samples: **H12120185-002A**

Run ID :Run Order: **PHSC_101-H_121231A: 5** SampType: **Initial Calibration Verification Standard** Sample ID: **SC 2ND 1000** Method: **A2510 B**
Analysis Date: **12/31/12 10:00** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	1000	1.0	1000		100	90	110				

Associated samples: **H12120185-002A**

Run ID :Run Order: **PHSC_101-H_121231A: 10** SampType: **Sample Duplicate** Sample ID: **H12120185-002ADUP** Method: **A2510 B**
Analysis Date: **12/31/12 10:11** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	2.0	1.0									

Associated samples: **H12120185-002A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limit
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120185
Project: UBMC Surface Water

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *11-Jan-13*

BatchID: TDS121213A

Run ID :Run Order: **ACCU-124 (14410200)_121213B: 1** SampType: **Method Blank** Sample ID: **MB-1_121213A** Method: **A2540 C**
Analysis Date: **12/13/12 13:23** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	ND	3									

Associated samples: **H12120185-001A; H12120185-002A; H12120185-003A; H12120185-004A; H12120185-005A; H12120185-006A; H12120185-007A; H12120185-008A; H12120185-009A; H12120185-010A**

Run ID :Run Order: **ACCU-124 (14410200)_121213B: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS-2_121213A** Method: **A2540 C**
Analysis Date: **12/13/12 13:23** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	1940	10	2000		97	90	110				

Associated samples: **H12120185-001A; H12120185-002A; H12120185-003A; H12120185-004A; H12120185-005A; H12120185-006A; H12120185-007A; H12120185-008A; H12120185-009A; H12120185-010A**

Run ID :Run Order: **ACCU-124 (14410200)_121213B: 4** SampType: **Sample Duplicate** Sample ID: **H12120185-001A DUP** Method: **A2540 C**
Analysis Date: **12/13/12 13:24** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	ND	10								5	

Associated samples: **H12120185-001A; H12120185-002A; H12120185-003A; H12120185-004A; H12120185-005A; H12120185-006A; H12120185-007A; H12120185-008A; H12120185-009A; H12120185-010A**

Run ID :Run Order: **ACCU-124 (14410200)_121213B: 6** SampType: **Sample Matrix Spike** Sample ID: **H12120185-002A MS** Method: **A2540 C**
Analysis Date: **12/13/12 13:24** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	1910	10	2000		96	80	120				

Associated samples: **H12120185-001A; H12120185-002A; H12120185-003A; H12120185-004A; H12120185-005A; H12120185-006A; H12120185-007A; H12120185-008A; H12120185-009A; H12120185-010A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limit
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Standard Reporting Procedures

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Workorder Receipt Checklist

MT DEQ-Site Response H12120185

Login completed by: Tracy L. Lorash
Date Received: 12/11/2012
Reviewed by: BL2000\jweidemoyer
Received by: elm
Reviewed Date: 12/14/2012
Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	0.6°C On Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Contact and Corrective Action Comments:

BRSW-3A has a collection date of 12/10/12 on the COC and metals bottles - 1 liter bottle has date of 12/11/12.
BRSW-3B has a collection date of 12/10/12 on the COC - bottles have date of 12/11/12.
BRSW-1 has a collection date of 12/10/12 on the COC - bottles have 12/11/12. Per Alan, All BRSW-3A, 3B and 1 were collected on 12/10/12.
Sample ID on COC is BRSW-1 - ID on filtered metals bottle is BRSD-1. Logged in with ID from COC. TI

Workorder Receipt Checklist - Continued

MT DEQ-Site Response H12120185

12/12/12.

Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT (Provide as much information as possible.)

Company Name: MDEQ	Project Name, PWS, Permit, Etc.: UBMC Surface Water	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: Sw Quote H-645	Contact Name: Phone/Fax: Shellie Haaland 841-5033 shaaland@mt.gov	Email:	Sampler: (Please Print) A. Brashaw Mike Fowler
Invoice Address:	Invoice Contact & Phone:	Purchase Order:	Quote/Bottle Order: 11144

Special Report/Formats:

☐ DW ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: _____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids Vegetation Bioassay Other DW - Drinking Water

ANALYSIS REQUESTED

SEE ATTACHED

Standard Turnaround (TAT)

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

Shipped by: Hand
Cooler ID(s): Y
Receipt Temp 0.6 °C TB
On Ice: (Y) N
Custody Seal On Bottle Y (N) On Cooler Y (N)
Intact Y N
Signature Match Y N

LABORATORY USE ONLY H12120185

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	SEE ATTACHED
1	BRSW-25	12/10/12	1019	W	X
2	BRSW-26		1034		
3	BRSW-38		1106		
4	BRSW-48		1225		
5	BRSW-23		1308		
6	BRSW-3A		1336		
7	BRSW-3B		1402		
8	BRSW-22		1510		
9	BRSW-24		1520		
10	BRSW-1	12/10/12	1608	W	XX

12/10/12 10

Custody Record MUST be Signed

Relinquished by (print): Alan Brashaw	Date/Time: 12/11/12 1210	Signature:	Received by (print): / Date/Time: / Signature:
Relinquished by (print):	Date/Time:	Signature:	Received by (print): / Date/Time: / Signature:
Sample Disposal: Return to Client: _____ Lab Disposal: _____			Received by Laboratory: Esther Merrick 12/11/12 17:08

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.
This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.

Section 35 Quarterly													
	Quantity	Analysis											
Surface Water	7	[1]Disolved Metals	[2]Total Rec. Metals	[5]Cations	Chloride	Sulfate	Alkalinity	Hardness	Acidity	TDS	TSS	pH	EC
Groundwater	9	[3]Disolved Metals		[5]Cations	Chloride	Sulfate	Alkalinity	Hardness	Acidity	TDS	TSS	pH	EC
Sediment	6		[4]Total Rec. Metals										

[1]Aluminum

[2]Arsenic, cadmium, copper, iron, lead, manganese, and zinc

[3]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[4]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[5]Calcium, magnesium, potassium, sodium

UBMC Quarterly													
	Quantity	Analysis											
[6]Surface Water	11	[1]Disolved Metals	[2]Total Rec. Metals	[5]Cations	Chloride	Sulfate	Alkalinity	Hardness	Acidity	TDS	TSS	pH	EC
Groundwater	10	[3]Disolved Metals		[5]Cations	Chloride	Sulfate	Alkalinity	Hardness	Acidity	TDS	TSS	pH	EC
Sediment	9		[4]Total Rec. Metals										

[1]Aluminum

[2]Arsenic, cadmium, copper, iron, lead, manganese, and zinc

[3]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[4]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[5]Calcium, magnesium, potassium, sodium

[6]Additional surface water samples may be collected for seeps.

ANALYTICAL SUMMARY REPORT

January 02, 2013

MT DEQ-Site Response
PO Box 200901
Helena, MT 59620-0901

Workorder No.: H12120241 Quote ID: H645 - UBMC

Project Name: UBMC Groundwater

Energy Laboratories Inc Helena MT received the following 9 samples for MT DEQ-Site Response on 12/14/2012 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H12120241-001	TDMW-7	12/12/12 10:28	12/14/12	Groundwater	Metals by ICP/ICPMS, Dissolved Alkalinity Conductivity Hardness as CaCO3 Anions by Ion Chromatography pH Preparation for TSS Solids, Total Dissolved Solids, Total Suspended
H12120241-002	TDMW-8	12/12/12 10:39	12/14/12	Groundwater	Same As Above
H12120241-003	TDMW-5	12/12/12 11:51	12/14/12	Groundwater	Same As Above
H12120241-004	TDMW-4D	12/12/12 14:04	12/14/12	Groundwater	Same As Above
H12120241-005	TDMW-6	12/12/12 14:14	12/14/12	Groundwater	Same As Above
H12120241-006	TDMW-3D	12/12/12 15:42	12/14/12	Groundwater	Same As Above
H12120241-007	TDMW-1	12/13/12 10:07	12/14/12	Groundwater	Same As Above
H12120241-008	TDMW-2D	12/13/12 10:34	12/14/12	Groundwater	Same As Above
H12120241-009	TDMW-2S	12/13/12 11:07	12/14/12	Groundwater	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: TDMW-7
Lab ID: H12120241-001
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 12/12/12 10:28
DateReceived: 12/14/12
Report Date: 01/02/13

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.2	s.u.	H	0.1		A4500-H B	12/17/12 10:11 / cm		PHSC_101-H_121217A	23	R85156
Conductivity @ 25 C	1	umhos/cm		1		A2510 B	12/17/12 10:11 / cm		PHSC_101-H_121217A	24	R85156
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/17/12 16:08 / cm	12/17/12 13:34	24 (14410200)_121217A	18	19046
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	12/17/12 16:18 / cm		24 (14410200)_121217B	17	TDS121217A
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	12/17/12 19:53 / cm		MAN-TECH_121217A	62	R85169
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	12/17/12 19:53 / cm		MAN-TECH_121217A	62	R85169
Carbonate as CO3	ND	mg/L		4		A2320 B	12/17/12 19:53 / cm		MAN-TECH_121217A	62	R85169
Chloride	ND	mg/L		1		E300.0	12/19/12 18:47 / cm		IC102-H_121219A	48	R85253
Sulfate	ND	mg/L		1		E300.0	12/19/12 18:47 / cm		IC102-H_121219A	48	R85253
Hardness as CaCO3	ND	mg/L		1		A2340 B	12/19/12 14:03 / sld		WATERCALC_121219B	6	R85238
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	12/17/12 22:18 / dck		ICPMS204-B_121217A	132	R85189
Arsenic	ND	mg/L		0.003		E200.8	12/17/12 22:18 / dck		ICPMS204-B_121217A	132	R85189
Cadmium	ND	mg/L		0.00008		E200.8	12/17/12 22:18 / dck		ICPMS204-B_121217A	132	R85189
Calcium	ND	mg/L		1		E200.7	12/17/12 15:50 / sld		ICP2-HE_121217B	30	R85182
Copper	0.003	mg/L		0.001		E200.8	12/17/12 22:18 / dck		ICPMS204-B_121217A	132	R85189
Iron	ND	mg/L		0.05		E200.7	12/17/12 15:50 / sld		ICP2-HE_121217B	30	R85182
Lead	ND	mg/L		0.0005		E200.8	12/17/12 22:18 / dck		ICPMS204-B_121217A	132	R85189
Magnesium	ND	mg/L		1		E200.7	12/17/12 15:50 / sld		ICP2-HE_121217B	30	R85182
Manganese	ND	mg/L		0.005		E200.8	12/17/12 22:18 / dck		ICPMS204-B_121217A	132	R85189
Potassium	ND	mg/L		1		E200.7	12/17/12 15:50 / sld		ICP2-HE_121217B	30	R85182
Sodium	ND	mg/L		1		E200.7	12/17/12 15:50 / sld		ICP2-HE_121217B	30	R85182
Zinc	ND	mg/L		0.01		E200.8	12/17/12 22:18 / dck		ICPMS204-B_121217A	132	R85189

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: TDMW-8
Lab ID: H12120241-002
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 12/12/12 10:39
DateReceived: 12/14/12
Report Date: 01/02/13

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.0	s.u.	H	0.1		A4500-H B	12/17/12 10:14 / cm		PHSC_101-H_121217A	25	R85156
Conductivity @ 25 C	1	umhos/cm		1		A2510 B	12/17/12 10:14 / cm		PHSC_101-H_121217A	26	R85156
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/17/12 16:08 / cm	12/17/12 13:34	24 (14410200)_121217A	19	19046
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	12/17/12 16:18 / cm		24 (14410200)_121217B	18	TDS121217A
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	12/17/12 19:58 / cm		MAN-TECH_121217A	64	R85169
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	12/17/12 19:58 / cm		MAN-TECH_121217A	64	R85169
Carbonate as CO3	ND	mg/L		4		A2320 B	12/17/12 19:58 / cm		MAN-TECH_121217A	64	R85169
Chloride	ND	mg/L		1		E300.0	12/19/12 18:59 / cm		IC102-H_121219A	49	R85253
Sulfate	ND	mg/L		1		E300.0	12/19/12 18:59 / cm		IC102-H_121219A	49	R85253
Hardness as CaCO3	ND	mg/L		1		A2340 B	12/19/12 14:03 / sld		WATERCALC_121219B	7	R85238
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	12/17/12 22:22 / dck		ICPMS204-B_121217A	133	R85189
Arsenic	ND	mg/L		0.003		E200.8	12/17/12 22:22 / dck		ICPMS204-B_121217A	133	R85189
Cadmium	ND	mg/L		0.00008		E200.8	12/17/12 22:22 / dck		ICPMS204-B_121217A	133	R85189
Calcium	ND	mg/L		1		E200.7	12/17/12 16:12 / sld		ICP2-HE_121217B	36	R85182
Copper	0.004	mg/L		0.001		E200.8	12/17/12 22:22 / dck		ICPMS204-B_121217A	133	R85189
Iron	ND	mg/L		0.05		E200.7	12/17/12 16:12 / sld		ICP2-HE_121217B	36	R85182
Lead	ND	mg/L		0.0005		E200.8	12/17/12 22:22 / dck		ICPMS204-B_121217A	133	R85189
Magnesium	ND	mg/L		1		E200.7	12/17/12 16:12 / sld		ICP2-HE_121217B	36	R85182
Manganese	ND	mg/L		0.005		E200.8	12/17/12 22:22 / dck		ICPMS204-B_121217A	133	R85189
Potassium	ND	mg/L		1		E200.7	12/17/12 16:12 / sld		ICP2-HE_121217B	36	R85182
Sodium	ND	mg/L		1		E200.7	12/17/12 16:12 / sld		ICP2-HE_121217B	36	R85182
Zinc	ND	mg/L		0.01		E200.8	12/17/12 22:22 / dck		ICPMS204-B_121217A	133	R85189

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: TDMW-5
Lab ID: H12120241-003
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 12/12/12 11:51
DateReceived: 12/14/12
Report Date: 01/02/13

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.8	s.u.	H	0.1		A4500-H B	12/17/12 10:17 / cm		PHSC_101-H_121217A	27	R85156
Conductivity @ 25 C	273	umhos/cm		1		A2510 B	12/17/12 10:17 / cm		PHSC_101-H_121217A	28	R85156
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/17/12 16:08 / cm	12/17/12 13:34	24 (14410200)_121217A	20	19046
Solids, Total Dissolved TDS @ 180 C	144	mg/L		10		A2540 C	12/17/12 16:18 / cm		24 (14410200)_121217B	19	TDS121217A
INORGANICS											
Alkalinity, Total as CaCO3	97	mg/L		4		A2320 B	12/17/12 20:05 / cm		MAN-TECH_121217A	66	R85169
Bicarbonate as HCO3	110	mg/L		4		A2320 B	12/17/12 20:05 / cm		MAN-TECH_121217A	66	R85169
Carbonate as CO3	ND	mg/L		4		A2320 B	12/17/12 20:05 / cm		MAN-TECH_121217A	66	R85169
Chloride	ND	mg/L		1		E300.0	12/19/12 19:12 / cm		IC102-H_121219A	50	R85253
Sulfate	48	mg/L		1		E300.0	12/19/12 19:12 / cm		IC102-H_121219A	50	R85253
Hardness as CaCO3	131	mg/L		1		A2340 B	12/17/12 16:16 / abb		CALC_121218A	231	R85207
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	12/17/12 22:27 / dck		ICPMS204-B_121217A	134	R85189
Arsenic	ND	mg/L		0.003		E200.8	12/17/12 22:27 / dck		ICPMS204-B_121217A	134	R85189
Cadmium	ND	mg/L		0.00008		E200.8	12/17/12 22:27 / dck		ICPMS204-B_121217A	134	R85189
Calcium	29	mg/L		1		E200.7	12/17/12 16:16 / sld		ICP2-HE_121217B	37	R85182
Copper	ND	mg/L		0.001		E200.8	12/17/12 22:27 / dck		ICPMS204-B_121217A	134	R85189
Iron	ND	mg/L		0.05		E200.7	12/17/12 16:16 / sld		ICP2-HE_121217B	37	R85182
Lead	ND	mg/L		0.0005		E200.8	12/17/12 22:27 / dck		ICPMS204-B_121217A	134	R85189
Magnesium	14	mg/L		1		E200.7	12/17/12 16:16 / sld		ICP2-HE_121217B	37	R85182
Manganese	ND	mg/L		0.005		E200.8	12/17/12 22:27 / dck		ICPMS204-B_121217A	134	R85189
Potassium	ND	mg/L		1		E200.7	12/17/12 16:16 / sld		ICP2-HE_121217B	37	R85182
Sodium	2	mg/L		1		E200.7	12/17/12 16:16 / sld		ICP2-HE_121217B	37	R85182
Zinc	0.01	mg/L		0.01		E200.8	12/17/12 22:27 / dck		ICPMS204-B_121217A	134	R85189

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: TDMW-4D
Lab ID: H12120241-004
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 12/12/12 14:04
DateReceived: 12/14/12
Report Date: 01/02/13

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.7	s.u.	H	0.1		A4500-H B	12/17/12 10:20 / cm		PHSC_101-H_121217A	29	R85156
Conductivity @ 25 C	336	umhos/cm		1		A2510 B	12/17/12 10:20 / cm		PHSC_101-H_121217A	30	R85156
Solids, Total Suspended TSS @ 105 C	148	mg/L		10		A2540 D	12/17/12 16:09 / cm	12/17/12 13:34	24 (14410200)_121217A	21	19046
Solids, Total Dissolved TDS @ 180 C	174	mg/L		10		A2540 C	12/17/12 16:19 / cm		24 (14410200)_121217B	20	TDS121217A
INORGANICS											
Alkalinity, Total as CaCO3	160	mg/L		4		A2320 B	12/17/12 20:12 / cm		MAN-TECH_121217A	68	R85169
Bicarbonate as HCO3	180	mg/L		4		A2320 B	12/17/12 20:12 / cm		MAN-TECH_121217A	68	R85169
Carbonate as CO3	5	mg/L		4		A2320 B	12/17/12 20:12 / cm		MAN-TECH_121217A	68	R85169
Chloride	ND	mg/L		1		E300.0	12/19/12 19:25 / cm		IC102-H_121219A	51	R85253
Sulfate	33	mg/L		1		E300.0	12/19/12 19:25 / cm		IC102-H_121219A	51	R85253
Hardness as CaCO3	143	mg/L		1		A2340 B	12/17/12 16:20 / abb		CALC_121218A	243	R85207
METALS, DISSOLVED											
Aluminum	0.03	mg/L		0.03		E200.8	12/17/12 22:32 / dck		ICPMS204-B_121217A	135	R85189
Arsenic	ND	mg/L		0.003		E200.8	12/17/12 22:32 / dck		ICPMS204-B_121217A	135	R85189
Cadmium	ND	mg/L		0.00008		E200.8	12/17/12 22:32 / dck		ICPMS204-B_121217A	135	R85189
Calcium	26	mg/L		1		E200.7	12/17/12 16:20 / sld		ICP2-HE_121217B	38	R85182
Copper	0.013	mg/L		0.001		E200.8	12/17/12 22:32 / dck		ICPMS204-B_121217A	135	R85189
Iron	ND	mg/L		0.05		E200.7	12/17/12 16:20 / sld		ICP2-HE_121217B	38	R85182
Lead	ND	mg/L		0.0005		E200.8	12/17/12 22:32 / dck		ICPMS204-B_121217A	135	R85189
Magnesium	19	mg/L		1		E200.7	12/17/12 16:20 / sld		ICP2-HE_121217B	38	R85182
Manganese	ND	mg/L		0.005		E200.8	12/17/12 22:32 / dck		ICPMS204-B_121217A	135	R85189
Potassium	ND	mg/L		1		E200.7	12/17/12 16:20 / sld		ICP2-HE_121217B	38	R85182
Sodium	13	mg/L		1		E200.7	12/17/12 16:20 / sld		ICP2-HE_121217B	38	R85182
Zinc	ND	mg/L		0.01		E200.8	12/17/12 22:32 / dck		ICPMS204-B_121217A	135	R85189

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: TDMW-6
Lab ID: H12120241-005
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 12/12/12 14:14
DateReceived: 12/14/12
Report Date: 01/02/13

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.8	s.u.	H	0.1		A4500-H B	12/17/12 10:25 / cm		PHSC_101-H_121217A	33	R85156
Conductivity @ 25 C	336	umhos/cm		1		A2510 B	12/17/12 10:25 / cm		PHSC_101-H_121217A	34	R85156
Solids, Total Suspended TSS @ 105 C	151	mg/L		10		A2540 D	12/17/12 16:10 / cm	12/17/12 13:34	24 (14410200)_121217A	22	19046
Solids, Total Dissolved TDS @ 180 C	179	mg/L		10		A2540 C	12/17/12 16:19 / cm		24 (14410200)_121217B	21	TDS121217A
INORGANICS											
Alkalinity, Total as CaCO3	150	mg/L		4		A2320 B	12/17/12 20:20 / cm		MAN-TECH_121217A	70	R85169
Bicarbonate as HCO3	180	mg/L		4		A2320 B	12/17/12 20:20 / cm		MAN-TECH_121217A	70	R85169
Carbonate as CO3	5	mg/L		4		A2320 B	12/17/12 20:20 / cm		MAN-TECH_121217A	70	R85169
Chloride	ND	mg/L		1		E300.0	12/19/12 19:37 / cm		IC102-H_121219A	52	R85253
Sulfate	33	mg/L		1		E300.0	12/19/12 19:37 / cm		IC102-H_121219A	52	R85253
Hardness as CaCO3	147	mg/L		1		A2340 B	12/17/12 16:24 / abb		CALC_121218A	255	R85207
METALS, DISSOLVED											
Aluminum	0.03	mg/L		0.03		E200.8	12/17/12 22:36 / dck		ICPMS204-B_121217A	136	R85189
Arsenic	ND	mg/L		0.003		E200.8	12/17/12 22:36 / dck		ICPMS204-B_121217A	136	R85189
Cadmium	ND	mg/L		0.00008		E200.8	12/17/12 22:36 / dck		ICPMS204-B_121217A	136	R85189
Calcium	26	mg/L		1		E200.7	12/17/12 16:24 / sld		ICP2-HE_121217B	39	R85182
Copper	ND	mg/L		0.001		E200.8	12/17/12 22:36 / dck		ICPMS204-B_121217A	136	R85189
Iron	ND	mg/L		0.05		E200.7	12/17/12 16:24 / sld		ICP2-HE_121217B	39	R85182
Lead	ND	mg/L		0.0005		E200.8	12/17/12 22:36 / dck		ICPMS204-B_121217A	136	R85189
Magnesium	20	mg/L		1		E200.7	12/17/12 16:24 / sld		ICP2-HE_121217B	39	R85182
Manganese	ND	mg/L		0.005		E200.8	12/17/12 22:36 / dck		ICPMS204-B_121217A	136	R85189
Potassium	ND	mg/L		1		E200.7	12/17/12 16:24 / sld		ICP2-HE_121217B	39	R85182
Sodium	14	mg/L		1		E200.7	12/17/12 16:24 / sld		ICP2-HE_121217B	39	R85182
Zinc	ND	mg/L		0.01		E200.8	12/17/12 22:36 / dck		ICPMS204-B_121217A	136	R85189

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: TDMW-3D
Lab ID: H12120241-006
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 12/12/12 15:42
DateReceived: 12/14/12
Report Date: 01/02/13

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.1	s.u.	H	0.1		A4500-H B	12/17/12 10:27 / cm		PHSC_101-H_121217A	35	R85156
Conductivity @ 25 C	717	umhos/cm		1		A2510 B	12/17/12 10:27 / cm		PHSC_101-H_121217A	36	R85156
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/17/12 16:10 / cm	12/17/12 13:34	24 (14410200)_121217A	23	19046
Solids, Total Dissolved TDS @ 180 C	494	mg/L		10		A2540 C	12/17/12 16:19 / cm		24 (14410200)_121217B	22	TDS121217A
INORGANICS											
Alkalinity, Total as CaCO3	51	mg/L		4		A2320 B	12/17/12 20:27 / cm		MAN-TECH_121217A	72	R85169
Bicarbonate as HCO3	62	mg/L		4		A2320 B	12/17/12 20:27 / cm		MAN-TECH_121217A	72	R85169
Carbonate as CO3	ND	mg/L		4		A2320 B	12/17/12 20:27 / cm		MAN-TECH_121217A	72	R85169
Chloride	ND	mg/L		1		E300.0	12/19/12 19:50 / cm		IC102-H_121219A	53	R85253
Sulfate	310	mg/L		1		E300.0	12/19/12 19:50 / cm		IC102-H_121219A	53	R85253
Hardness as CaCO3	360	mg/L		1		A2340 B	12/19/12 14:03 / sld		WATERCALC_121219B	8	R85238
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	12/17/12 22:41 / dck		ICPMS204-B_121217A	137	R85189
Arsenic	ND	mg/L		0.003		E200.8	12/17/12 22:41 / dck		ICPMS204-B_121217A	137	R85189
Cadmium	0.00020	mg/L		0.00008		E200.8	12/17/12 22:41 / dck		ICPMS204-B_121217A	137	R85189
Calcium	84	mg/L		1		E200.7	12/17/12 16:28 / sld		ICP2-HE_121217B	40	R85182
Copper	ND	mg/L		0.001		E200.8	12/17/12 22:41 / dck		ICPMS204-B_121217A	137	R85189
Iron	ND	mg/L		0.05		E200.7	12/17/12 16:28 / sld		ICP2-HE_121217B	40	R85182
Lead	ND	mg/L		0.0005		E200.8	12/17/12 22:41 / dck		ICPMS204-B_121217A	137	R85189
Magnesium	36	mg/L		1		E200.7	12/17/12 16:28 / sld		ICP2-HE_121217B	40	R85182
Manganese	ND	mg/L		0.005		E200.8	12/17/12 22:41 / dck		ICPMS204-B_121217A	137	R85189
Potassium	ND	mg/L		1		E200.7	12/17/12 16:28 / sld		ICP2-HE_121217B	40	R85182
Sodium	2	mg/L		1		E200.7	12/17/12 16:28 / sld		ICP2-HE_121217B	40	R85182
Zinc	0.03	mg/L		0.01		E200.8	12/17/12 22:41 / dck		ICPMS204-B_121217A	137	R85189

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: TDMW-1
Lab ID: H12120241-007
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 12/13/12 10:07
DateReceived: 12/14/12
Report Date: 01/02/13

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.4	s.u.	H	0.1		A4500-H B	12/17/12 10:30 / cm		PHSC_101-H_121217A	37	R85156
Conductivity @ 25 C	777	umhos/cm		1		A2510 B	12/17/12 10:30 / cm		PHSC_101-H_121217A	38	R85156
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/17/12 16:10 / cm	12/17/12 13:34	24 (14410200)_121217A	24	19046
Solids, Total Dissolved TDS @ 180 C	580	mg/L		10		A2540 C	12/17/12 16:19 / cm		24 (14410200)_121217B	23	TDS121217A
INORGANICS											
Alkalinity, Total as CaCO3	62	mg/L		4		A2320 B	12/17/12 20:33 / cm		MAN-TECH_121217A	74	R85169
Bicarbonate as HCO3	76	mg/L		4		A2320 B	12/17/12 20:33 / cm		MAN-TECH_121217A	74	R85169
Carbonate as CO3	ND	mg/L		4		A2320 B	12/17/12 20:33 / cm		MAN-TECH_121217A	74	R85169
Chloride	ND	mg/L		1		E300.0	12/19/12 20:02 / cm		IC102-H_121219A	54	R85253
Sulfate	350	mg/L		1		E300.0	12/19/12 20:02 / cm		IC102-H_121219A	54	R85253
Hardness as CaCO3	395	mg/L		1		A2340 B	12/19/12 14:03 / sld		WATERCALC_121219B	9	R85238
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	12/17/12 22:45 / dck		ICPMS204-B_121217A	138	R85189
Arsenic	ND	mg/L		0.003		E200.8	12/17/12 22:45 / dck		ICPMS204-B_121217A	138	R85189
Cadmium	0.0141	mg/L		0.00008		E200.8	12/17/12 22:45 / dck		ICPMS204-B_121217A	138	R85189
Calcium	74	mg/L		1		E200.7	12/17/12 16:31 / sld		ICP2-HE_121217B	41	R85182
Copper	0.001	mg/L		0.001		E200.8	12/17/12 22:45 / dck		ICPMS204-B_121217A	138	R85189
Iron	ND	mg/L		0.05		E200.7	12/17/12 16:31 / sld		ICP2-HE_121217B	41	R85182
Lead	ND	mg/L		0.0005		E200.8	12/17/12 22:45 / dck		ICPMS204-B_121217A	138	R85189
Magnesium	51	mg/L		1		E200.7	12/17/12 16:31 / sld		ICP2-HE_121217B	41	R85182
Manganese	ND	mg/L		0.005		E200.8	12/17/12 22:45 / dck		ICPMS204-B_121217A	138	R85189
Potassium	1	mg/L		1		E200.7	12/17/12 16:31 / sld		ICP2-HE_121217B	41	R85182
Sodium	2	mg/L		1		E200.7	12/17/12 16:31 / sld		ICP2-HE_121217B	41	R85182
Zinc	5.63	mg/L		0.01		E200.7	12/17/12 16:31 / sld		ICP2-HE_121217B	41	R85182

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: TDMW-2D
Lab ID: H12120241-008
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 12/13/12 10:34
DateReceived: 12/14/12
Report Date: 01/02/13

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.0	s.u.	H	0.1		A4500-H B	12/17/12 10:32 / cm		PHSC_101-H_121217A	39	R85156
Conductivity @ 25 C	348	umhos/cm		1		A2510 B	12/17/12 10:32 / cm		PHSC_101-H_121217A	40	R85156
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/17/12 16:11 / cm	12/17/12 13:34	24 (14410200)_121217A	27	19047
Solids, Total Dissolved TDS @ 180 C	203	mg/L		10		A2540 C	12/17/12 16:19 / cm		24 (14410200)_121217B	24	TDS121217A
INORGANICS											
Alkalinity, Total as CaCO3	110	mg/L		4		A2320 B	12/17/12 20:40 / cm		MAN-TECH_121217A	76	R85169
Bicarbonate as HCO3	130	mg/L		4		A2320 B	12/17/12 20:40 / cm		MAN-TECH_121217A	76	R85169
Carbonate as CO3	ND	mg/L		4		A2320 B	12/17/12 20:40 / cm		MAN-TECH_121217A	76	R85169
Chloride	ND	mg/L		1		E300.0	12/19/12 20:15 / cm		IC102-H_121219A	55	R85253
Sulfate	76	mg/L		1		E300.0	12/19/12 20:15 / cm		IC102-H_121219A	55	R85253
Hardness as CaCO3	167	mg/L		1		A2340 B	12/17/12 16:35 / abb		CALC_121218A	267	R85207
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	12/17/12 22:50 / dck		ICPMS204-B_121217A	139	R85189
Arsenic	ND	mg/L		0.003		E200.8	12/17/12 22:50 / dck		ICPMS204-B_121217A	139	R85189
Cadmium	ND	mg/L		0.00008		E200.8	12/17/12 22:50 / dck		ICPMS204-B_121217A	139	R85189
Calcium	33	mg/L		1		E200.7	12/17/12 16:35 / sld		ICP2-HE_121217B	42	R85182
Copper	ND	mg/L		0.001		E200.8	12/17/12 22:50 / dck		ICPMS204-B_121217A	139	R85189
Iron	ND	mg/L		0.05		E200.7	12/17/12 16:35 / sld		ICP2-HE_121217B	42	R85182
Lead	ND	mg/L		0.0005		E200.8	12/17/12 22:50 / dck		ICPMS204-B_121217A	139	R85189
Magnesium	20	mg/L		1		E200.7	12/17/12 16:35 / sld		ICP2-HE_121217B	42	R85182
Manganese	ND	mg/L		0.005		E200.8	12/17/12 22:50 / dck		ICPMS204-B_121217A	139	R85189
Potassium	ND	mg/L		1		E200.7	12/17/12 16:35 / sld		ICP2-HE_121217B	42	R85182
Sodium	2	mg/L		1		E200.7	12/17/12 16:35 / sld		ICP2-HE_121217B	42	R85182
Zinc	ND	mg/L		0.01		E200.8	12/17/12 22:50 / dck		ICPMS204-B_121217A	139	R85189

Report Definitions:
RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: TDMW-2S
Lab ID: H12120241-009
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 12/13/12 11:07
DateReceived: 12/14/12
Report Date: 01/02/13

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.3	s.u.	H	0.1		A4500-H B	12/17/12 10:34 / cm		PHSC_101-H_121217A	41	R85156
Conductivity @ 25 C	1800	umhos/cm		1		A2510 B	12/17/12 10:34 / cm		PHSC_101-H_121217A	42	R85156
Solids, Total Suspended TSS @ 105 C	14	mg/L		10		A2540 D	12/17/12 16:11 / cm	12/17/12 13:34	24 (14410200)_121217A	29	19047
Solids, Total Dissolved TDS @ 180 C	1540	mg/L		10		A2540 C	12/17/12 16:19 / cm		24 (14410200)_121217B	25	TDS121217A
INORGANICS											
Alkalinity, Total as CaCO3	150	mg/L		4		A2320 B	12/17/12 20:55 / cm		MAN-TECH_121217A	80	R85169
Bicarbonate as HCO3	180	mg/L		4		A2320 B	12/17/12 20:55 / cm		MAN-TECH_121217A	80	R85169
Carbonate as CO3	ND	mg/L		4		A2320 B	12/17/12 20:55 / cm		MAN-TECH_121217A	80	R85169
Chloride	ND	mg/L		1		E300.0	12/20/12 11:50 / cm		IC102-H_121220A	21	R85271
Sulfate	1000	mg/L		1		E300.0	12/20/12 11:50 / cm		IC102-H_121220A	21	R85271
Hardness as CaCO3	977	mg/L		1		A2340 B	12/19/12 10:43 / sld		WATERCALC_121219A	2	R85229
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	12/17/12 16:46 / sld		ICP2-HE_121217B	45	R85182
Arsenic	ND	mg/L		0.003		E200.8	12/17/12 23:13 / dck		ICPMS204-B_121217A	144	R85189
Cadmium	0.0271	mg/L		0.00008		E200.8	12/17/12 23:13 / dck		ICPMS204-B_121217A	144	R85189
Calcium	192	mg/L		1		E200.8	12/18/12 16:25 / dck		ICPMS204-B_121218A	81	R85205
Copper	0.002	mg/L		0.001		E200.8	12/17/12 23:13 / dck		ICPMS204-B_121217A	144	R85189
Iron	0.14	mg/L		0.05		E200.8	12/18/12 16:25 / dck		ICPMS204-B_121218A	81	R85205
Lead	ND	mg/L		0.0005		E200.8	12/17/12 23:13 / dck		ICPMS204-B_121217A	144	R85189
Magnesium	143	mg/L		1		E200.8	12/18/12 16:25 / dck		ICPMS204-B_121218A	81	R85205
Manganese	60.0	mg/L		0.005		E200.8	12/18/12 16:25 / dck		ICPMS204-B_121218A	81	R85205
Potassium	3	mg/L		1		E200.7	12/17/12 16:46 / sld		ICP2-HE_121217B	45	R85182
Sodium	2	mg/L		1		E200.7	12/17/12 16:46 / sld		ICP2-HE_121217B	45	R85182
Zinc	12.7	mg/L		0.01		E200.7	12/17/12 16:46 / sld		ICP2-HE_121217B	45	R85182

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

Client: MT DEQ-Site Response
Work Order: H12120241
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *03-Jan-13*

BatchID: 19046

Run ID :Run Order: **ACCU-124 (14410200)_121217A: 1** SampType: **Method Blank** Sample ID: **MB-19046** Method: **A2540 D**

Analysis Date: **12/17/12 16:04** Units: **mg/L** **Prep Info:** Prep Date: **12/17/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	2									

Associated samples: **H12120241-001A; H12120241-002A; H12120241-003A; H12120241-004A; H12120241-005A; H12120241-006A; H12120241-007A**

Run ID :Run Order: **ACCU-124 (14410200)_121217A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS-19046** Method: **A2540 D**

Analysis Date: **12/17/12 16:05** Units: **mg/L** **Prep Info:** Prep Date: **12/17/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	2040	10	2000		102	70	130				

Associated samples: **H12120241-001A; H12120241-002A; H12120241-003A; H12120241-004A; H12120241-005A; H12120241-006A; H12120241-007A**

Run ID :Run Order: **ACCU-124 (14410200)_121217A: 7** SampType: **Sample Duplicate** Sample ID: **H12120222-002BDUP** Method: **A2540 D**

Analysis Date: **12/17/12 16:06** Units: **mg/L** **Prep Info:** Prep Date: **12/17/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	4.00	10								5	

Associated samples: **H12120241-001A; H12120241-002A; H12120241-003A; H12120241-004A; H12120241-005A; H12120241-006A; H12120241-007A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120241
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *03-Jan-13*

BatchID: 19047

Run ID :Run Order: **ACCU-124 (14410200)_121217A: 25** SampType: **Method Blank** Sample ID: **MB-19047** Method: **A2540 D**

Analysis Date: **12/17/12 16:10** Units: **mg/L** **Prep Info:** Prep Date: **12/17/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	2									

Associated samples: **H12120241-008A; H12120241-009A**

Run ID :Run Order: **ACCU-124 (14410200)_121217A: 26** SampType: **Laboratory Control Sample** Sample ID: **LCS-19047** Method: **A2540 D**

Analysis Date: **12/17/12 16:10** Units: **mg/L** **Prep Info:** Prep Date: **12/17/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	1960	10	2000		98	70	130				

Associated samples: **H12120241-008A; H12120241-009A**

Run ID :Run Order: **ACCU-124 (14410200)_121217A: 28** SampType: **Sample Duplicate** Sample ID: **H12120241-008ADUP** Method: **A2540 D**

Analysis Date: **12/17/12 16:11** Units: **mg/L** **Prep Info:** Prep Date: **12/17/2012** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	8.00	10						4		5	

Associated samples: **H12120241-008A; H12120241-009A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120241
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *03-Jan-13*

BatchID: R85156

Run ID :Run Order: **PHSC_101-H_121217A: 2** SampType: **Initial Calibration Verification Standard** Sample ID: **SC 150** Method: **A2510 B**
Analysis Date: **12/17/12 09:10** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	140	1.0	150		95	90	110				

Associated samples: **H12120241-001A; H12120241-002A; H12120241-003A; H12120241-004A; H12120241-005A; H12120241-006A; H12120241-007A; H12120241-008A; H12120241-009A**

Run ID :Run Order: **PHSC_101-H_121217A: 3** SampType: **Initial Calibration Verification Standard** Sample ID: **SC 5000** Method: **A2510 B**
Analysis Date: **12/17/12 09:13** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	5000	1.0	5000		100	90	110				

Associated samples: **H12120241-001A; H12120241-002A; H12120241-003A; H12120241-004A; H12120241-005A; H12120241-006A; H12120241-007A; H12120241-008A; H12120241-009A**

Run ID :Run Order: **PHSC_101-H_121217A: 4** SampType: **Initial Calibration Verification Standard** Sample ID: **SC 20000** Method: **A2510 B**
Analysis Date: **12/17/12 09:15** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	20000	1.0	20000		99	90	110				

Associated samples: **H12120241-001A; H12120241-002A; H12120241-003A; H12120241-004A; H12120241-005A; H12120241-006A; H12120241-007A; H12120241-008A; H12120241-009A**

Run ID :Run Order: **PHSC_101-H_121217A: 5** SampType: **Initial Calibration Verification Standard** Sample ID: **SC 2ND 1000** Method: **A2510 B**
Analysis Date: **12/17/12 09:18** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	1000	1.0	1000		101	90	110				

Associated samples: **H12120241-001A; H12120241-002A; H12120241-003A; H12120241-004A; H12120241-005A; H12120241-006A; H12120241-007A; H12120241-008A; H12120241-009A**

Run ID :Run Order: **PHSC_101-H_121217A: 32** SampType: **Sample Duplicate** Sample ID: **H12120241-004ADUP** Method: **A2510 B**
Analysis Date: **12/17/12 10:22** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity @ 25 C	336	1.0						336	0.0	10	

Associated samples: **H12120241-001A; H12120241-002A; H12120241-003A; H12120241-004A; H12120241-005A; H12120241-006A; H12120241-007A; H12120241-008A; H12120241-009A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120241
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *03-Jan-13*

BatchID: R85156

Run ID :Run Order: **PHSC_101-H_121217A: 1** SampType: **Initial Calibration Verification Standard** Sample ID: **pH 7** Method: **A4500-H B**

Analysis Date: **12/17/12 09:08** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.0	0.1	7		100	98	102				

Associated samples: **H12120241-001A; H12120241-002A; H12120241-003A; H12120241-004A; H12120241-005A; H12120241-006A; H12120241-007A; H12120241-008A; H12120241-009A**

Run ID :Run Order: **PHSC_101-H_121217A: 31** SampType: **Sample Duplicate** Sample ID: **H12120241-004ADUP** Method: **A4500-H B**

Analysis Date: **12/17/12 10:22** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.7	0.1						7.73	0.0	3	

Associated samples: **H12120241-001A; H12120241-002A; H12120241-003A; H12120241-004A; H12120241-005A; H12120241-006A; H12120241-007A; H12120241-008A; H12120241-009A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120241
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *03-Jan-13*

BatchID: R85169

Run ID :Run Order: **MAN-TECH_121217A: 56** SampType: **Method Blank** Sample ID: **MBLK** Method: **A2320 B**
Analysis Date: **12/17/12 19:33** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	ND	4.0									

Associated samples: **H12120241-001A; H12120241-002A; H12120241-003A; H12120241-004A; H12120241-005A; H12120241-006A; H12120241-007A; H12120241-008A; H12120241-009A**

Run ID :Run Order: **MAN-TECH_121217A: 58** SampType: **Laboratory Control Sample** Sample ID: **LCS-12072012** Method: **A2320 B**
Analysis Date: **12/17/12 19:41** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	630	4.0	600		105	90	110				

Associated samples: **H12120241-001A; H12120241-002A; H12120241-003A; H12120241-004A; H12120241-005A; H12120241-006A; H12120241-007A; H12120241-008A; H12120241-009A**

Run ID :Run Order: **MAN-TECH_121217A: 78** SampType: **Sample Duplicate** Sample ID: **H12120241-008ADUP** Method: **A2320 B**
Analysis Date: **12/17/12 20:48** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 3	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	110	4.0						106.7	1.3	10	
Bicarbonate as HCO3	130	4.0						130.2	1.3	10	
Carbonate as CO3	ND	4.0								10	

Associated samples: **H12120241-001A; H12120241-002A; H12120241-003A; H12120241-004A; H12120241-005A; H12120241-006A; H12120241-007A; H12120241-008A; H12120241-009A**

Run ID :Run Order: **MAN-TECH_121217A: 82** SampType: **Sample Matrix Spike** Sample ID: **H12120241-009AMS** Method: **A2320 B**
Analysis Date: **12/17/12 21:03** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	720	4.0	600	146.6	96	80	120				

Associated samples: **H12120241-001A; H12120241-002A; H12120241-003A; H12120241-004A; H12120241-005A; H12120241-006A; H12120241-007A; H12120241-008A; H12120241-009A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120241
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *03-Jan-13*

BatchID: R85182

Run ID :Run Order: **ICP2-HE_121217B: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**

Analysis Date: **12/17/12 14:19** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	4.09	0.10	4		102	95	105				
Calcium	39.7	1.0	40		99	95	105				
Iron	4.00	0.030	4		100	95	105				
Magnesium	39.9	1.0	40		100	95	105				
Potassium	40.1	1.0	40		100	95	105				
Sodium	40.3	1.0	40		101	95	105				
Zinc	0.810	0.010	0.8		101	95	105				

Associated samples: **H12120241-001B; H12120241-002B; H12120241-003B; H12120241-004B; H12120241-005B; H12120241-006B; H12120241-007B; H12120241-008B; H12120241-009B**

Run ID :Run Order: **ICP2-HE_121217B: 7** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV-1** Method: **E200.7**

Analysis Date: **12/17/12 14:23** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	2.54	0.10	2.5		102	95	105				
Calcium	24.5	1.0	25		98	95	105				
Iron	2.52	0.030	2.5		101	95	105				
Magnesium	24.6	1.0	25		98	95	105				
Potassium	24.6	1.0	25		98	95	105				
Sodium	24.5	1.0	25		98	95	105				
Zinc	2.42	0.010	2.5		97	95	105				

Associated samples: **H12120241-001B; H12120241-002B; H12120241-003B; H12120241-004B; H12120241-005B; H12120241-006B; H12120241-007B; H12120241-008B; H12120241-009B**

Run ID :Run Order: **ICP2-HE_121217B: 10** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.7**

Analysis Date: **12/17/12 14:34** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	531	0.10	500		106	80	120				
Calcium	468	1.0	500		94	80	120				
Iron	192	0.030	200		96	80	120				
Magnesium	507	1.0	500		101	80	120				
Potassium	-0.0479	1.0				0	0				
Sodium	0.0454	1.0				0	0				
Zinc	0.00957	0.010				0	0				

Qualifiers:
ND - Not Detected at the Reporting Limit
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120241
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *03-Jan-13*

BatchID: R85182

Run ID :Run Order: **ICP2-HE_121217B: 10** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.7**
Analysis Date: **12/17/12 14:34** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12120241-001B; H12120241-002B; H12120241-003B; H12120241-004B; H12120241-005B; H12120241-006B; H12120241-007B; H12120241-008B; H12120241-009B**

Run ID :Run Order: **ICP2-HE_121217B: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.7**
Analysis Date: **12/17/12 14:38** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	533	0.10	500		107	80	120				
Calcium	467	1.0	500		93	80	120				
Iron	192	0.030	200		96	80	120				
Magnesium	509	1.0	500		102	80	120				
Potassium	22.6	1.0	20		113	80	120				
Sodium	22.8	1.0	20		114	80	120				
Zinc	0.994	0.010	1		99	80	120				

Associated samples: **H12120241-001B; H12120241-002B; H12120241-003B; H12120241-004B; H12120241-005B; H12120241-006B; H12120241-007B; H12120241-008B; H12120241-009B**

Run ID :Run Order: **ICP2-HE_121217B: 13** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.7**
Analysis Date: **12/17/12 14:46** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.003	0.002									
Calcium	0.05	0.02									
Iron	ND	0.003									
Magnesium	ND	0.007									
Potassium	ND	0.02									
Sodium	0.02	0.02									
Zinc	0.002	0.0010									

Associated samples: **H12120241-001B; H12120241-002B; H12120241-003B; H12120241-004B; H12120241-005B; H12120241-006B; H12120241-007B; H12120241-008B; H12120241-009B**

Run ID :Run Order: **ICP2-HE_121217B: 14** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.7**
Analysis Date: **12/17/12 14:50** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	4.95	0.10	5	0.00293	99	85	115				

Qualifiers:
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R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120241
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *03-Jan-13*

BatchID: R85182

Run ID :Run Order: **ICP2-HE_121217B: 14** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.7**

Analysis Date: **12/17/12 14:50** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	47.6	1.0	50	0.04793	95	85	115				
Iron	4.84	0.030	5		97	85	115				
Magnesium	48.3	1.0	50		97	85	115				
Potassium	49.0	1.0	50		98	85	115				
Sodium	49.2	1.0	50	0.02423	98	85	115				
Zinc	0.965	0.010	1	0.00224	96	85	115				

Associated samples: **H12120241-001B; H12120241-002B; H12120241-003B; H12120241-004B; H12120241-005B; H12120241-006B; H12120241-007B; H12120241-008B; H12120241-009B**

Run ID :Run Order: **ICP2-HE_121217B: 19** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV** Method: **E200.7**

Analysis Date: **12/17/12 15:08** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	2.50	0.10	2.5		100	90	110				
Calcium	24.3	1.0	25		97	90	110				
Iron	2.48	0.030	2.5		99	90	110				
Magnesium	24.6	1.0	25		98	90	110				
Potassium	24.5	1.0	25		98	90	110				
Sodium	24.5	1.0	25		98	90	110				
Zinc	2.36	0.010	2.5		94	90	110				

Associated samples: **H12120241-001B**

Run ID :Run Order: **ICP2-HE_121217B: 31** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV** Method: **E200.7**

Analysis Date: **12/17/12 15:54** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	2.42	0.10	2.5		97	90	110				
Calcium	24.1	1.0	25		96	90	110				
Iron	2.35	0.030	2.5		94	90	110				
Magnesium	23.8	1.0	25		95	90	110				
Potassium	23.8	1.0	25		95	90	110				
Sodium	23.8	1.0	25		95	90	110				
Zinc	2.29	0.010	2.5		91	90	110				

Associated samples: **H12120241-002B; H12120241-003B; H12120241-004B; H12120241-005B; H12120241-006B; H12120241-007B; H12120241-008B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120241
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *03-Jan-13*

BatchID: R85182

Run ID :Run Order: **ICP2-HE_121217B: 34** SampType: **Sample Matrix Spike** Sample ID: **H12120241-001BMS2** Method: **E200.7**

Analysis Date: **12/17/12 16:05** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	4.97	0.030	5		99	70	130				
Calcium	48.1	1.0	50	0.06017	96	70	130				
Iron	4.54	0.030	5		91	70	130				
Magnesium	48.1	1.0	50		96	70	130				
Potassium	48.4	1.0	50		97	70	130				
Sodium	48.7	1.0	50		97	70	130				
Zinc	0.971	0.010	1	0.00324	97	70	130				

Associated samples: **H12120241-001B; H12120241-002B; H12120241-003B; H12120241-004B; H12120241-005B; H12120241-006B; H12120241-007B; H12120241-008B; H12120241-009B**

Run ID :Run Order: **ICP2-HE_121217B: 35** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12120241-001BMSD2** Method: **E200.7**

Analysis Date: **12/17/12 16:09** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	5.06	0.030	5		101	70	130	4.967	1.8	20	
Calcium	48.3	1.0	50	0.06017	97	70	130	48.06	0.5	20	
Iron	4.65	0.030	5		93	70	130	4.538	2.4	20	
Magnesium	49.1	1.0	50		98	70	130	48.07	2.2	20	
Potassium	48.4	1.0	50		97	70	130	48.42	0.1	20	
Sodium	48.4	1.0	50		97	70	130	48.67	0.5	20	
Zinc	0.983	0.010	1	0.00324	98	70	130	0.9711	1.2	20	

Associated samples: **H12120241-001B; H12120241-002B; H12120241-003B; H12120241-004B; H12120241-005B; H12120241-006B; H12120241-007B; H12120241-008B; H12120241-009B**

Run ID :Run Order: **ICP2-HE_121217B: 43** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV** Method: **E200.7**

Analysis Date: **12/17/12 16:39** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	2.35	0.10	2.5		94	90	110				
Calcium	23.8	1.0	25		95	90	110				
Iron	2.29	0.030	2.5		92	90	110				
Magnesium	23.7	1.0	25		95	90	110				
Potassium	23.1	1.0	25		92	90	110				
Sodium	23.1	1.0	25		92	90	110				
Zinc	2.33	0.010	2.5		93	90	110				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120241
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *03-Jan-13*

BatchID: R85182

Run ID :Run Order: **ICP2-HE_121217B: 43** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV** Method: **E200.7**

Analysis Date: **12/17/12 16:39** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12120241-009B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120241
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *03-Jan-13*

BatchID: R85189

Run ID :Run Order: **ICPMS204-B_121217A: 9** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **12/17/12 12:07** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.257	0.10	0.25		103	90	110				
Arsenic	0.0511	0.0050	0.05		102	90	110				
Cadmium	0.0262	0.0010	0.025		105	90	110				
Copper	0.0524	0.010	0.05		105	90	110				
Lead	0.0497	0.010	0.05		99	90	110				
Manganese	0.249	0.010	0.25		100	90	110				
Zinc	0.0546	0.010	0.05		109	90	110				

Associated samples: **H12120241-001B; H12120241-002B; H12120241-003B; H12120241-004B; H12120241-005B; H12120241-006B; H12120241-007B; H12120241-008B; H12120241-009B**

Run ID :Run Order: **ICPMS204-B_121217A: 10** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **12/17/12 12:12** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	40.2	0.10	40		101	70	130				
Arsenic	8.40E-05	0.0050									
Cadmium	0.00106	0.0010									
Copper	0.000188	0.010									
Lead	0.000174	0.010									
Manganese	0.000554	0.010									
Zinc	0.000871	0.010									

Associated samples: **H12120241-001B; H12120241-002B; H12120241-003B; H12120241-004B; H12120241-005B; H12120241-006B; H12120241-007B; H12120241-008B; H12120241-009B**

Run ID :Run Order: **ICPMS204-B_121217A: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **12/17/12 12:17** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	41.6	0.10	40		104	70	130				
Arsenic	0.0105	0.0050	0.01		105	70	130				
Cadmium	0.0108	0.0010	0.01		107	70	130				
Copper	0.0200	0.010	0.02		100	70	130				
Lead	0.000251	0.010				0	0				
Manganese	0.0207	0.010	0.02		104	70	130				
Zinc	0.0110	0.010	0.01		110	70	130				

Qualifiers:
ND - Not Detected at the Reporting Limit
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R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120241
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *03-Jan-13*

BatchID: R85189

Run ID :Run Order: **ICPMS204-B_121217A: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**
Analysis Date: **12/17/12 12:17** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12120241-001B; H12120241-002B; H12120241-003B; H12120241-004B; H12120241-005B; H12120241-006B; H12120241-007B; H12120241-008B; H12120241-009B**

Run ID :Run Order: **ICPMS204-B_121217A: 35** SampType: **Method Blank** Sample ID: **MB-18972** Method: **E200.8**
Analysis Date: **12/17/12 14:25** Units: **mg/L** **Prep Info:** Prep Date: **12/10/2012** Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.00852	0.030									
Arsenic	5.96E-05	0.0030									
Cadmium	ND	8.0E-05									
Copper	0.000409	0.0010									
Lead	7.18E-05	0.00050									
Manganese	0.000170	0.0050									
Zinc	0.00627	0.010									

Associated samples: **H12120241-001B; H12120241-002B; H12120241-003B; H12120241-004B; H12120241-005B; H12120241-006B; H12120241-007B; H12120241-008B; H12120241-009B**

Run ID :Run Order: **ICPMS204-B_121217A: 45** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**
Analysis Date: **12/17/12 15:25** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0516	0.10	0.05	0.0002103	103	85	115				
Arsenic	0.0488	0.0050	0.05		98	85	115				
Cadmium	0.0522	0.0010	0.05		104	85	115				
Copper	0.0514	0.010	0.05		103	85	115				
Lead	0.0511	0.010	0.05		102	85	115				
Manganese	0.0505	0.010	0.05		101	85	115				
Zinc	0.0529	0.010	0.05	0.001146	104	85	115				

Associated samples: **H12120241-001B; H12120241-002B; H12120241-003B; H12120241-004B; H12120241-005B; H12120241-006B; H12120241-007B; H12120241-008B; H12120241-009B**

Run ID :Run Order: **ICPMS204-B_121217A: 58** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**
Analysis Date: **12/17/12 16:35** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.251	0.10	0.25		100	90	110				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120241
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *03-Jan-13*

BatchID: R85189

Run ID :Run Order: **ICPMS204-B_121217A: 58** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **12/17/12 16:35** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0500	0.0050	0.05		100	90	110				
Cadmium	0.0264	0.0010	0.025		105	90	110				
Copper	0.0513	0.010	0.05		103	90	110				
Lead	0.0503	0.010	0.05		101	90	110				
Manganese	0.252	0.010	0.25		101	90	110				
Zinc	0.0541	0.010	0.05		108	90	110				

Associated samples: **H12120241-001B; H12120241-002B; H12120241-003B; H12120241-004B; H12120241-005B; H12120241-006B; H12120241-007B; H12120241-008B; H12120241-009B**

Run ID :Run Order: **ICPMS204-B_121217A: 59** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **12/17/12 16:40** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	37.9	0.10	40		95	70	130				
Arsenic	0.000100	0.0050									
Cadmium	0.000982	0.0010									
Copper	0.000196	0.010									
Lead	0.000157	0.010									
Manganese	0.000547	0.010									
Zinc	0.00101	0.010									

Associated samples: **H12120241-001B; H12120241-002B; H12120241-003B; H12120241-004B; H12120241-005B; H12120241-006B; H12120241-007B; H12120241-008B; H12120241-009B**

Run ID :Run Order: **ICPMS204-B_121217A: 60** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **12/17/12 16:44** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	39.1	0.10	40		98	70	130				
Arsenic	0.0107	0.0050	0.01		107	70	130				
Cadmium	0.0108	0.0010	0.01		108	70	130				
Copper	0.0201	0.010	0.02		100	70	130				
Lead	0.000225	0.010				0	0				
Manganese	0.0211	0.010	0.02		105	70	130				
Zinc	0.0111	0.010	0.01		111	70	130				

Associated samples: **H12120241-001B; H12120241-002B; H12120241-003B; H12120241-004B; H12120241-005B; H12120241-006B; H12120241-007B; H12120241-008B; H12120241-009B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120241
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *03-Jan-13*

BatchID: R85189

Run ID :Run Order: **ICPMS204-B_121217A: 125** SampType: **Sample Matrix Spike** Sample ID: **H12120240-007BMS** Method: **E200.8**

Analysis Date: **12/17/12 21:45** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0629	0.030	0.05	0.01668	92	70	130				
Arsenic	0.0542	0.0010	0.05	0.001162	106	70	130				
Cadmium	0.0498	0.0010	0.05	0.0000346	99	70	130				
Copper	0.0514	0.0050	0.05	0.001128	101	70	130				
Lead	0.0503	0.0010	0.05	0.0003704	100	70	130				
Manganese	0.0526	0.0010	0.05	0.00256	100	70	130				
Zinc	0.0538	0.010	0.05	0.002449	103	70	130				

Associated samples: **H12120241-001B; H12120241-002B; H12120241-003B; H12120241-004B; H12120241-005B; H12120241-006B; H12120241-007B; H12120241-008B; H12120241-009B**

Run ID :Run Order: **ICPMS204-B_121217A: 126** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12120240-007BMSD** Method: **E200.8**

Analysis Date: **12/17/12 21:50** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0619	0.030	0.05	0.01668	91	70	130	0.06292	1.6	20	
Arsenic	0.0537	0.0010	0.05	0.001162	105	70	130	0.05416	0.9	20	
Cadmium	0.0492	0.0010	0.05	0.0000346	98	70	130	0.04978	1.2	20	
Copper	0.0505	0.0050	0.05	0.001128	99	70	130	0.05139	1.7	20	
Lead	0.0506	0.0010	0.05	0.0003704	100	70	130	0.05028	0.7	20	
Manganese	0.0526	0.0010	0.05	0.00256	100	70	130	0.05258	0.1	20	
Zinc	0.0536	0.010	0.05	0.002449	102	70	130	0.05376	0.2	20	

Associated samples: **H12120241-001B; H12120241-002B; H12120241-003B; H12120241-004B; H12120241-005B; H12120241-006B; H12120241-007B; H12120241-008B; H12120241-009B**

Run ID :Run Order: **ICPMS204-B_121217A: 157** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **12/18/12 00:14** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.251	0.10	0.25		100	90	110				
Arsenic	0.0505	0.0050	0.05		101	90	110				
Cadmium	0.0264	0.0010	0.025		105	90	110				
Copper	0.0508	0.010	0.05		102	90	110				
Lead	0.0497	0.010	0.05		99	90	110				
Manganese	0.249	0.010	0.25		100	90	110				
Zinc	0.0524	0.010	0.05		105	90	110				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120241
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *03-Jan-13*

BatchID: R85189

Run ID :Run Order: **ICPMS204-B_121217A: 157** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**

Analysis Date: **12/18/12 00:14** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12120241-001B; H12120241-002B; H12120241-003B; H12120241-004B; H12120241-005B; H12120241-006B; H12120241-007B; H12120241-008B; H12120241-009B**

Run ID :Run Order: **ICPMS204-B_121217A: 158** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**

Analysis Date: **12/18/12 00:18** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	38.4	0.10	40		96	70	130				
Arsenic	0.000115	0.0050									
Cadmium	0.00100	0.0010									
Copper	0.000202	0.010									
Lead	0.000178	0.010									
Manganese	4.70E-05	0.010									
Zinc	0.000902	0.010									

Associated samples: **H12120241-001B; H12120241-002B; H12120241-003B; H12120241-004B; H12120241-005B; H12120241-006B; H12120241-007B; H12120241-008B; H12120241-009B**

Run ID :Run Order: **ICPMS204-B_121217A: 159** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**

Analysis Date: **12/18/12 00:23** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	39.5	0.10	40		99	70	130				
Arsenic	0.0108	0.0050	0.01		108	70	130				
Cadmium	0.0108	0.0010	0.01		108	70	130				
Copper	0.0202	0.010	0.02		101	70	130				
Lead	0.000233	0.010				0	0				
Manganese	0.0202	0.010	0.02		101	70	130				
Zinc	0.0107	0.010	0.01		107	70	130				

Associated samples: **H12120241-001B; H12120241-002B; H12120241-003B; H12120241-004B; H12120241-005B; H12120241-006B; H12120241-007B; H12120241-008B; H12120241-009B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120241
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *03-Jan-13*

BatchID: R85205

Run ID :Run Order: **ICPMS204-B_121218A: 9** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV STD** Method: **E200.8**
Analysis Date: **12/18/12 10:38** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	2.72	0.50	2.5		109	90	110				
Iron	0.271	0.030	0.25		108	90	110				
Magnesium	2.60	0.50	2.5		104	90	110				
Manganese	0.251	0.010	0.25		101	90	110				

Associated samples: **H12120241-009B**

Run ID :Run Order: **ICPMS204-B_121218A: 10** SampType: **Interference Check Sample A** Sample ID: **ICSA** Method: **E200.8**
Analysis Date: **12/18/12 10:42** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	121	0.50	120		101	70	130				
Iron	99.9	0.030	100		100	70	130				
Magnesium	40.6	0.50	40		102	70	130				
Manganese	0.000499	0.010									

Associated samples: **H12120241-009B**

Run ID :Run Order: **ICPMS204-B_121218A: 11** SampType: **Interference Check Sample AB** Sample ID: **ICSAB** Method: **E200.8**
Analysis Date: **12/18/12 10:47** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	127	0.50	120		106	70	130				
Iron	103	0.030	100		103	70	130				
Magnesium	42.6	0.50	40		107	70	130				
Manganese	0.0206	0.010	0.02		103	70	130				

Associated samples: **H12120241-009B**

Run ID :Run Order: **ICPMS204-B_121218A: 19** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.8**
Analysis Date: **12/18/12 11:36** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	ND	0.008									
Iron	0.0006	0.0002									
Magnesium	ND	0.0006									
Manganese	ND	5E-05									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120241
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *03-Jan-13*

BatchID: R85205

Run ID :Run Order: **ICPMS204-B_121218A: 19** SampType: **Method Blank** Sample ID: **ICB** Method: **E200.8**
Analysis Date: **12/18/12 11:36** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12120241-009B**

Run ID :Run Order: **ICPMS204-B_121218A: 20** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**
Analysis Date: **12/18/12 11:40** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	24.1	0.50	25		97	85	115				
Iron	2.51	0.030	2.5	0.0005938	100	85	115				
Magnesium	24.4	0.50	25		97	85	115				
Manganese	0.0477	0.010	0.05		95	85	115				

Associated samples: **H12120241-009B**

Run ID :Run Order: **ICPMS204-B_121218A: 41** SampType: **Sample Matrix Spike** Sample ID: **H12120102-002AMS** Method: **E200.8**
Analysis Date: **12/18/12 13:21** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	271	1.0	50	222.8		70	130				A
Iron	4.73	0.030	5	0.009156	94	70	130				
Magnesium	101	1.0	50	55.62	92	70	130				
Manganese	0.129	0.0010	0.1	0.03322	96	70	130				

Associated samples: **H12120241-009B**

Run ID :Run Order: **ICPMS204-B_121218A: 42** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12120102-002AMSD** Method: **E200.8**
Analysis Date: **12/18/12 13:25** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	261	1.0	50	222.8		70	130	271	3.6	20	A
Iron	4.50	0.030	5	0.009156	90	70	130	4.728	4.9	20	
Magnesium	97.1	1.0	50	55.62	83	70	130	101.4	4.3	20	
Manganese	0.122	0.0010	0.1	0.03322	88	70	130	0.1289	5.9	20	

Associated samples: **H12120241-009B**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120241
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *03-Jan-13*

BatchID: R85253

Run ID :Run Order: **IC102-H_121219A: 14** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV121912-12** Method: **E300.0**
Analysis Date: **12/19/12 11:28** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	93	1.0	100		93	90	110				
Sulfate	370	1.0	400		93	90	110				

Associated samples: **H12120241-001A; H12120241-002A; H12120241-003A; H12120241-004A; H12120241-005A; H12120241-006A; H12120241-007A; H12120241-008A**

Run ID :Run Order: **IC102-H_121219A: 15** SampType: **Method Blank** Sample ID: **ICB121912-13** Method: **E300.0**
Analysis Date: **12/19/12 11:40** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.03									
Sulfate	ND	0.1									

Associated samples: **H12120241-001A; H12120241-002A; H12120241-003A; H12120241-004A; H12120241-005A; H12120241-006A; H12120241-007A; H12120241-008A**

Run ID :Run Order: **IC102-H_121219A: 16** SampType: **Laboratory Fortified Blank** Sample ID: **LFB121912-14** Method: **E300.0**
Analysis Date: **12/19/12 11:53** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	49	1.0	50		98	90	110				
Sulfate	200	1.0	200		99	90	110				

Associated samples: **H12120241-001A; H12120241-002A; H12120241-003A; H12120241-004A; H12120241-005A; H12120241-006A; H12120241-007A; H12120241-008A**

Run ID :Run Order: **IC102-H_121219A: 42** SampType: **Sample Matrix Spike** Sample ID: **H12120240-005AMS** Method: **E300.0**
Analysis Date: **12/19/12 17:31** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	51	1.0	50	0.789	101	90	110				
Sulfate	210	1.0	200	6.131	101	90	110				

Associated samples: **H12120241-001A; H12120241-002A; H12120241-003A; H12120241-004A; H12120241-005A; H12120241-006A; H12120241-007A; H12120241-008A**

Run ID :Run Order: **IC102-H_121219A: 43** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12120240-005AMSD** Method: **E300.0**
Analysis Date: **12/19/12 17:44** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	52	1.0	50	0.789	102	90	110	51.44	0.9	20	
Sulfate	210	1.0	200	6.131	102	90	110	209	0.4	20	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120241
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *03-Jan-13*

BatchID: R85253

Run ID :Run Order: **IC102-H_121219A: 43** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12120240-005AMSD** Method: **E300.0**
Analysis Date: **12/19/12 17:44** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12120241-001A; H12120241-002A; H12120241-003A; H12120241-004A; H12120241-005A; H12120241-006A; H12120241-007A; H12120241-008A**

Run ID :Run Order: **IC102-H_121219A: 46** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV121912-44** Method: **E300.0**
Analysis Date: **12/19/12 18:22** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	93	1.0	100		93	90	110				
Sulfate	370	1.0	400		93	90	110				

Associated samples: **H12120241-001A; H12120241-002A; H12120241-003A; H12120241-004A; H12120241-005A; H12120241-006A; H12120241-007A; H12120241-008A**

Run ID :Run Order: **IC102-H_121219A: 56** SampType: **Sample Matrix Spike** Sample ID: **H12120241-008AMS** Method: **E300.0**
Analysis Date: **12/19/12 20:28** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	51	1.0	50	0.233	101	90	110				
Sulfate	270	1.0	200	75.54	100	90	110				

Associated samples: **H12120241-001A; H12120241-002A; H12120241-003A; H12120241-004A; H12120241-005A; H12120241-006A; H12120241-007A; H12120241-008A**

Run ID :Run Order: **IC102-H_121219A: 57** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12120241-008AMSD** Method: **E300.0**
Analysis Date: **12/19/12 20:40** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	51	1.0	50	0.233	102	90	110	50.65	0.9	20	
Sulfate	270	1.0	200	75.54	100	90	110	274.8	0.0	20	

Associated samples: **H12120241-001A; H12120241-002A; H12120241-003A; H12120241-004A; H12120241-005A; H12120241-006A; H12120241-007A; H12120241-008A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120241
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *03-Jan-13*

BatchID: R85271

Run ID :Run Order: **IC102-H_121220A: 14** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV122012-12** Method: **E300.0**
Analysis Date: **12/20/12 10:22** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	94	1.0	100		94	90	110				
Sulfate	380	1.0	400		94	90	110				

Associated samples: **H12120241-009A**

Run ID :Run Order: **IC102-H_121220A: 15** SampType: **Method Blank** Sample ID: **ICB122012-13** Method: **E300.0**
Analysis Date: **12/20/12 10:35** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.03									
Sulfate	ND	0.1									

Associated samples: **H12120241-009A**

Run ID :Run Order: **IC102-H_121220A: 16** SampType: **Laboratory Fortified Blank** Sample ID: **LFB122012-14** Method: **E300.0**
Analysis Date: **12/20/12 10:47** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	49	1.0	50		98	90	110				
Sulfate	200	1.0	200		100	90	110				

Associated samples: **H12120241-009A**

Run ID :Run Order: **IC102-H_121220A: 18** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV122012-15** Method: **E300.0**
Analysis Date: **12/20/12 11:13** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	93	1.0	100		93	90	110				
Sulfate	370	1.0	400		93	90	110				

Associated samples: **H12120241-009A**

Run ID :Run Order: **IC102-H_121220A: 22** SampType: **Sample Matrix Spike** Sample ID: **H12120241-009AMS** Method: **E300.0**
Analysis Date: **12/20/12 12:03** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	250	1.4	250	0.321	100	90	110				
Sulfate	1900	1.0	1000	1011	92	90	110				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120241
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *03-Jan-13*

BatchID: R85271

Run ID :Run Order: **IC102-H_121220A: 22** SampType: **Sample Matrix Spike** Sample ID: **H12120241-009AMS** Method: **E300.0**

Analysis Date: **12/20/12 12:03** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H12120241-009A**

Run ID :Run Order: **IC102-H_121220A: 23** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H12120241-009AMSD** Method: **E300.0**

Analysis Date: **12/20/12 12:16** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	250	1.4	250	0.321	**99**	90	110	250.4	**1.0**	20	
Sulfate	1900	1.0	1000	1011	**90**	90	110	1933	**0.9**	20	

Associated samples: **H12120241-009A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Client: MT DEQ-Site Response
Work Order: H12120241
Project: UBMC Groundwater

ANALYTICAL QC SUMMARY REPORT

Prepared by Helena, MT Branch

Date: *03-Jan-13*

BatchID: TDS121217A

Run ID :Run Order: **ACCU-124 (14410200)_121217B: 1** SampType: **Method Blank** Sample ID: **MB-1_121217A** Method: **A2540 C**
Analysis Date: **12/17/12 16:15** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	ND	3									

Associated samples: **H12120241-001A; H12120241-002A; H12120241-003A; H12120241-004A; H12120241-005A; H12120241-006A; H12120241-007A; H12120241-008A; H12120241-009A**

Run ID :Run Order: **ACCU-124 (14410200)_121217B: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS-2_121217A** Method: **A2540 C**
Analysis Date: **12/17/12 16:15** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	1910	10	2000		95	90	110				

Associated samples: **H12120241-001A; H12120241-002A; H12120241-003A; H12120241-004A; H12120241-005A; H12120241-006A; H12120241-007A; H12120241-008A; H12120241-009A**

Run ID :Run Order: **ACCU-124 (14410200)_121217B: 4** SampType: **Sample Duplicate** Sample ID: **H12120215-001A DUP** Method: **A2540 C**
Analysis Date: **12/17/12 16:16** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	13800	10						14110	2.4	5	

Associated samples: **H12120241-001A; H12120241-002A; H12120241-003A; H12120241-004A; H12120241-005A; H12120241-006A; H12120241-007A; H12120241-008A; H12120241-009A**

Run ID :Run Order: **ACCU-124 (14410200)_121217B: 7** SampType: **Sample Matrix Spike** Sample ID: **H12120227-001A MS** Method: **A2540 C**
Analysis Date: **12/17/12 16:16** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2230	10	2000	438	90	80	120				

Associated samples: **H12120241-001A; H12120241-002A; H12120241-003A; H12120241-004A; H12120241-005A; H12120241-006A; H12120241-007A; H12120241-008A; H12120241-009A**

Run ID :Run Order: **ACCU-124 (14410200)_121217B: 16** SampType: **Sample Duplicate** Sample ID: **H12120240-007A DUP** Method: **A2540 C**
Analysis Date: **12/17/12 16:18** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	197	10						195	1.0	5	

Associated samples: **H12120241-001A; H12120241-002A; H12120241-003A; H12120241-004A; H12120241-005A; H12120241-006A; H12120241-007A; H12120241-008A; H12120241-009A**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Standard Reporting Procedures

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Workorder Receipt Checklist

MT DEQ-Site Response H12120241

Login completed by: Tracy L. Lorash
Date Received: 12/14/2012
Reviewed by: BL2000\sdull
Received by: wjj
Reviewed Date: 12/20/2012
Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	0.2°C On Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Contact and Corrective Action Comments:

Collection time on COC for TDMW-2D is 10:34 - bottles have 10:40. Logged in with time from COC. TI 12/14/12.

Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT (Provide as much information as possible.)

Company Name:	Project Name, PWS, Permit, Etc.	Sample Origin	EPA/State Compliance:
MDEQ	UBMC Groundwater	State: MT	Yes ☐ No ☐
Report Mail Address:	**Contact Name:** Phone/Fax:	**Email:**	**Sampler: (Please Print)**
See Quote H-645	Shellie Haaland, 841-5033, shaaland@mt.gov		A Dressbach M. Towler
Invoice Address:	**Invoice Contact & Phone:**	**Purchase Order:**	**Quote/Bottle Order:** 11145

Special Report/Formats:

☐ DW ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: _____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids
Vegetation Bioassay Other
DW - Drinking Water

ANALYSIS REQUESTED

Standard Turnaround (TAT)

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

Shipped by: hand del
Cooler ID(s): Y
Receipt Temp 0.2 °C
On Ice: Y N
Custody Seal On Bottle Y N / On Cooler Y N
Intact Y N
Signature Match Y N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	SEE ATTACHED
1	TDMW-7	12/12/12	1028	W	X
2	TDMW-8		1039		
3	TDMW-5		1151		
4	TDMW-4D		1404		
5	TDMW-6		1414		
6	TDMW-3D	12/12/12	1542		
7	TDMW-1	12/13/12	1007		
8	TDMW-2D	↓	1034		
9	TDMW-25	12/13/12	~~1059~~ 1107	W	X
10					

12/13/12 AM

LABORATORY USE ONLY H2120241

Custody Record MUST be Signed

Relinquished by (print): Alan Dressbach	Date/Time: 12/14/12 1508	Signature:	Received by (print): / Date/Time: / Signature:
Relinquished by (print):	Date/Time:	Signature:	Received by (print): / Date/Time: / Signature:
Sample Disposal: Return to Client: _____	Lab Disposal: _____		Received by Laboratory: Wanda Johns 12-14-1215

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.
This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

Section 35 Quarterly													
	Quantity	Analysis											
Surface Water	7	[1]Disolved Metals	[2]Total Rec. Metals	[5]Cations	Chloride	Sulfate	Alkalinity	Hardness	Acidity	TDS	TSS	pH	EC
Groundwater	9	[3]Disolved Metals		[5]Cations	Chloride	Sulfate	Alkalinity	Hardness	Acidity	TDS	TSS	pH	EC
Sediment	6		[4]Total Rec. Metals										

[1]Aluminum

[2]Arsenic, cadmium, copper, iron, lead, manganese, and zinc

[3]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[4]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[5]Calcium, magnesium, potassium, sodium

UBMC Quarterly													
	Quantity	Analysis											
[6]Surface Water	11	[1]Disolved Metals	[2]Total Rec. Metals	[5]Cations	Chloride	Sulfate	Alkalinity	Hardness	Acidity	TDS	TSS	pH	EC
Groundwater	10	[3]Disolved Metals ✓		[5]Cations ✓	Chloride ✓	Sulfate ✓	Alkalinity ✓	Hardness ✓	Acidity ✓	TDS ✓	TSS ✓	pH ✓	EC ✓
Sediment	9		[4]Total Rec. Metals										

[1]Aluminum

[2]Arsenic, cadmium, copper, iron, lead, manganese, and zinc

[3]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[4]Aluminum, arsenic, cadmium, copper, iron, lead, manganese, and zinc

[5]Calcium, magnesium, potassium, sodium

[6]Additional surface water samples may be collected for seeps.

Appendix B

Data Validation Reports

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UBMC Surface Water

SDG#:	**H12030340**
Number of Samples:	**32**
Sample Matrix:	**(18) Surface Water and (14) Sediment**
Applicable Analytes:	**(18) pH, Conductivity, TSS, TDS, Alkalinity: (Total Alkalinity, Bicarbonate, and Carbonate), Anions: (Chloride and Sulfate), Hardness, Dissolved Metals: (Al, Ca, Mg, K, and Na), Total Recoverable Metals: (As, Cd, Cu, Fe, Pb, Mn, and Zn), and (14) Total Metals (Al, As, Cd, Cu, Fe, Pb, Mn, and Zn) by SW-846 6010B**
Reporting Tier:	**3**
Applicable TOS#:	**N/A**
Laboratory:	**Energy Laboratories**
Validation Level:	**EPA Level III**
Validator Affiliation:	**Portage, Inc.**
Project#:	**UBMC**
Project SAP/QUAPP:	**Final Sampling and Analysis Plan for Environmental Monitoring Section 35, Lewis and Clark County, Montana; Portage Inc., 2012; Final Sampling and Analysis Plan for Environmental Monitoring Upper Blackfoot Mining Complex, Lewis and Clark County, Montana; Portage Inc., 2012**

Validator  **Date Completed:4/25/12;05/10/13**

Portage Review:  **Date Completed:04/25/12;05/03/13**

REPORT ORGANIZATION:

Limitations & Validation (L&V) Report UBMC Surface Water is organized into the following five sections:

- Glossary of Terms & Method References
- Data Quality Statement
- L&V Report
- Attachment A: Laboratory Report Forms Corrected for Qualification
- Attachment B: Laboratory Case Narrative
- Attachment C: Chain of Custody Forms & Sample Receipt Checklist

GLOSSARY OF VALIDATION TERMS & METHOD VALIDATION REFERENCES

Terms:

CRDL	Contract Required Detection Limit
IDL	Instrument Detection Limit
SOW	Statement of Work
SOP	Standard Operating Procedure
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ICV	Initial Calibration Verification
CCV	Continuing Calibration Verification
ICB	Initial Calibration Blank
CCB	Continuing Calibration Blank
PB	Preparation Blank
LCS	Laboratory Control Sample
SDS	Serial Dilution Sample
SDG	Sample Delivery Group

Qualifiers:

U - The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.
Note: This detection limit may be elevated to a level greater than the IDL due to a detection of a target compound in the method blank, and as a result, the sample value, which was less than ten times the blank result, has been qualified 'U' as a non-detect.

J - The analyte was positively identified in the sample, but the associated numerical value may not be an accurate representation of the amount actually present in the environmental sample. The data should be seriously considered for decision-making and are usable for many purposes.

R - The data are unusable (may or may not be present). Resampling and reanalysis are necessary for verification.

UJ - The material was analyzed for but was not detected. The sample quantitation limit is an estimated quantity.

Reference:

The validation of this data was performed according to:

1. *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, EPA540-R-04-004,October 2004.*
2. *USEPA Contract Laboratory Program Statement of Work For Inorganic Analysis, Multi-Media, Multi-Concentration, Document Number ILM04.0, January 2000.*

LIMITATIONS AND VALIDATION REPORT

INTRODUCTION:

The UBMC Surface Water sediment and surface water sample results were received by Portage, Inc. in April 2012. The laboratory analytical request provided for a summary data package attached for the pH, conductivity, TSS, TDS, alkalinity: (total alkalinity, bicarbonate, and carbonate), chloride, sulfate, hardness, dissolved metals (Al, Ca, Mg, K, and Na), total recoverable metals (As, Cd, Cu, Fe, Pb, Mn, and Zn), and Total Metals (Al, As, Cd, Cu, Fe, Pb, Mn, and Zn). The samples were analyzed in accordance with Standard Methods 4500 H-B, 2510B, 2540D, 2540C, 2320B, and 2340B, and USEPA Methods 300.0, 200.7, 200.8, and Sw-846 6010B. Data validation was performed utilizing the USEPA Functional Guidelines for Inorganic Data Review. The following cross-reference has been provided to assist data users in comparing field identifications to the corresponding laboratory numbers.

Cross-Reference for UBMC Surface Water Sediment and Surface Water Samples					
Field Id#:	**Lab Id#:**	**Matrix:**	**Analysis Request:**	**Date of Collection:**	**Date of Laboratory Receipt:**
S35SW05	H1203040-001	Aqueous	pH, Conductivity, TSS, TDS, Alkalinity (Total Alkalinity, Bicarbonate, & Carbonate), Chloride, Sulfate, Hardness, Dissolved Metals, Total Recoverable Metals	03/26/12	03/27/12
S35SW07	H1203040-002	Aqueous	pH, Conductivity, TSS, TDS, Alkalinity (Total Alkalinity, Bicarbonate, & Carbonate), Chloride, Sulfate, Hardness, Dissolved Metals, Total Recoverable Metals	03/26/12	03/27/12
S35SW01	H1203040-003	Aqueous	pH, Conductivity, TSS, TDS, Alkalinity (Total Alkalinity, Bicarbonate, & Carbonate), Chloride, Sulfate, Hardness, Dissolved Metals, Total Recoverable Metals	03/26/12	03/27/12
S35SW06	H1203040-004	Aqueous	pH, Conductivity, TSS, TDS, Alkalinity (Total Alkalinity, Bicarbonate, & Carbonate), Chloride, Sulfate, Hardness, Dissolved Metals, Total Recoverable Metals	03/26/12	03/27/12

Cross-Reference for UBMC Surface Water Sediment and Surface Water Samples					
S35SW02	H1203040-005	Aqueous	pH, Conductivity, TSS, TDS, Alkalinity (Total Alkalinity, Bicarbonate, & Carbonate), Chloride, Sulfate, Hardness, Dissolved Metals, Total Recoverable Metals	03/26/12	03/27/12
S35SW04	H1203040-006	Aqueous	pH, Conductivity, TSS, TDS, Alkalinity (Total Alkalinity, Bicarbonate, & Carbonate), Chloride, Sulfate, Hardness, Dissolved Metals, Total Recoverable Metals	03/26/12	03/27/12
S35SW03	H1203040-007	Aqueous	pH, Conductivity, TSS, TDS, Alkalinity (Total Alkalinity, Bicarbonate, & Carbonate), Chloride, Sulfate, Hardness, Dissolved Metals, Total Recoverable Metals	03/26/12	03/27/12
UBMCBRSW25	H1203040-008	Aqueous	pH, Conductivity, TSS, TDS, Alkalinity (Total Alkalinity, Bicarbonate, & Carbonate), Chloride, Sulfate, Hardness, Dissolved Metals, Total Recoverable Metals	03/26/12	03/27/12
UBMCBRSW26	H1203040-009	Aqueous	pH, Conductivity, TSS, TDS, Alkalinity (Total Alkalinity, Bicarbonate, & Carbonate), Chloride, Sulfate, Hardness, Dissolved Metals, Total Recoverable Metals	03/26/12	03/27/12
UBMCBRSW22	H1203040-010	Aqueous	pH, Conductivity, TSS, TDS, Alkalinity (Total Alkalinity, Bicarbonate, & Carbonate), Chloride, Sulfate, Hardness, Dissolved Metals, Total Recoverable Metals	03/26/12	03/27/12
UBMCBRSW24	H1203040-011	Aqueous	pH, Conductivity, TSS, TDS, Alkalinity (Total Alkalinity, Bicarbonate, & Carbonate), Chloride, Sulfate, Hardness, Dissolved Metals, Total Recoverable Metals	03/26/12	03/27/12
UBMCBRSW01	H1203040-012	Aqueous	pH, Conductivity, TSS, TDS, Alkalinity (Total Alkalinity, Bicarbonate, & Carbonate), Chloride, Sulfate, Hardness, Dissolved Metals, Total Recoverable Metals	03/26/12	03/27/12

Cross-Reference for UBMC Surface Water Sediment and Surface Water Samples					
UBMCBRSW2	H1203040-013	Aqueous	pH, Conductivity, TSS, TDS, Alkalinity (Total Alkalinity, Bicarbonate, & Carbonate), Chloride, Sulfate, Hardness, Dissolved Metals, Total Recoverable Metals	03/26/12	03/27/12
UBMCBRSW38	H1203040-014	Aqueous	pH, Conductivity, TSS, TDS, Alkalinity (Total Alkalinity, Bicarbonate, & Carbonate), Chloride, Sulfate, Hardness, Dissolved Metals, Total Recoverable Metals	03/27/12	03/27/12
UBMCBRSW48	H1203040-015	Aqueous	pH, Conductivity, TSS, TDS, Alkalinity (Total Alkalinity, Bicarbonate, & Carbonate), Chloride, Sulfate, Hardness, Dissolved Metals, Total Recoverable Metals	03/27/12	03/27/12
UBMCBRSW23	H1203040-016	Aqueous	pH, Conductivity, TSS, TDS, Alkalinity (Total Alkalinity, Bicarbonate, & Carbonate), Chloride, Sulfate, Hardness, Dissolved Metals, Total Recoverable Metals	03/27/12	03/27/12
UBMCBRSW3A	H1203040-017	Aqueous	pH, Conductivity, TSS, TDS, Alkalinity (Total Alkalinity, Bicarbonate, & Carbonate), Chloride, Sulfate, Hardness, Dissolved Metals, Total Recoverable Metals	03/27/12	03/27/12
UBMCBRSW3B	H1203040-018	Aqueous	pH, Conductivity, TSS, TDS, Alkalinity (Total Alkalinity, Bicarbonate, & Carbonate), Chloride, Sulfate, Hardness, Dissolved Metals, Total Recoverable Metals	03/27/12	03/27/12
S35SD05	H1203040-019	Sediment	Total Metals	03/26/12	03/27/12
S35SD06	H1203040-020	Sediment	Total Metals	03/26/12	03/27/12
S35SD01	H1203040-021	Sediment	Total Metals	03/26/12	03/27/12
S35SD02	H1203040-022	Sediment	Total Metals	03/26/12	03/27/12
S35SD04	H1203040-023	Sediment	Total Metals	03/26/12	03/27/12
S35SD03	H1203040-024	Sediment	Total Metals	03/26/12	03/27/12
UBMCBRSD22	H1203040-025	Sediment	Total Metals	03/26/12	03/27/12

Cross-Reference for UBMC Surface Water Sediment and Surface Water Samples					
UBMCBRSD24	H1203040-026	Sediment	Total Metals	03/26/12	03/27/12
UBMCBRSD01	H1203040-027	Sediment	Total Metals	03/26/12	03/27/12
UBMCBRSD38	H1203040-028	Sediment	Total Metals	03/27/12	03/27/12
UBMCBRSD48	H1203040-029	Sediment	Total Metals	03/27/12	03/27/12
UBMCBRSD23	H1203040-030	Sediment	Total Metals	03/27/12	03/27/12
UBMCBRSD3A	H1203040-031	Sediment	Total Metals	03/27/12	03/27/12
UBMCBRSD3B	H1203040-032	Sediment	Total Metals	03/27/12	03/27/12

ANALYTICAL HOLDING TIMES:

The water samples associated with this SDG were collected on 03/26/12 and 03/27/12. The conductivity, TSS, TDS, and alkalinity (total alkalinity, bicarbonate, and carbonate) results were analyzed on 03/28/12 and 03/29/12 within the 28-day holding time for conductivity, the 14-day holding time for alkalinity (total alkalinity, bicarbonate, and carbonate), and the 7-day holding time for TSS and TDS. The chloride and sulfate results were analyzed on 03/28/12 within the 28-day holding time. The hardness results were analyzed on 04/02/12 within the 180-day holding time. The dissolved metals were analyzed on 03/28/12 and the total recoverable metals were analyzed on 04/02/12, total metals results were analyzed on 04/06/12 within the 180-day holding time for the remaining analytes.

The pH samples were collected on 03/26/12 and 03/27/12, received on 03/27/12, and analyzed on 03/27/12 approximately 1-24 hours after the 24-hr holding time had expired. In the professional judgment of the validator, all pH results have been qualified with a "J-" validation flag as prescribed by the USEPA Functional Guidelines.

INITIAL AND CONTINUING CALIBRATION (ICV and CCV):

All ICV and CCV results were within the acceptance criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

INITIAL AND CONTINUING CALIBRATION (ICV and CCV):

All ICV and CCV results were within the acceptance criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

PREPRATION BLANKS (PB):

The PB for TDS exhibited a positive detection between the MDL and the RL. The associated TDS results no qualification due to positive detection in the method blank as the reported

results were either non-detect or greater than the RL and greater than five times the PB concentration.

The remaining PB results were non-detect at level less than their respective MDLs and no qualification is warranted.

Field blank, trip blank, and equipment rinsate results were not included in this data deliverable.

INTERFERENCE CHECK SAMPLE (ICS):

All ICS results were within the acceptance criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

MATRIX SPIKE (MS)/MATRIX SPIKE DUPLICATE (MSD):

The copper (61%) and lead (156%) MS results for Total Metals by 6010B exhibited recovery outside the 75-125% recovery criteria prescribed by the Functional Guidelines. All associated copper and lead sample results have been qualified with a "J" validation flag due to high or low MS recovery, AS results within the prescribed acceptance criteria, and sample results greater than the RL.

For analytical batch # 78880, the chloride (81% and 86%) and sulfate (86%) exhibited recovery outside the 90-110% recovery criteria prescribed by USEPA Method 300.0. The chloride result for sample S35SW05 and the sulfate results for samples S35SW05, S35SW01, S35SW06, and S35SW02 have been qualified with a "J-" validation flag due to low MS recovery and sample results greater than the RL. The sulfate result for sample S35SW07 and the chloride results for samples S35SW07, S35SW01, S35SW06, and S35SW02 have been qualified with a "UJ" validation flag due to low MS recovery and sample results less than the RL.

The manganese (60%) and zinc (47%) MSD RPD results for Total Metals by 6010B exhibited RPD results greater than the 35% RPD acceptance criteria prescribed by the Functional Guidelines. All associated manganese and zinc results have been qualified with a "J" validation flag due to the poor duplicate precision and sample results greater than the RL.

The remaining MS/MSD recovery and all RPD results were within the acceptance criteria and analyzed at the proper frequency (1 in 20) as prescribed by the USEPA Functional Guidelines and the analytical methods. MS/MSD sample were obtained from project field samples.

LABORATORY DUPLICATE SAMPLE (LDS) RPD:

All LDS and field duplicate results were within the RPD criteria and ran at the proper frequency (1 in 20) prescribed by the USEPA Functional Guidelines and the analytical methods.

DUPLICATE SUMMARY TABLE:

Surface Water:

Analyte	Matrix Spike Duplicate RPD	Laboratory Duplicate RPD	Field Duplicate RPD (UBMC)	Field Duplicate RPD (S35)
pH	N/A	0	0	0
Conductivity	N/A	0.7	0.147167	-0.64725
TSS	N/A	1.8	0	0
TDS	N/A	0	-5.10441	12.04819
Alkalinity	N/A	0.2	0	0
Bicarbonate	N/A	0.2	0	0
Carbonate	N/A	0	0	0
Chloride	0.2	N/A	0	0
Sulfate	2.3	N/A	0	0
Hardness	N/A	N/A	-3.51906	1.37931
Al	2.1	N/A	0	0
Ca	2.1	N/A	-4.30108	5.405405
Mg	2.3	N/A	-3.77358	15.38462
K	9.9	N/A	0	0
Na	0	N/A	0	0
As	0.3	N/A	0	0
Cd	0.3	N/A	-3.19489	0
Cu	1.7	N/A	0	0
Fe	0.9	N/A	0	3.278689
Pb	1.2	N/A	0	0
Mn	0.4	N/A	0	0
Zn	1.3	N/A	0.581395	0

*RPD greater than 20%, however, CRDL criteria not met, Dup ok

Sediment:

Analyte	Matrix Spike Duplicate RPD	Laboratory Duplicate RPD	Field Duplicate RPD (UBMC)	Field Duplicate RPD (S35)
Al	12	N/A	21.02564	-1.75439
As	9.5	N/A	-12.9032	0
Cd	5.3	N/A	-18.8034	0
Cu	20	N/A	-8.64198	-6.06061
Fe	12	N/A	1.733102	-1.12994
Pb	20	N/A	-8.55895	-40
Mn	**60**	N/A	-12.766	31.29252
Zn	**47**	N/A	-14.1823	6.060606

*RPD greater than 35%, however, CRDL criteria not met, Dup ok

LABORATORY CONTROL SAMPLE (LCS):

The LCS results were of matrix types similar to the field samples and properly prepared with the field samples.

All analytes exhibited recoveries within the guidelines and analyzed at the proper frequency (1 in 20) as prescribed by the USEPA Functional Guidelines and analytical methods.

Surrogate analyses are not applicable to metals and miscellaneous wet chemistry analysis types and methods.

CHAIN OF CUSTODY:

The laboratory chain of custody (COC) forms are complete and accurate.

One cooler was received by Energy Labs on 10/03/12 at 2.4°C. Custody was maintained as documents by the field and laboratory personnel signatures, dates, and time of receipt.

REPORTING LIMTS:

The reporting limits presented by the laboratory were acceptable and met the screening level requirements set forth by the project QAPjP and SAP.

OVERALL ASSESSMENT OF DATA:

There were eighteen (18) surface water and fourteen (14) sediment field samples included in SDG# H11120149. Eighteen (18) field samples were analyzed for pH, conductivity, TSS, TDS, alkalinity (total alkalinity, bicarbonate, and carbonate), chloride, sulfate, hardness, dissolved metals, and total recoverable metals, fourteen (14) field samples were analyzed for total metals by SW-846 6010B as outlined in the project QAPP.

All pH results have been qualified with a "J-" validation flag to denote the reported results are estimates with a low bias due to exceeded holding times.

All copper and lead sediment samples have been qualified with a "J" validation flag to denote the reported results are estimates due to poor MS recovery.

All manganese and zinc sediment samples have been qualified with a "J" validation flag to denote the reported results are estimates due to poor MSD precision.

The chloride result for S35SW05 and the sulfate results for samples S35SW05, S35SW01. S35SW06, and S35SW02 have been qualified with a "J-" validation flag to denote the reported results are estimates with a low bias due to low MS/MSD recovery.

The chloride results for samples S35SW07, S35SW01. S35SW06, and S35SW02 and the sulfate result for sample S35SW07 have been qualified with a "UJ" validation flag to denote the sample results are non-detect at the reported value, but the reported value is an estimate due to low MS/MSD recovery.

The remaining field sample data points have been assessed and remain unqualified.

All samples were received by the lab in good condition. Detection limits, analytical methods, detection limits, and reporting were all within the project requirements.

Attachment A: Laboratory Report Forms

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID S35SW05
Lab ID: H12030340-001
Matrix: Aqueous

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 10:10 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.3	s.u. J-		0.1		A4500-H B	03/28/12 11:19 / cmm		PHSC_101-H_120328A	17	R78847
Conductivity @ 25 C	146	umhos/cm		1		A2510 B	03/28/12 11:19 / cmm		PHSC_101-H_120328A	18	R78847
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/28/12 14:10 / cmm	03/28/12 13:48	J-124 (14410200)_120328A	11	16073
Solids, Total Dissolved TDS @ 180 C	98	mg/L		10		A2540 C	03/28/12 14:22 / cmm	03/28/12 13:55	J-124 (14410200)_120328B	9	16075
INORGANICS											
Alkalinity, Total as CaCO3	65	mg/L		4		A2320 B	03/29/12 15:28 / cmm		MAN-TECH_120329A	24	R78897
Bicarbonate as HCO3	79	mg/L		4		A2320 B	03/29/12 15:28 / cmm		MAN-TECH_120329A	24	R78897
Carbonate as CO3	ND	mg/L		4		A2320 B	03/29/12 15:28 / cmm		MAN-TECH_120329A	24	R78897
Chloride	2	mg/L J-		1		E300.0	03/28/12 20:58 / cmm		IC102-H_120328A	58	R78880
Sulfate	4	mg/L J-		1		E300.0	03/28/12 20:58 / cmm		IC102-H_120328A	58	R78880
Hardness as CaCO3	65	mg/L		1		A2340 B	04/02/12 08:47 / sld		WATERCALC_120402A	2	R78918
METALS, DISSOLVED											
Aluminum	0.21	mg/L		0.03		E200.7	03/28/12 12:18 / sld		ICP2-HE_120328B	41	R78872
Calcium	16	mg/L		1		E200.7	03/28/12 12:18 / sld		ICP2-HE_120328B	41	R78872
Magnesium	6	mg/L		1		E200.7	03/28/12 12:18 / sld		ICP2-HE_120328B	41	R78872
Potassium	1	mg/L		1		E200.7	03/28/12 12:18 / sld		ICP2-HE_120328B	41	R78872
Sodium	2	mg/L		1		E200.7	03/28/12 12:18 / sld		ICP2-HE_120328B	41	R78872
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	04/02/12 21:45 / dck	03/28/12 12:21	ICPMS204-B_120402A	94	16071
Cadmium	ND	mg/L		0.00008		E200.8	04/02/12 21:45 / dck	03/28/12 12:21	ICPMS204-B_120402A	94	16071
Copper	0.003	mg/L		0.001		E200.8	04/02/12 21:45 / dck	03/28/12 12:21	ICPMS204-B_120402A	94	16071
Iron	0.36	mg/L		0.03		E200.8	04/02/12 21:45 / dck	03/28/12 12:21	ICPMS204-B_120402A	94	16071
Lead	ND	mg/L		0.0005		E200.8	04/02/12 21:45 / dck	03/28/12 12:21	ICPMS204-B_120402A	94	16071
Manganese	0.023	mg/L		0.005		E200.8	04/02/12 21:45 / dck	03/28/12 12:21	ICPMS204-B_120402A	94	16071
Zinc	ND	mg/L		0.01		E200.8	04/02/12 21:45 / dck	03/28/12 12:21	ICPMS204-B_120402A	94	16071

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

JAN 04-23-12

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID S35SW07
Lab ID: H12030340-002
Matrix: Aqueous

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 09:00 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.5	s.u. J-		0.1		A4500-H B	03/28/12 11:21 / cmm		PHSC_101-H_120328A	19	R78847
Conductivity @ 25 C	1	umhos/cm		1		A2510 B	03/28/12 11:21 / cmm		PHSC_101-H_120328A	20	R78847
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/28/12 14:11 / cmm	03/28/12 13:48	-124 (14410200)_120328A	12	16073
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	03/28/12 14:22 / cmm	03/28/12 13:55	-124 (14410200)_120328B	10	16075
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	03/29/12 15:32 / cmm		MAN-TECH_120329A	26	R78897
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	03/29/12 15:32 / cmm		MAN-TECH_120329A	26	R78897
Carbonate as CO3	ND	mg/L		4		A2320 B	03/29/12 15:32 / cmm		MAN-TECH_120329A	26	R78897
Chloride	ND	mg/L UJ		1		E300.0	03/28/12 21:12 / cmm		IC102-H_120328A	59	R78880
Sulfate	ND	mg/L UJ		1		E300.0	03/28/12 21:12 / cmm		IC102-H_120328A	59	R78880
Hardness as CaCO3	ND	mg/L		1		A2340 B	04/02/12 08:47 / sld		WATERCALC_120402A	3	R78918
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	03/28/12 12:40 / sld		ICP2-HE_120328B	47	R78872
Calcium	ND	mg/L		1		E200.7	03/28/12 12:40 / sld		ICP2-HE_120328B	47	R78872
Magnesium	ND	mg/L		1		E200.7	03/28/12 12:40 / sld		ICP2-HE_120328B	47	R78872
Potassium	ND	mg/L		1		E200.7	03/28/12 12:40 / sld		ICP2-HE_120328B	47	R78872
Sodium	ND	mg/L		1		E200.7	03/28/12 12:40 / sld		ICP2-HE_120328B	47	R78872
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	04/02/12 22:27 / dck		ICPMS204-B_120402A	103	R78968
Cadmium	ND	mg/L		0.00008		E200.8	04/02/12 22:27 / dck		ICPMS204-B_120402A	103	R78968
Copper	ND	mg/L		0.001		E200.8	04/02/12 22:27 / dck		ICPMS204-B_120402A	103	R78968
Iron	ND	mg/L		0.03		E200.8	04/02/12 22:27 / dck		ICPMS204-B_120402A	103	R78968
Lead	ND	mg/L		0.0005		E200.8	04/02/12 22:27 / dck		ICPMS204-B_120402A	103	R78968
Manganese	ND	mg/L		0.005		E200.8	04/02/12 22:27 / dck		ICPMS204-B_120402A	103	R78968
Zinc	ND	mg/L		0.01		E200.8	04/02/12 22:27 / dck		ICPMS204-B_120402A	103	R78968

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

JAN 4-23-12

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID S35SW01
Lab ID: H12030340-003
Matrix: Aqueous

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 11:10 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.4	s.u. J-		0.1		A4500-H B	03/28/12 11:24 / cmm		PHSC_101-H_120328A	21	R78847
Conductivity @ 25 C	154	umhos/cm		1		A2510 B	03/28/12 11:24 / cmm		PHSC_101-H_120328A	22	R78847
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/28/12 14:11 / cmm	03/28/12 13:48	-124 (14410200)_120328A	13	16073
Solids, Total Dissolved TDS @ 180 C	88	mg/L		10		A2540 C	03/28/12 14:22 / cmm	03/28/12 13:55	-124 (14410200)_120328B	11	16075
INORGANICS											
Alkalinity, Total as CaCO3	77	mg/L		4		A2320 B	03/29/12 15:39 / cmm		MAN-TECH_120329A	28	R78897
Bicarbonate as HCO3	94	mg/L		4		A2320 B	03/29/12 15:39 / cmm		MAN-TECH_120329A	28	R78897
Carbonate as CO3	ND	mg/L		4		A2320 B	03/29/12 15:39 / cmm		MAN-TECH_120329A	28	R78897
Chloride	ND	mg/L UJ		1		E300.0	03/28/12 21:25 / cmm		IC102-H_120328A	60	R78880
Sulfate	2	mg/L J-		1		E300.0	03/28/12 21:25 / cmm		IC102-H_120328A	60	R78880
Hardness as CaCO3	73	mg/L		1		A2340 B	04/02/12 08:47 / sld		WATERCALC_120402A	4	R78918
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	03/28/12 12:44 / sld		ICP2-HE_120328B	48	R78872
Calcium	19	mg/L		1		E200.7	03/28/12 12:44 / sld		ICP2-HE_120328B	48	R78872
Magnesium	7	mg/L		1		E200.7	03/28/12 12:44 / sld		ICP2-HE_120328B	48	R78872
Potassium	ND	mg/L		1		E200.7	03/28/12 12:44 / sld		ICP2-HE_120328B	48	R78872
Sodium	2	mg/L		1		E200.7	03/28/12 12:44 / sld		ICP2-HE_120328B	48	R78872
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	04/02/12 22:46 / dck	03/28/12 12:21	ICPMS204-B_120402A	107	16071
Cadmium	ND	mg/L		0.00008		E200.8	04/02/12 22:46 / dck	03/28/12 12:21	ICPMS204-B_120402A	107	16071
Copper	ND	mg/L		0.001		E200.8	04/02/12 22:46 / dck	03/28/12 12:21	ICPMS204-B_120402A	107	16071
Iron	0.31	mg/L		0.03		E200.8	04/02/12 22:46 / dck	03/28/12 12:21	ICPMS204-B_120402A	107	16071
Lead	ND	mg/L		0.0005		E200.8	04/02/12 22:46 / dck	03/28/12 12:21	ICPMS204-B_120402A	107	16071
Manganese	ND	mg/L		0.005		E200.8	04/02/12 22:46 / dck	03/28/12 12:21	ICPMS204-B_120402A	107	16071
Zinc	ND	mg/L		0.01		E200.8	04/02/12 22:46 / dck	03/28/12 12:21	ICPMS204-B_120402A	107	16071

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

JAN 4-23-12

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID S35SW06
Lab ID: H12030340-004
Matrix: Aqueous

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 11:10 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.4	s.u. J-		0.1		A4500-H B	03/28/12 11:26 / cmm		PHSC_101-H_120328A	23	R78847
Conductivity @ 25 C	155	umhos/cm		1		A2510 B	03/28/12 11:26 / cmm		PHSC_101-H_120328A	24	R78847
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/28/12 14:11 / cmm	03/28/12 13:48	-124 (14410200)_120328A	14	16073
Solids, Total Dissolved TDS @ 180 C	78	mg/L		10		A2540 C	03/28/12 14:22 / cmm	03/28/12 13:55	-124 (14410200)_120328B	12	16075
INORGANICS											
Alkalinity, Total as CaCO3	77	mg/L		4		A2320 B	03/29/12 15:46 / cmm		MAN-TECH_120329A	30	R78897
Bicarbonate as HCO3	94	mg/L		4		A2320 B	03/29/12 15:46 / cmm		MAN-TECH_120329A	30	R78897
Carbonate as CO3	ND	mg/L		4		A2320 B	03/29/12 15:46 / cmm		MAN-TECH_120329A	30	R78897
Chloride	ND	mg/L UJ		1		E300.0	03/28/12 21:39 / cmm		IC102-H_120328A	61	R78880
Sulfate	2	mg/L J-		1		E300.0	03/28/12 21:39 / cmm		IC102-H_120328A	61	R78880
Hardness as CaCO3	72	mg/L		1		A2340 B	04/02/12 08:47 / sld		WATERCALC_120402A	5	R78918
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	03/28/12 12:47 / sld		ICP2-HE_120328B	49	R78872
Calcium	18	mg/L		1		E200.7	03/28/12 12:47 / sld		ICP2-HE_120328B	49	R78872
Magnesium	6	mg/L		1		E200.7	03/28/12 12:47 / sld		ICP2-HE_120328B	49	R78872
Potassium	ND	mg/L		1		E200.7	03/28/12 12:47 / sld		ICP2-HE_120328B	49	R78872
Sodium	2	mg/L		1		E200.7	03/28/12 12:47 / sld		ICP2-HE_120328B	49	R78872
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	04/02/12 22:50 / dck	03/28/12 12:21	ICPMS204-B_120402A	108	16071
Cadmium	ND	mg/L		0.00008		E200.8	04/02/12 22:50 / dck	03/28/12 12:21	ICPMS204-B_120402A	108	16071
Copper	ND	mg/L		0.001		E200.8	04/02/12 22:50 / dck	03/28/12 12:21	ICPMS204-B_120402A	108	16071
Iron	0.30	mg/L		0.03		E200.8	04/02/12 22:50 / dck	03/28/12 12:21	ICPMS204-B_120402A	108	16071
Lead	ND	mg/L		0.0005		E200.8	04/02/12 22:50 / dck	03/28/12 12:21	ICPMS204-B_120402A	108	16071
Manganese	ND	mg/L		0.005		E200.8	04/02/12 22:50 / dck	03/28/12 12:21	ICPMS204-B_120402A	108	16071
Zinc	ND	mg/L		0.01		E200.8	04/02/12 22:50 / dck	03/28/12 12:21	ICPMS204-B_120402A	108	16071

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

JAN 4-23-12

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID S35SW02
Lab ID: H12030340-005
Matrix: Aqueous

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 12:00 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.8	s.u. J-		0.1		A4500-H B	03/28/12 11:29 / cmm		PHSC_101-H_120328A	25	R78847
Conductivity @ 25 C	148	umhos/cm		1		A2510 B	03/28/12 11:29 / cmm		PHSC_101-H_120328A	26	R78847
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/28/12 14:12 / cmm	03/28/12 13:48	-124 (14410200)_120328A	16	16073
Solids, Total Dissolved TDS @ 180 C	74	mg/L		10		A2540 C	03/28/12 14:23 / cmm	03/28/12 13:55	-124 (14410200)_120328B	14	16075
INORGANICS											
Alkalinity, Total as CaCO3	69	mg/L		4		A2320 B	03/29/12 15:53 / cmm		MAN-TECH_120329A	32	R78897
Bicarbonate as HCO3	85	mg/L		4		A2320 B	03/29/12 15:53 / cmm		MAN-TECH_120329A	32	R78897
Carbonate as CO3	ND	mg/L		4		A2320 B	03/29/12 15:53 / cmm		MAN-TECH_120329A	32	R78897
Chloride	ND	mg/L UJ J-		1		E300.0	03/28/12 21:52 / cmm		IC102-H_120328A	62	R78880
Sulfate	4	mg/L		1		E300.0	03/28/12 21:52 / cmm		IC102-H_120328A	62	R78880
Hardness as CaCO3	69	mg/L		1		A2340 B	04/02/12 08:47 / sld		WATERCALC_120402A	6	R78918
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	03/28/12 12:51 / sld		ICP2-HE_120328B	50	R78872
Calcium	17	mg/L		1		E200.7	03/28/12 12:51 / sld		ICP2-HE_120328B	50	R78872
Magnesium	7	mg/L		1		E200.7	03/28/12 12:51 / sld		ICP2-HE_120328B	50	R78872
Potassium	ND	mg/L		1		E200.7	03/28/12 12:51 / sld		ICP2-HE_120328B	50	R78872
Sodium	2	mg/L		1		E200.7	03/28/12 12:51 / sld		ICP2-HE_120328B	50	R78872
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	04/02/12 22:55 / dck	03/28/12 12:21	ICPMS204-B_120402A	109	16071
Cadmium	ND	mg/L		0.00008		E200.8	04/02/12 22:55 / dck	03/28/12 12:21	ICPMS204-B_120402A	109	16071
Copper	0.001	mg/L		0.001		E200.8	04/02/12 22:55 / dck	03/28/12 12:21	ICPMS204-B_120402A	109	16071
Iron	0.04	mg/L		0.03		E200.8	04/02/12 22:55 / dck	03/28/12 12:21	ICPMS204-B_120402A	109	16071
Lead	ND	mg/L		0.0005		E200.8	04/02/12 22:55 / dck	03/28/12 12:21	ICPMS204-B_120402A	109	16071
Manganese	ND	mg/L		0.005		E200.8	04/02/12 22:55 / dck	03/28/12 12:21	ICPMS204-B_120402A	109	16071
Zinc	ND	mg/L		0.01		E200.8	04/02/12 22:55 / dck	03/28/12 12:21	ICPMS204-B_120402A	109	16071

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

JAN 4-23-12

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID S35SW04
Lab ID: H12030340-006
Matrix: Aqueous

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 13:45 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.6	s.u. J-		0.1		A4500-H B	03/28/12 11:34 / cmm		PHSC_101-H_120328A	29	R78847
Conductivity @ 25 C	217	umhos/cm		1		A2510 B	03/28/12 11:34 / cmm		PHSC_101-H_120328A	30	R78847
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/28/12 14:12 / cmm	03/28/12 13:48	-124 (14410200)_120328A	17	16073
Solids, Total Dissolved TDS @ 180 C	116	mg/L		10		A2540 C	03/28/12 14:23 / cmm	03/28/12 13:55	-124 (14410200)_120328B	15	16075
INORGANICS											
Alkalinity, Total as CaCO3	70	mg/L		4		A2320 B	03/29/12 16:08 / cmm		MAN-TECH_120329A	36	R78897
Bicarbonate as HCO3	86	mg/L		4		A2320 B	03/29/12 16:08 / cmm		MAN-TECH_120329A	36	R78897
Carbonate as CO3	ND	mg/L		4		A2320 B	03/29/12 16:08 / cmm		MAN-TECH_120329A	36	R78897
Chloride	4	mg/L		1		E300.0	03/29/12 15:52 / cmm		IC102-H_120329A	24	R78898
Sulfate	26	mg/L		1		E300.0	03/29/12 15:52 / cmm		IC102-H_120329A	24	R78898
Hardness as CaCO3	99	mg/L		1		A2340 B	04/02/12 08:47 / sld		WATERCALC_120402A	7	R78918
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	03/28/12 12:55 / sld		ICP2-HE_120328B	51	R78872
Calcium	23	mg/L		1		E200.7	03/28/12 12:55 / sld		ICP2-HE_120328B	51	R78872
Magnesium	10	mg/L		1		E200.7	03/28/12 12:55 / sld		ICP2-HE_120328B	51	R78872
Potassium	ND	mg/L		1		E200.7	03/28/12 12:55 / sld		ICP2-HE_120328B	51	R78872
Sodium	3	mg/L		1		E200.7	03/28/12 12:55 / sld		ICP2-HE_120328B	51	R78872
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	04/02/12 23:18 / dck	03/28/12 12:21	ICPMS204-B_120402A	114	16071
Cadmium	0.00018	mg/L		0.00008		E200.8	04/02/12 23:18 / dck	03/28/12 12:21	ICPMS204-B_120402A	114	16071
Copper	0.002	mg/L		0.001		E200.8	04/02/12 23:18 / dck	03/28/12 12:21	ICPMS204-B_120402A	114	16071
Iron	0.19	mg/L		0.03		E200.8	04/02/12 23:18 / dck	03/28/12 12:21	ICPMS204-B_120402A	114	16071
Lead	ND	mg/L		0.0005		E200.8	04/02/12 23:18 / dck	03/28/12 12:21	ICPMS204-B_120402A	114	16071
Manganese	0.015	mg/L		0.005		E200.8	04/02/12 23:18 / dck	03/28/12 12:21	ICPMS204-B_120402A	114	16071
Zinc	0.11	mg/L		0.01		E200.8	04/02/12 23:18 / dck	03/28/12 12:21	ICPMS204-B_120402A	114	16071

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

JAM 0423-12

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID S35SW03
Lab ID: H12030340-007
Matrix: Aqueous

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 14:25 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.6	s.u. J-		0.1		A4500-H B	03/28/12 11:36 / cmm		PHSC_101-H_120328A	31	R78847
Conductivity @ 25 C	217	umhos/cm		1		A2510 B	03/28/12 11:36 / cmm		PHSC_101-H_120328A	32	R78847
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/28/12 14:12 / cmm	03/28/12 13:48	-124 (14410200)_120328A	18	16073
Solids, Total Dissolved TDS @ 180 C	110	mg/L		10		A2540 C	03/28/12 14:23 / cmm	03/28/12 13:55	-124 (14410200)_120328B	16	16075
INORGANICS											
Alkalinity, Total as CaCO3	70	mg/L		4		A2320 B	03/29/12 16:15 / cmm		MAN-TECH_120329A	38	R78897
Bicarbonate as HCO3	85	mg/L		4		A2320 B	03/29/12 16:15 / cmm		MAN-TECH_120329A	38	R78897
Carbonate as CO3	ND	mg/L		4		A2320 B	03/29/12 16:15 / cmm		MAN-TECH_120329A	38	R78897
Chloride	4	mg/L		1		E300.0	03/29/12 16:05 / cmm		IC102-H_120329A	25	R78898
Sulfate	26	mg/L		1		E300.0	03/29/12 16:05 / cmm		IC102-H_120329A	25	R78898
Hardness as CaCO3	96	mg/L		1		A2340 B	04/02/12 08:47 / sld		WATERCALC_120402A	8	R78918
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	03/28/12 12:59 / sld		ICP2-HE_120328B	52	R78872
Calcium	22	mg/L		1		E200.7	03/28/12 12:59 / sld		ICP2-HE_120328B	52	R78872
Magnesium	10	mg/L		1		E200.7	03/28/12 12:59 / sld		ICP2-HE_120328B	52	R78872
Potassium	ND	mg/L		1		E200.7	03/28/12 12:59 / sld		ICP2-HE_120328B	52	R78872
Sodium	3	mg/L		1		E200.7	03/28/12 12:59 / sld		ICP2-HE_120328B	52	R78872
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	04/02/12 23:23 / dck		ICPMS204-B_120402A	115	R78968
Cadmium	0.00017	mg/L		0.00008		E200.8	04/02/12 23:23 / dck		ICPMS204-B_120402A	115	R78968
Copper	0.002	mg/L		0.001		E200.8	04/02/12 23:23 / dck		ICPMS204-B_120402A	115	R78968
Iron	0.20	mg/L		0.03		E200.8	04/02/12 23:23 / dck		ICPMS204-B_120402A	115	R78968
Lead	ND	mg/L		0.0005		E200.8	04/02/12 23:23 / dck		ICPMS204-B_120402A	115	R78968
Manganese	0.024	mg/L		0.005		E200.8	04/02/12 23:23 / dck		ICPMS204-B_120402A	115	R78968
Zinc	0.12	mg/L		0.01		E200.8	04/02/12 23:23 / dck		ICPMS204-B_120402A	115	R78968

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

JAN 04-23-12

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSW25
Lab ID: H12030340-008
Matrix: Aqueous

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 15:10 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.4	s.u. J-		0.1		A4500-H B	03/28/12 11:39 / cmm		PHSC_101-H_120328A : 33		R78847
Conductivity @ 25 C	1	umhos/cm		1		A2510 B	03/28/12 11:39 / cmm		PHSC_101-H_120328A : 34		R78847
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/28/12 14:12 / cmm	03/28/12 13:48	-124 (14410200)_120328A : 19		16073
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	03/28/12 14:24 / cmm	03/28/12 13:55	-124 (14410200)_120328B : 17		16075
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	03/29/12 16:19 / cmm		MAN-TECH_120329A : 40		R78897
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	03/29/12 16:19 / cmm		MAN-TECH_120329A : 40		R78897
Carbonate as CO3	ND	mg/L		4		A2320 B	03/29/12 16:19 / cmm		MAN-TECH_120329A : 40		R78897
Chloride	ND	mg/L		1		E300.0	03/29/12 16:19 / cmm		IC102-H_120329A : 26		R78898
Sulfate	ND	mg/L		1		E300.0	03/29/12 16:19 / cmm		IC102-H_120329A : 26		R78898
Hardness as CaCO3	ND	mg/L		1		A2340 B	04/02/12 08:47 / sld		WATERCALC_120402A : 9		R78918
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	03/28/12 13:02 / sld		ICP2-HE_120328B : 53		R78872
Calcium	ND	mg/L		1		E200.7	03/28/12 13:02 / sld		ICP2-HE_120328B : 53		R78872
Magnesium	ND	mg/L		1		E200.7	03/28/12 13:02 / sld		ICP2-HE_120328B : 53		R78872
Potassium	ND	mg/L		1		E200.7	03/28/12 13:02 / sld		ICP2-HE_120328B : 53		R78872
Sodium	ND	mg/L		1		E200.7	03/28/12 13:02 / sld		ICP2-HE_120328B : 53		R78872
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	04/02/12 23:28 / dck		ICPMS204-B_120402A : 116		R78968
Cadmium	ND	mg/L		0.00008		E200.8	04/02/12 23:28 / dck		ICPMS204-B_120402A : 116		R78968
Copper	ND	mg/L		0.001		E200.8	04/02/12 23:28 / dck		ICPMS204-B_120402A : 116		R78968
Iron	ND	mg/L		0.03		E200.8	04/02/12 23:28 / dck		ICPMS204-B_120402A : 116		R78968
Lead	ND	mg/L		0.0005		E200.8	04/02/12 23:28 / dck		ICPMS204-B_120402A : 116		R78968
Manganese	ND	mg/L		0.005		E200.8	04/02/12 23:28 / dck		ICPMS204-B_120402A : 116		R78968
Zinc	ND	mg/L		0.01		E200.8	04/02/12 23:28 / dck		ICPMS204-B_120402A : 116		R78968

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

JAN 04-23-12

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSW26
Lab ID: H12030340-009
Matrix: Aqueous

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 15:15 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.2	s.u. J-		0.1		A4500-H B	03/28/12 11:42 / cmm		PHSC_101-H_120328A	35	R78847
Conductivity @ 25 C	1	umhos/cm		1		A2510 B	03/28/12 11:42 / cmm		PHSC_101-H_120328A	36	R78847
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/28/12 14:13 / cmm	03/28/12 13:48	-124 (14410200)_120328A	20	16073
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	03/28/12 14:24 / cmm	03/28/12 13:55	-124 (14410200)_120328B	18	16075
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	03/29/12 16:23 / cmm		MAN-TECH_120329A	42	R78897
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	03/29/12 16:23 / cmm		MAN-TECH_120329A	42	R78897
Carbonate as CO3	ND	mg/L		4		A2320 B	03/29/12 16:23 / cmm		MAN-TECH_120329A	42	R78897
Chloride	ND	mg/L		1		E300.0	03/29/12 17:00 / cmm		IC102-H_120329A	29	R78898
Sulfate	ND	mg/L		1		E300.0	03/29/12 17:00 / cmm		IC102-H_120329A	29	R78898
Hardness as CaCO3	ND	mg/L		1		A2340 B	04/02/12 08:47 / sld		WATERCALC_120402A	10	R78918
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	03/28/12 13:06 / sld		ICP2-HE_120328B	54	R78872
Calcium	ND	mg/L		1		E200.7	03/28/12 13:06 / sld		ICP2-HE_120328B	54	R78872
Magnesium	ND	mg/L		1		E200.7	03/28/12 13:06 / sld		ICP2-HE_120328B	54	R78872
Potassium	ND	mg/L		1		E200.7	03/28/12 13:06 / sld		ICP2-HE_120328B	54	R78872
Sodium	ND	mg/L		1		E200.7	03/28/12 13:06 / sld		ICP2-HE_120328B	54	R78872
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	04/02/12 23:32 / dck		ICPMS204-B_120402A	117	R78968
Cadmium	ND	mg/L		0.00008		E200.8	04/02/12 23:32 / dck		ICPMS204-B_120402A	117	R78968
Copper	ND	mg/L		0.001		E200.8	04/02/12 23:32 / dck		ICPMS204-B_120402A	117	R78968
Iron	ND	mg/L		0.03		E200.8	04/02/12 23:32 / dck		ICPMS204-B_120402A	117	R78968
Lead	ND	mg/L		0.0005		E200.8	04/02/12 23:32 / dck		ICPMS204-B_120402A	117	R78968
Manganese	ND	mg/L		0.005		E200.8	04/02/12 23:32 / dck		ICPMS204-B_120402A	117	R78968
Zinc	ND	mg/L		0.01		E200.8	04/02/12 23:32 / dck		ICPMS204-B_120402A	117	R78968

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

JLH 04-28-12

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSW22
Lab ID: H12030340-010
Matrix: Aqueous

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 15:50 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.3	s.u. J-		0.1		A4500-H B	03/28/12 11:44 / cmm		PHSC_101-H_120328A	37	R78847
Conductivity @ 25 C	680	umhos/cm		1		A2510 B	03/28/12 11:44 / cmm		PHSC_101-H_120328A	38	R78847
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/28/12 14:14 / cmm	03/28/12 13:48	-124 (14410200)_120328A	21	16073
Solids, Total Dissolved TDS @ 180 C	420	mg/L		10		A2540 C	03/28/12 14:24 / cmm	03/28/12 13:55	-124 (14410200)_120328B	19	16075
INORGANICS											
Alkalinity, Total as CaCO3	95	mg/L		4		A2320 B	03/29/12 16:29 / cmm		MAN-TECH_120329A	44	R78897
Bicarbonate as HCO3	120	mg/L		4		A2320 B	03/29/12 16:29 / cmm		MAN-TECH_120329A	44	R78897
Carbonate as CO3	ND	mg/L		4		A2320 B	03/29/12 16:29 / cmm		MAN-TECH_120329A	44	R78897
Chloride	ND	mg/L		1		E300.0	03/29/12 17:13 / cmm		IC102-H_120329A	30	R78898
Sulfate	260	mg/L		1		E300.0	03/29/12 17:13 / cmm		IC102-H_120329A	30	R78898
Hardness as CaCO3	335	mg/L		1		A2340 B	04/02/12 08:47 / sld		WATERCALC_120402A	11	R78918
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	03/28/12 13:10 / sld		ICP2-HE_120328B	55	R78872
Calcium	91	mg/L		1		E200.7	03/28/12 13:10 / sld		ICP2-HE_120328B	55	R78872
Magnesium	26	mg/L		1		E200.7	03/28/12 13:10 / sld		ICP2-HE_120328B	55	R78872
Potassium	1	mg/L		1		E200.7	03/28/12 13:10 / sld		ICP2-HE_120328B	55	R78872
Sodium	2	mg/L		1		E200.7	03/28/12 13:10 / sld		ICP2-HE_120328B	55	R78872
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	04/02/12 23:37 / dck		ICPMS204-B_120402A	118	R78968
Cadmium	0.0154	mg/L		0.00008		E200.8	04/02/12 23:37 / dck		ICPMS204-B_120402A	118	R78968
Copper	0.023	mg/L		0.001		E200.8	04/02/12 23:37 / dck		ICPMS204-B_120402A	118	R78968
Iron	ND	mg/L		0.03		E200.8	04/02/12 23:37 / dck		ICPMS204-B_120402A	118	R78968
Lead	0.0059	mg/L		0.0005		E200.8	04/02/12 23:37 / dck		ICPMS204-B_120402A	118	R78968
Manganese	ND	mg/L		0.005		E200.8	04/02/12 23:37 / dck		ICPMS204-B_120402A	118	R78968
Zinc	3.45	mg/L		0.01		E200.8	04/02/12 23:37 / dck		ICPMS204-B_120402A	118	R78968

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

JAN 04-23-12

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSW24
Lab ID: H12030340-011
Matrix: Aqueous

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 15:55 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.3	s.u. J-		0.1		A4500-H B	03/28/12 11:47 / cmm		PHSC_101-H_120328A	39	R78847
Conductivity @ 25 C	679	umhos/cm		1		A2510 B	03/28/12 11:47 / cmm		PHSC_101-H_120328A	40	R78847
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/28/12 14:14 / cmm	03/28/12 13:48	-124 (14410200)_120328A	22	16073
Solids, Total Dissolved TDS @ 180 C	442	mg/L		10		A2540 C	03/28/12 14:24 / cmm	03/28/12 13:55	-124 (14410200)_120328B	20	16075
INORGANICS											
Alkalinity, Total as CaCO3	95	mg/L		4		A2320 B	03/29/12 16:43 / cmm		MAN-TECH_120329A	48	R78897
Bicarbonate as HCO3	120	mg/L		4		A2320 B	03/29/12 16:43 / cmm		MAN-TECH_120329A	48	R78897
Carbonate as CO3	ND	mg/L		4		A2320 B	03/29/12 16:43 / cmm		MAN-TECH_120329A	48	R78897
Chloride	ND	mg/L		1		E300.0	03/29/12 17:27 / cmm		IC102-H_120329A	31	R78898
Sulfate	260	mg/L		1		E300.0	03/29/12 17:27 / cmm		IC102-H_120329A	31	R78898
Hardness as CaCO3	347	mg/L		1		A2340 B	04/02/12 08:47 / sld		WATERCALC_120402A	12	R78918
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	03/28/12 13:14 / sld		ICP2-HE_120328B	56	R78872
Calcium	95	mg/L		1		E200.7	03/28/12 13:14 / sld		ICP2-HE_120328B	56	R78872
Magnesium	27	mg/L		1		E200.7	03/28/12 13:14 / sld		ICP2-HE_120328B	56	R78872
Potassium	1	mg/L		1		E200.7	03/28/12 13:14 / sld		ICP2-HE_120328B	56	R78872
Sodium	2	mg/L		1		E200.7	03/28/12 13:14 / sld		ICP2-HE_120328B	56	R78872
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	04/02/12 23:42 / dck		ICPMS204-B_120402A	119	R78968
Cadmium	0.0156	mg/L		0.00008		E200.8	04/02/12 23:42 / dck		ICPMS204-B_120402A	119	R78968
Copper	0.023	mg/L		0.001		E200.8	04/02/12 23:42 / dck		ICPMS204-B_120402A	119	R78968
Iron	ND	mg/L		0.03		E200.8	04/02/12 23:42 / dck		ICPMS204-B_120402A	119	R78968
Lead	0.0059	mg/L		0.0005		E200.8	04/02/12 23:42 / dck		ICPMS204-B_120402A	119	R78968
Manganese	ND	mg/L		0.005		E200.8	04/02/12 23:42 / dck		ICPMS204-B_120402A	119	R78968
Zinc	3.43	mg/L		0.01		E200.8	04/02/12 23:42 / dck		ICPMS204-B_120402A	119	R78968

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

JAN 0423-12

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSW01
Lab ID: H12030340-012
Matrix: Aqueous

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 16:50 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.7	s.u.	J-	0.1		A4500-H B	03/28/12 11:49 / cmm		PHSC_101-H_120328A	41	R78847
Conductivity @ 25 C	131	umhos/cm		1		A2510 B	03/28/12 11:49 / cmm		PHSC_101-H_120328A	42	R78847
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/28/12 14:14 / cmm	03/28/12 13:48	-124 (14410200)_120328A	23	16073
Solids, Total Dissolved TDS @ 180 C	62	mg/L		10		A2540 C	03/28/12 14:24 / cmm	03/28/12 13:55	-124 (14410200)_120328B	21	16075
INORGANICS											
Alkalinity, Total as CaCO3	65	mg/L		4		A2320 B	03/29/12 16:50 / cmm		MAN-TECH_120329A	50	R78897
Bicarbonate as HCO3	79	mg/L		4		A2320 B	03/29/12 16:50 / cmm		MAN-TECH_120329A	50	R78897
Carbonate as CO3	ND	mg/L		4		A2320 B	03/29/12 16:50 / cmm		MAN-TECH_120329A	50	R78897
Chloride	ND	mg/L		1		E300.0	03/29/12 17:40 / cmm		IC102-H_120329A	32	R78898
Sulfate	2	mg/L		1		E300.0	03/29/12 17:40 / cmm		IC102-H_120329A	32	R78898
Hardness as CaCO3	63	mg/L		1		A2340 B	04/02/12 08:47 / sld		WATERCALC_120402A	13	R78918
METALS, DISSOLVED											
Aluminum	0.19	mg/L		0.03		E200.7	03/28/12 13:36 / sld		ICP2-HE_120328B	62	R78872
Calcium	13	mg/L		1		E200.7	03/28/12 13:36 / sld		ICP2-HE_120328B	62	R78872
Magnesium	7	mg/L		1		E200.7	03/28/12 13:36 / sld		ICP2-HE_120328B	62	R78872
Potassium	ND	mg/L		1		E200.7	03/28/12 13:36 / sld		ICP2-HE_120328B	62	R78872
Sodium	1	mg/L		1		E200.7	03/28/12 13:36 / sld		ICP2-HE_120328B	62	R78872
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	04/02/12 23:46 / dck	03/28/12 12:21	ICPMS204-B_120402A	120	16071
Cadmium	ND	mg/L		0.00008		E200.8	04/02/12 23:46 / dck	03/28/12 12:21	ICPMS204-B_120402A	120	16071
Copper	0.002	mg/L		0.001		E200.8	04/02/12 23:46 / dck	03/28/12 12:21	ICPMS204-B_120402A	120	16071
Iron	0.25	mg/L		0.03		E200.8	04/02/12 23:46 / dck	03/28/12 12:21	ICPMS204-B_120402A	120	16071
Lead	ND	mg/L		0.0005		E200.8	04/02/12 23:46 / dck	03/28/12 12:21	ICPMS204-B_120402A	120	16071
Manganese	0.006	mg/L		0.005		E200.8	04/02/12 23:46 / dck	03/28/12 12:21	ICPMS204-B_120402A	120	16071
Zinc	ND	mg/L		0.01		E200.8	04/02/12 23:46 / dck	03/28/12 12:21	ICPMS204-B_120402A	120	16071

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

JLN 04-23-12

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSW2
Lab ID: H12030340-013
Matrix: Aqueous

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 17:25 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.7	s.u. J-		0.1		A4500-H B	03/28/12 11:52 / cmm		PHSC_101-H_120328A	43	R78847
Conductivity @ 25 C	440	umhos/cm		1		A2510 B	03/28/12 11:52 / cmm		PHSC_101-H_120328A	44	R78847
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/28/12 14:15 / cmm	03/28/12 13:48	-124 (14410200)_120328A	24	16073
Solids, Total Dissolved TDS @ 180 C	282	mg/L		10		A2540 C	03/28/12 14:25 / cmm	03/28/12 13:55	-124 (14410200)_120328B	22	16075
INORGANICS											
Alkalinity, Total as CaCO3	8	mg/L		4		A2320 B	03/29/12 16:55 / cmm		MAN-TECH_120329A	52	R78897
Bicarbonate as HCO3	10	mg/L		4		A2320 B	03/29/12 16:55 / cmm		MAN-TECH_120329A	52	R78897
Carbonate as CO3	ND	mg/L		4		A2320 B	03/29/12 16:55 / cmm		MAN-TECH_120329A	52	R78897
Chloride	ND	mg/L		1		E300.0	03/29/12 17:54 / cmm		IC102-H_120329A	33	R78898
Sulfate	190	mg/L		1		E300.0	03/29/12 17:54 / cmm		IC102-H_120329A	33	R78898
Hardness as CaCO3	193	mg/L		1		A2340 B	04/02/12 08:47 / sld		WATERCALC_120402A	14	R78918
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	03/28/12 13:40 / sld		ICP2-HE_120328B	63	R78872
Calcium	51	mg/L		1		E200.7	03/28/12 13:40 / sld		ICP2-HE_120328B	63	R78872
Magnesium	16	mg/L		1		E200.7	03/28/12 13:40 / sld		ICP2-HE_120328B	63	R78872
Potassium	ND	mg/L		1		E200.7	03/28/12 13:40 / sld		ICP2-HE_120328B	63	R78872
Sodium	ND	mg/L		1		E200.7	03/28/12 13:40 / sld		ICP2-HE_120328B	63	R78872
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	04/02/12 23:51 / dck	03/28/12 12:21	ICPMS204-B_120402A	121	16071
Cadmium	0.00537	mg/L		0.00008		E200.8	04/02/12 23:51 / dck	03/28/12 12:21	ICPMS204-B_120402A	121	16071
Copper	0.006	mg/L		0.001		E200.8	04/02/12 23:51 / dck	03/28/12 12:21	ICPMS204-B_120402A	121	16071
Iron	0.11	mg/L		0.03		E200.8	04/02/12 23:51 / dck	03/28/12 12:21	ICPMS204-B_120402A	121	16071
Lead	0.0219	mg/L		0.0005		E200.8	04/02/12 23:51 / dck	03/28/12 12:21	ICPMS204-B_120402A	121	16071
Manganese	1.72	mg/L		0.005		E200.8	04/02/12 23:51 / dck	03/28/12 12:21	ICPMS204-B_120402A	121	16071
Zinc	1.18	mg/L		0.01		E200.8	04/02/12 23:51 / dck	03/28/12 12:21	ICPMS204-B_120402A	121	16071

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

JAN 04-28-12

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSW38
Lab ID: H12030340-014
Matrix: Aqueous

Project: UBMC Surface Water and Sediment
Collection Date: 03/27/12 08:50 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.2	s.u. J-		0.1		A4500-H B	03/28/12 11:55 / cmm		PHSC_101-H_120328A	45	R78847
Conductivity @ 25 C	306	umhos/cm		1		A2510 B	03/28/12 11:55 / cmm		PHSC_101-H_120328A	46	R78847
Solids, Total Suspended TSS @ 105 C	24	mg/L		10		A2540 D	03/28/12 14:15 / cmm	03/28/12 13:50	-124 (14410200)_120328A	27	16074
Solids, Total Dissolved TDS @ 180 C	172	mg/L		10		A2540 C	03/28/12 14:25 / cmm	03/28/12 13:55	-124 (14410200)_120328B	23	16075
INORGANICS											
Alkalinity, Total as CaCO3	51	mg/L		4		A2320 B	03/29/12 17:01 / cmm		MAN-TECH_120329A	54	R78897
Bicarbonate as HCO3	63	mg/L		4		A2320 B	03/29/12 17:01 / cmm		MAN-TECH_120329A	54	R78897
Carbonate as CO3	ND	mg/L		4		A2320 B	03/29/12 17:01 / cmm		MAN-TECH_120329A	54	R78897
Chloride	ND	mg/L		1		E300.0	03/29/12 18:08 / cmm		IC102-H_120329A	34	R78898
Sulfate	91	mg/L		1		E300.0	03/29/12 18:08 / cmm		IC102-H_120329A	34	R78898
Hardness as CaCO3	130	mg/L		1		A2340 B	04/02/12 08:47 / sld		WATERCALC_120402A	15	R78918
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	03/28/12 13:43 / sld		ICP2-HE_120328B	64	R78872
Calcium	28	mg/L		1		E200.7	03/28/12 13:43 / sld		ICP2-HE_120328B	64	R78872
Magnesium	14	mg/L		1		E200.7	03/28/12 13:43 / sld		ICP2-HE_120328B	64	R78872
Potassium	ND	mg/L		1		E200.7	03/28/12 13:43 / sld		ICP2-HE_120328B	64	R78872
Sodium	1	mg/L		1		E200.7	03/28/12 13:43 / sld		ICP2-HE_120328B	64	R78872
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	04/02/12 23:56 / dck	03/28/12 12:21	ICPMS204-B_120402A	122	16071
Cadmium	0.0130	mg/L		0.00008		E200.8	04/02/12 23:56 / dck	03/28/12 12:21	ICPMS204-B_120402A	122	16071
Copper	0.118	mg/L		0.001		E200.8	04/02/12 23:56 / dck	03/28/12 12:21	ICPMS204-B_120402A	122	16071
Iron	5.88	mg/L		0.03		E200.8	04/02/12 23:56 / dck	03/28/12 12:21	ICPMS204-B_120402A	122	16071
Lead	0.0647	mg/L		0.0005		E200.8	04/02/12 23:56 / dck	03/28/12 12:21	ICPMS204-B_120402A	122	16071
Manganese	1.66	mg/L		0.005		E200.8	04/02/12 23:56 / dck	03/28/12 12:21	ICPMS204-B_120402A	122	16071
Zinc	2.64	mg/L		0.01		E200.8	04/02/12 23:56 / dck	03/28/12 12:21	ICPMS204-B_120402A	122	16071

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

JAN 04-23-12

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSW48
Lab ID: H12030340-015
Matrix: Aqueous

Project: UBMC Surface Water and Sediment
Collection Date: 03/27/12 10:05 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.7	s.u. J-		0.1		A4500-H B	03/28/12 11:57 / cmm		PHSC_101-H_120328A	47	R78847
Conductivity @ 25 C	301	umhos/cm		1		A2510 B	03/28/12 11:57 / cmm		PHSC_101-H_120328A	48	R78847
Solids, Total Suspended TSS @ 105 C	30	mg/L		10		A2540 D	03/28/12 14:16 / cmm	03/28/12 13:50	-124 (14410200)_120328A	28	16074
Solids, Total Dissolved TDS @ 180 C	166	mg/L		10		A2540 C	03/28/12 14:25 / cmm	03/28/12 13:55	-124 (14410200)_120328B	24	16075
INORGANICS											
Alkalinity, Total as CaCO3	43	mg/L		4		A2320 B	03/29/12 17:08 / cmm		MAN-TECH_120329A	56	R78897
Bicarbonate as HCO3	52	mg/L		4		A2320 B	03/29/12 17:08 / cmm		MAN-TECH_120329A	56	R78897
Carbonate as CO3	ND	mg/L		4		A2320 B	03/29/12 17:08 / cmm		MAN-TECH_120329A	56	R78897
Chloride	ND	mg/L		1		E300.0	03/29/12 18:48 / cmm		IC102-H_120329A	37	R78898
Sulfate	94	mg/L		1		E300.0	03/29/12 18:48 / cmm		IC102-H_120329A	37	R78898
Hardness as CaCO3	130	mg/L		1		A2340 B	04/02/12 08:47 / sld		WATERCALC_120402A	16	R78918
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	03/28/12 13:47 / sld		ICP2-HE_120328B	65	R78872
Calcium	28	mg/L		1		E200.7	03/28/12 13:47 / sld		ICP2-HE_120328B	65	R78872
Magnesium	15	mg/L		1		E200.7	03/28/12 13:47 / sld		ICP2-HE_120328B	65	R78872
Potassium	ND	mg/L		1		E200.7	03/28/12 13:47 / sld		ICP2-HE_120328B	65	R78872
Sodium	1	mg/L		1		E200.7	03/28/12 13:47 / sld		ICP2-HE_120328B	65	R78872
METALS, TOTAL RECOVERABLE											
Arsenic	0.004	mg/L		0.003		E200.8	04/03/12 00:19 / dck	03/28/12 12:21	ICPMS204-B_120402A	127	16071
Cadmium	0.0103	mg/L		0.00008		E200.8	04/03/12 00:19 / dck	03/28/12 12:21	ICPMS204-B_120402A	127	16071
Copper	0.120	mg/L		0.001		E200.8	04/03/12 00:19 / dck	03/28/12 12:21	ICPMS204-B_120402A	127	16071
Iron	6.77	mg/L		0.03		E200.8	04/03/12 00:19 / dck	03/28/12 12:21	ICPMS204-B_120402A	127	16071
Lead	0.0619	mg/L		0.0005		E200.8	04/03/12 00:19 / dck	03/28/12 12:21	ICPMS204-B_120402A	127	16071
Manganese	1.57	mg/L		0.005		E200.8	04/03/12 00:19 / dck	03/28/12 12:21	ICPMS204-B_120402A	127	16071
Zinc	2.30	mg/L		0.01		E200.8	04/03/12 00:19 / dck	03/28/12 12:21	ICPMS204-B_120402A	127	16071

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

JAH 04-23-12

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSW23
Lab ID: H12030340-016
Matrix: Aqueous

Project: UBMC Surface Water and Sediment
Collection Date: 03/27/12 10:30 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.4	s.u. J-		0.1		A4500-H B	03/28/12 12:46 / cmm		PHSC_101-H_120328A	61	R78847
Conductivity @ 25 C	270	umhos/cm		1		A2510 B	03/28/12 12:46 / cmm		PHSC_101-H_120328A	62	R78847
Solids, Total Suspended TSS @ 105 C	10	mg/L		10		A2540 D	03/28/12 14:16 / cmm	03/28/12 13:50	124 (14410200)_120328A	29	16074
Solids, Total Dissolved TDS @ 180 C	154	mg/L		10		A2540 C	03/28/12 14:25 / cmm	03/28/12 13:55	124 (14410200)_120328B	25	16075
INORGANICS											
Alkalinity, Total as CaCO3	61	mg/L		4		A2320 B	03/30/12 11:53 / cmm		MAN-TECH_120330A	12	R78916
Bicarbonate as HCO3	74	mg/L		4		A2320 B	03/30/12 11:53 / cmm		MAN-TECH_120330A	12	R78916
Carbonate as CO3	ND	mg/L		4		A2320 B	03/30/12 11:53 / cmm		MAN-TECH_120330A	12	R78916
Chloride	ND	mg/L		1		E300.0	03/29/12 19:02 / cmm		IC102-H_120329A	38	R78898
Sulfate	63	mg/L		1		E300.0	03/29/12 19:02 / cmm		IC102-H_120329A	38	R78898
Hardness as CaCO3	117	mg/L		1		A2340 B	04/02/12 08:47 / sld		WATERCALC_120402A	17	R78918
METALS, DISSOLVED											
Aluminum	0.13	mg/L		0.03		E200.7	03/28/12 13:51 / sld		ICP2-HE_120328B	66	R78872
Calcium	25	mg/L		1		E200.7	03/28/12 13:51 / sld		ICP2-HE_120328B	66	R78872
Magnesium	13	mg/L		1		E200.7	03/28/12 13:51 / sld		ICP2-HE_120328B	66	R78872
Potassium	ND	mg/L		1		E200.7	03/28/12 13:51 / sld		ICP2-HE_120328B	66	R78872
Sodium	1	mg/L		1		E200.7	03/28/12 13:51 / sld		ICP2-HE_120328B	66	R78872
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	04/03/12 00:24 / dck	03/28/12 12:21	ICPMS204-B_120402A	128	16071
Cadmium	0.00790	mg/L		0.00008		E200.8	04/03/12 00:24 / dck	03/28/12 12:21	ICPMS204-B_120402A	128	16071
Copper	0.031	mg/L		0.001		E200.8	04/03/12 00:24 / dck	03/28/12 12:21	ICPMS204-B_120402A	128	16071
Iron	0.64	mg/L		0.03		E200.8	04/03/12 00:24 / dck	03/28/12 12:21	ICPMS204-B_120402A	128	16071
Lead	0.0360	mg/L		0.0005		E200.8	04/03/12 00:24 / dck	03/28/12 12:21	ICPMS204-B_120402A	128	16071
Manganese	0.595	mg/L		0.005		E200.8	04/03/12 00:24 / dck	03/28/12 12:21	ICPMS204-B_120402A	128	16071
Zinc	1.91	mg/L		0.01		E200.8	04/03/12 00:24 / dck	03/28/12 12:21	ICPMS204-B_120402A	128	16071

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

JLM 04-23-12

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSW3A
Lab ID: H12030340-017
Matrix: Aqueous

Project: UBMC Surface Water and Sediment
Collection Date: 03/27/12 10:55 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.3	s.u. J-		0.1		A4500-H B	03/28/12 12:51 / cmm		PHSC_101-H_120328A	65	R78847
Conductivity @ 25 C	448	umhos/cm		1		A2510 B	03/28/12 12:51 / cmm		PHSC_101-H_120328A	66	R78847
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/28/12 14:16 / cmm	03/28/12 13:50	-124 (14410200)_120328A	30	16074
Solids, Total Dissolved TDS @ 180 C	260	mg/L		10		A2540 C	03/28/12 14:26 / cmm	03/28/12 13:57	-124 (14410200)_120328B	28	16076
INORGANICS											
Alkalinity, Total as CaCO3	100	mg/L		4		A2320 B	03/30/12 12:00 / cmm		MAN-TECH_120330A	14	R78916
Bicarbonate as HCO3	120	mg/L		4		A2320 B	03/30/12 12:00 / cmm		MAN-TECH_120330A	14	R78916
Carbonate as CO3	ND	mg/L		4		A2320 B	03/30/12 12:00 / cmm		MAN-TECH_120330A	14	R78916
Chloride	ND	mg/L		1		E300.0	03/29/12 19:16 / cmm		IC102-H_120329A	39	R78898
Sulfate	120	mg/L		1		E300.0	03/29/12 19:16 / cmm		IC102-H_120329A	39	R78898
Hardness as CaCO3	210	mg/L		1		A2340 B	04/02/12 08:47 / sld		WATERCALC_120402A	18	R78918
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	03/28/12 13:54 / sld		ICP2-HE_120328B	67	R78872
Calcium	46	mg/L		1		E200.7	03/28/12 13:54 / sld		ICP2-HE_120328B	67	R78872
Magnesium	23	mg/L		1		E200.7	03/28/12 13:54 / sld		ICP2-HE_120328B	67	R78872
Potassium	ND	mg/L		1		E200.7	03/28/12 13:54 / sld		ICP2-HE_120328B	67	R78872
Sodium	2	mg/L		1		E200.7	03/28/12 13:54 / sld		ICP2-HE_120328B	67	R78872
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	04/03/12 00:28 / dck		ICPMS204-B_120402A	129	R78968
Cadmium	0.00426	mg/L		0.00008		E200.8	04/03/12 00:28 / dck		ICPMS204-B_120402A	129	R78968
Copper	0.022	mg/L		0.001		E200.8	04/03/12 00:28 / dck		ICPMS204-B_120402A	129	R78968
Iron	0.44	mg/L		0.03		E200.8	04/03/12 00:28 / dck		ICPMS204-B_120402A	129	R78968
Lead	0.0032	mg/L		0.0005		E200.8	04/03/12 00:28 / dck		ICPMS204-B_120402A	129	R78968
Manganese	1.50	mg/L		0.005		E200.8	04/03/12 00:28 / dck		ICPMS204-B_120402A	129	R78968
Zinc	1.36	mg/L		0.01		E200.8	04/03/12 00:28 / dck		ICPMS204-B_120402A	129	R78968

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

JAN 04-28-12

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSW3B
Lab ID: H12030340-018
Matrix: Aqueous

Project: UBMC Surface Water and Sediment
Collection Date: 03/27/12 11:15 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.0	s.u. J-		0.1		A4500-H B	03/28/12 12:53 / cmm		PHSC_101-H_120328A	67	R78847
Conductivity @ 25 C	526	umhos/cm		1		A2510 B	03/28/12 12:53 / cmm		PHSC_101-H_120328A	68	R78847
Solids, Total Suspended TSS @ 105 C	62	mg/L		10		A2540 D	03/28/12 14:16 / cmm	03/28/12 13:50	-124 (14410200)_120328A	32	16074
Solids, Total Dissolved TDS @ 180 C	324	mg/L		10		A2540 C	03/28/12 14:26 / cmm	03/28/12 13:57	-124 (14410200)_120328B	30	16076
INORGANICS											
Alkalinity, Total as CaCO3	110	mg/L		4		A2320 B	03/30/12 12:06 / cmm		MAN-TECH_120330A	16	R78916
Bicarbonate as HCO3	130	mg/L		4		A2320 B	03/30/12 12:06 / cmm		MAN-TECH_120330A	16	R78916
Carbonate as CO3	ND	mg/L		4		A2320 B	03/30/12 12:06 / cmm		MAN-TECH_120330A	16	R78916
Chloride	ND	mg/L		1		E300.0	03/29/12 19:56 / cmm		IC102-H_120329A	42	R78898
Sulfate	160	mg/L		1		E300.0	03/29/12 19:56 / cmm		IC102-H_120329A	42	R78898
Hardness as CaCO3	240	mg/L		1		A2340 B	04/02/12 08:47 / sld		WATERCALC_120402A	19	R78918
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	03/28/12 13:58 / sld		ICP2-HE_120328B	68	R78872
Calcium	54	mg/L		1		E200.7	03/28/12 13:58 / sld		ICP2-HE_120328B	68	R78872
Magnesium	28	mg/L		1		E200.8	04/03/12 18:23 / dck		ICPMS204-B_120402A	331	R78968
Potassium	ND	mg/L		1		E200.7	03/28/12 13:58 / sld		ICP2-HE_120328B	68	R78872
Sodium	2	mg/L		1		E200.7	03/28/12 13:58 / sld		ICP2-HE_120328B	68	R78872
METALS, TOTAL RECOVERABLE											
Arsenic	0.012	mg/L		0.003		E200.8	04/03/12 00:33 / dck	03/28/12 12:21	ICPMS204-B_120402A	130	16071
Cadmium	0.00363	mg/L		0.00008		E200.8	04/03/12 00:33 / dck	03/28/12 12:21	ICPMS204-B_120402A	130	16071
Copper	0.033	mg/L		0.001		E200.8	04/03/12 00:33 / dck	03/28/12 12:21	ICPMS204-B_120402A	130	16071
Iron	3.70	mg/L		0.03		E200.8	04/03/12 00:33 / dck	03/28/12 12:21	ICPMS204-B_120402A	130	16071
Lead	0.129	mg/L		0.0005		E200.8	04/03/12 00:33 / dck	03/28/12 12:21	ICPMS204-B_120402A	130	16071
Manganese	2.01	mg/L		0.005		E200.8	04/03/12 00:33 / dck	03/28/12 12:21	ICPMS204-B_120402A	130	16071
Zinc	1.56	mg/L		0.01		E200.8	04/03/12 00:33 / dck	03/28/12 12:21	ICPMS204-B_120402A	130	16071

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

JAM
04-28-12

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID S35SD05
Lab ID: H12030340-019
Matrix: Sediment

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 10:10 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	4660	mg/kg		5		SW6010B	04/06/12 08:02 / sld	04/02/12 14:34	ICP2-HE_120405B	204	16117
Arsenic	6	mg/kg		5		SW6010B	04/10/12 19:58 / sld	04/02/12 14:34	ICP2-HE_120410C	130	16117
Cadmium	ND	mg/kg		1		SW6010B	04/06/12 08:02 / sld	04/02/12 14:34	ICP2-HE_120405B	204	16117
Copper	68	mg/kg	H	5		SW6010B	04/06/12 08:02 / sld	04/02/12 14:34	ICP2-HE_120405B	204	16117
Iron	24600	mg/kg		5		SW6010B	04/10/12 19:58 / sld	04/02/12 14:34	ICP2-HE_120410C	130	16117
Lead	5	mg/kg	H	5		SW6010B	04/11/12 18:49 / sld	04/02/12 14:34	ICP2-HE_120411C	96	16117
Manganese	401	mg/kg	H	5		SW6010B	04/06/12 08:02 / sld	04/02/12 14:34	ICP2-HE_120405B	204	16117
Zinc	35	mg/kg	H	5		SW6010B	04/06/12 08:02 / sld	04/02/12 14:34	ICP2-HE_120405B	204	16117

JAN
04-23-12

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID S35SD01
Lab ID: H12030340-021
Matrix: Sediment

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 11:10 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	11300	mg/kg		5		SW6010B	04/06/12 08:09 / sld	04/02/12 14:34	ICP2-HE_120405B	206	16117
Arsenic	14	mg/kg		5		SW6010B	04/06/12 08:09 / sld	04/02/12 14:34	ICP2-HE_120405B	206	16117
Cadmium	ND	mg/kg		1		SW6010B	04/06/12 08:09 / sld	04/02/12 14:34	ICP2-HE_120405B	206	16117
Copper	48	mg/kg	J	5		SW6010B	04/06/12 08:09 / sld	04/02/12 14:34	ICP2-HE_120405B	206	16117
Iron	17600	mg/kg		5		SW6010B	04/06/12 08:09 / sld	04/02/12 14:34	ICP2-HE_120405B	206	16117
Lead	14	mg/kg	J	5		SW6010B	04/10/12 20:05 / sld	04/02/12 14:34	ICP2-HE_120410C	132	16117
Manganese	2550	mg/kg	J	5		SW6010B	04/06/12 08:09 / sld	04/02/12 14:34	ICP2-HE_120405B	206	16117
Zinc	68	mg/kg	J	5		SW6010B	04/06/12 08:09 / sld	04/02/12 14:34	ICP2-HE_120405B	206	16117

JAN
04-23-12

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID S35SD06
Lab ID: H12030340-020
Matrix: Sediment

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 11:10 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	11500	mg/kg		5		SW6010B	04/06/12 08:05 / sld	04/02/12 14:34	ICP2-HE_120405B : 205		16117
Arsenic	14	mg/kg		5		SW6010B	04/06/12 08:05 / sld	04/02/12 14:34	ICP2-HE_120405B : 205		16117
Cadmium	ND	mg/kg		1		SW6010B	04/06/12 08:05 / sld	04/02/12 14:34	ICP2-HE_120405B : 205		16117
Copper	51	mg/kg	H	5		SW6010B	04/06/12 08:05 / sld	04/02/12 14:34	ICP2-HE_120405B : 205		16117
Iron	17800	mg/kg		5		SW6010B	04/06/12 08:05 / sld	04/02/12 14:34	ICP2-HE_120405B : 205		16117
Lead	21	mg/kg	H	5		SW6010B	04/10/12 20:02 / sld	04/02/12 14:34	ICP2-HE_120410C : 131		16117
Manganese	1860	mg/kg	H	5		SW6010B	04/06/12 08:05 / sld	04/02/12 14:34	ICP2-HE_120405B : 205		16117
Zinc	64	mg/kg	H	5		SW6010B	04/06/12 08:05 / sld	04/02/12 14:34	ICP2-HE_120405B : 205		16117

JAM
04-23-12

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID S35SD02
Lab ID: H12030340-022
Matrix: Sediment

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 12:00 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	4790	mg/kg		5		SW6010B	04/06/12 08:13 / sld	04/02/12 14:34	ICP2-HE_120405B : 207		16117
Arsenic	ND	mg/kg		5		SW6010B	04/06/12 08:13 / sld	04/02/12 14:34	ICP2-HE_120405B : 207		16117
Cadmium	ND	mg/kg		1		SW6010B	04/06/12 08:13 / sld	04/02/12 14:34	ICP2-HE_120405B : 207		16117
Copper	63	mg/kg	H	5		SW6010B	04/06/12 08:13 / sld	04/02/12 14:34	ICP2-HE_120405B : 207		16117
Iron	2980	mg/kg		5		SW6010B	04/06/12 08:13 / sld	04/02/12 14:34	ICP2-HE_120405B : 207		16117
Lead	8	mg/kg	H	5		SW6010B	04/10/12 20:09 / sld	04/02/12 14:34	ICP2-HE_120410C : 133		16117
Manganese	21	mg/kg	H	5		SW6010B	04/06/12 08:13 / sld	04/02/12 14:34	ICP2-HE_120405B : 207		16117
Zinc	19	mg/kg	H	5		SW6010B	04/06/12 08:13 / sld	04/02/12 14:34	ICP2-HE_120405B : 207		16117

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID S35SD04
Lab ID: H12030340-023
Matrix: Sediment

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 13:45 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	4430	mg/kg		5		SW6010B	04/06/12 08:16 / sld	04/02/12 14:34	ICP2-HE_120405B	208	16117
Arsenic	7	mg/kg		5		SW6010B	04/06/12 08:16 / sld	04/02/12 14:34	ICP2-HE_120405B	208	16117
Cadmium	1	mg/kg		1		SW6010B	04/06/12 08:16 / sld	04/02/12 14:34	ICP2-HE_120405B	208	16117
Copper	25	mg/kg	J	5		SW6010B	04/06/12 08:16 / sld	04/02/12 14:34	ICP2-HE_120405B	208	16117
Iron	13700	mg/kg		5		SW6010B	04/10/12 20:13 / sld	04/02/12 14:34	ICP2-HE_120410C	134	16117
Lead	20	mg/kg	J	5		SW6010B	04/06/12 08:16 / sld	04/02/12 14:34	ICP2-HE_120405B	208	16117
Manganese	877	mg/kg	J	5		SW6010B	04/06/12 08:16 / sld	04/02/12 14:34	ICP2-HE_120405B	208	16117
Zinc	555	mg/kg	J	5		SW6010B	04/06/12 08:16 / sld	04/02/12 14:34	ICP2-HE_120405B	208	16117

JAM
04-23-12

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID S35SD03
Lab ID: H12030340-024
Matrix: Sediment

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 14:25 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	5640	mg/kg		5		SW6010B	04/06/12 08:20 / sld	04/02/12 14:34	ICP2-HE_120405B	209	16117
Arsenic	10	mg/kg		5		SW6010B	04/06/12 08:20 / sld	04/02/12 14:34	ICP2-HE_120405B	209	16117
Cadmium	1	mg/kg		1		SW6010B	04/06/12 08:20 / sld	04/02/12 14:34	ICP2-HE_120405B	209	16117
Copper	33	mg/kg	H	5		SW6010B	04/06/12 08:20 / sld	04/02/12 14:34	ICP2-HE_120405B	209	16117
Iron	15300	mg/kg		5		SW6010B	04/10/12 20:24 / sld	04/02/12 14:34	ICP2-HE_120410C	137	16117
Lead	57	mg/kg	H	5		SW6010B	04/06/12 08:20 / sld	04/02/12 14:34	ICP2-HE_120405B	209	16117
Manganese	888	mg/kg	H	5		SW6010B	04/06/12 08:20 / sld	04/02/12 14:34	ICP2-HE_120405B	209	16117
Zinc	375	mg/kg	H	5		SW6010B	04/06/12 08:20 / sld	04/02/12 14:34	ICP2-HE_120405B	209	16117

JLM
04-23-12

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSD22
Lab ID: H12030340-025
Matrix: Sediment

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 15:50 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	8620	mg/kg		5		SW6010B	04/06/12 08:24 / sld	04/02/12 14:34	ICP2-HE_120405B	210	16117
Arsenic	58	mg/kg		5		SW6010B	04/06/12 08:24 / sld	04/02/12 14:34	ICP2-HE_120405B	210	16117
Cadmium	53	mg/kg		1		SW6010B	04/06/12 08:24 / sld	04/02/12 14:34	ICP2-HE_120405B	210	16117
Copper	1550	mg/kg	J	5		SW6010B	04/06/12 08:24 / sld	04/02/12 14:34	ICP2-HE_120405B	210	16117
Iron	29100	mg/kg		5		SW6010B	04/10/12 20:27 / sld	04/02/12 14:34	ICP2-HE_120410C	138	16117
Lead	5480	mg/kg	H	5		SW6010B	04/06/12 08:24 / sld	04/02/12 14:34	ICP2-HE_120405B	210	16117
Manganese	13200	mg/kg	H	5		SW6010B	04/06/12 08:24 / sld	04/02/12 14:34	ICP2-HE_120405B	210	16117
Zinc	6420	mg/kg	H	5		SW6010B	04/06/12 08:24 / sld	04/02/12 14:34	ICP2-HE_120405B	210	16117

JAM
04-23-12

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSD24
Lab ID: H12030340-026
Matrix: Sediment

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 15:55 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	6980	mg/kg		5		SW6010B	04/06/12 08:28 / sld	04/02/12 14:34	ICP2-HE_120405B	211	16117
Arsenic	66	mg/kg		5		SW6010B	04/06/12 08:28 / sld	04/02/12 14:34	ICP2-HE_120405B	211	16117
Cadmium	64	mg/kg		1		SW6010B	04/06/12 08:28 / sld	04/02/12 14:34	ICP2-HE_120405B	211	16117
Copper	1690	mg/kg	H	5		SW6010B	04/06/12 08:28 / sld	04/02/12 14:34	ICP2-HE_120405B	211	16117
Iron	28600	mg/kg		5		SW6010B	04/10/12 20:31 / sld	04/02/12 14:34	ICP2-HE_120410C	139	16117
Lead	5970	mg/kg	H	5		SW6010B	04/06/12 08:28 / sld	04/02/12 14:34	ICP2-HE_120405B	211	16117
Manganese	15000	mg/kg	H	5		SW6010B	04/06/12 08:28 / sld	04/02/12 14:34	ICP2-HE_120405B	211	16117
Zinc	7400	mg/kg	H	5		SW6010B	04/06/12 08:28 / sld	04/02/12 14:34	ICP2-HE_120405B	211	16117

JAN
04-23-12

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSD01
Lab ID: H12030340-027
Matrix: Sediment

Project: UBMC Surface Water and Sediment
Collection Date: 03/26/12 16:50 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	6110	mg/kg		5		SW6010B	04/06/12 08:31 / sld	04/02/12 14:34	ICP2-HE_120405B : 212		16117
Arsenic	10	mg/kg		5		SW6010B	04/06/12 08:31 / sld	04/02/12 14:34	ICP2-HE_120405B : 212		16117
Cadmium	ND	mg/kg		1		SW6010B	04/06/12 08:31 / sld	04/02/12 14:34	ICP2-HE_120405B : 212		16117
Copper	13	mg/kg	J	5		SW6010B	04/06/12 08:31 / sld	04/02/12 14:34	ICP2-HE_120405B : 212		16117
Iron	13500	mg/kg		5		SW6010B	04/10/12 20:35 / sld	04/02/12 14:34	ICP2-HE_120410C : 140		16117
Lead	19	mg/kg	J	5		SW6010B	04/06/12 08:31 / sld	04/02/12 14:34	ICP2-HE_120405B : 212		16117
Manganese	349	mg/kg	J	5		SW6010B	04/06/12 08:31 / sld	04/02/12 14:34	ICP2-HE_120405B : 212		16117
Zinc	92	mg/kg	J	5		SW6010B	04/06/12 08:31 / sld	04/02/12 14:34	ICP2-HE_120405B : 212		16117

JAN
04-23-12

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSD38
Lab ID: H12030340-028
Matrix: Sediment

Project: UBMC Surface Water and Sediment
Collection Date: 03/27/12 08:50 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	6690	mg/kg		5		SW6010B	04/06/12 08:35 / sld	04/02/12 14:34	ICP2-HE_120405B : 213		16117
Arsenic	52	mg/kg		5		SW6010B	04/06/12 08:35 / sld	04/02/12 14:34	ICP2-HE_120405B : 213		16117
Cadmium	22	mg/kg		1		SW6010B	04/06/12 08:35 / sld	04/02/12 14:34	ICP2-HE_120405B : 213		16117
Copper	512	mg/kg	J	5		SW6010B	04/06/12 08:35 / sld	04/02/12 14:34	ICP2-HE_120405B : 213		16117
Iron	33000	mg/kg		5		SW6010B	04/10/12 20:38 / sld	04/02/12 14:34	ICP2-HE_120410C : 141		16117
Lead	1780	mg/kg	J	5		SW6010B	04/06/12 08:35 / sld	04/02/12 14:34	ICP2-HE_120405B : 213		16117
Manganese	4230	mg/kg	J	5		SW6010B	04/06/12 08:35 / sld	04/02/12 14:34	ICP2-HE_120405B : 213		16117
Zinc	3860	mg/kg	J	5		SW6010B	04/06/12 08:35 / sld	04/02/12 14:34	ICP2-HE_120405B : 213		16117

JAN
04-23-12

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSD48
Lab ID: H12030340-029
Matrix: Sediment

Project: UBMC Surface Water and Sediment
Collection Date: 03/27/12 10:05 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	6530	mg/kg		5		SW6010B	04/06/12 08:46 / sld	04/02/12 14:34	ICP2-HE_120405B	216	16117
Arsenic	84	mg/kg		5		SW6010B	04/06/12 08:46 / sld	04/02/12 14:34	ICP2-HE_120405B	216	16117
Cadmium	35	mg/kg		1		SW6010B	04/06/12 08:46 / sld	04/02/12 14:34	ICP2-HE_120405B	216	16117
Copper	692	mg/kg	H	5		SW6010B	04/06/12 08:46 / sld	04/02/12 14:34	ICP2-HE_120405B	216	16117
Iron	44500	mg/kg		5		SW6010B	04/10/12 20:42 / sld	04/02/12 14:34	ICP2-HE_120410C	142	16117
Lead	9090	mg/kg	H	5		SW6010B	04/06/12 08:46 / sld	04/02/12 14:34	ICP2-HE_120405B	216	16117
Manganese	4810	mg/kg	H	5		SW6010B	04/06/12 08:46 / sld	04/02/12 14:34	ICP2-HE_120405B	216	16117
Zinc	6260	mg/kg	H	5		SW6010B	04/06/12 08:46 / sld	04/02/12 14:34	ICP2-HE_120405B	216	16117

JAN
04-23-12

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSD23
Lab ID: H12030340-030
Matrix: Sediment

Project: UBMC Surface Water and Sediment
Collection Date: 03/27/12 10:30 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	2130	mg/kg		5		SW6010B	04/06/12 08:50 / sld	04/02/12 14:34	ICP2-HE_120405B : 217		16117
Arsenic	26	mg/kg		5		SW6010B	04/06/12 08:50 / sld	04/02/12 14:34	ICP2-HE_120405B : 217		16117
Cadmium	4	mg/kg		1		SW6010B	04/06/12 08:50 / sld	04/02/12 14:34	ICP2-HE_120405B : 217		16117
Copper	190	mg/kg	J	5		SW6010B	04/06/12 08:50 / sld	04/02/12 14:34	ICP2-HE_120405B : 217		16117
Iron	8660	mg/kg		5		SW6010B	04/06/12 08:50 / sld	04/02/12 14:34	ICP2-HE_120405B : 217		16117
Lead	380	mg/kg	J	5		SW6010B	04/06/12 08:50 / sld	04/02/12 14:34	ICP2-HE_120405B : 217		16117
Manganese	394	mg/kg	J	5		SW6010B	04/06/12 08:50 / sld	04/02/12 14:34	ICP2-HE_120405B : 217		16117
Zinc	1120	mg/kg	J	5		SW6010B	04/06/12 08:50 / sld	04/02/12 14:34	ICP2-HE_120405B : 217		16117

JAN
0423-12

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSD3A
Lab ID: H12030340-031
Matrix: Sediment

Project: UBMC Surface Water and Sediment
Collection Date: 03/27/12 10:55 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	3760	mg/kg		5		SW6010B	04/06/12 08:53 / sld	04/02/12 14:34	ICP2-HE_120405B : 218		16117
Arsenic	34	mg/kg		5		SW6010B	04/06/12 08:53 / sld	04/02/12 14:34	ICP2-HE_120405B : 218		16117
Cadmium	19	mg/kg		1		SW6010B	04/06/12 08:53 / sld	04/02/12 14:34	ICP2-HE_120405B : 218		16117
Copper	588	mg/kg	H	5		SW6010B	04/06/12 08:53 / sld	04/02/12 14:34	ICP2-HE_120405B : 218		16117
Iron	15000	mg/kg		5		SW6010B	04/10/12 20:46 / sld	04/02/12 14:34	ICP2-HE_120410C : 143		16117
Lead	286	mg/kg	H	5		SW6010B	04/06/12 08:53 / sld	04/02/12 14:34	ICP2-HE_120405B : 218		16117
Manganese	20400	mg/kg	H	5		SW6010B	04/06/12 08:53 / sld	04/02/12 14:34	ICP2-HE_120405B : 218		16117
Zinc	4010	mg/kg	H	5		SW6010B	04/06/12 08:53 / sld	04/02/12 14:34	ICP2-HE_120405B : 218		16117

JLN
04-23-12

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCBRSD3B
Lab ID: H12030340-032
Matrix: Sediment

Project: UBMC Surface Water and Sediment
Collection Date: 03/27/12 11:15 **DateReceived:** 03/27/12
Report Date: 04/17/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	4440	mg/kg		5		SW6010B	04/06/12 08:57 / sld	04/02/12 14:34	ICP2-HE_120405B : 219		16117
Arsenic	5	mg/kg		5		SW6010B	04/06/12 08:57 / sld	04/02/12 14:34	ICP2-HE_120405B : 219		16117
Cadmium	ND	mg/kg		1		SW6010B	04/06/12 08:57 / sld	04/02/12 14:34	ICP2-HE_120405B : 219		16117
Copper	31	mg/kg		5		SW6010B	04/06/12 08:57 / sld	04/02/12 14:34	ICP2-HE_120405B : 219		16117
Iron	8970	mg/kg		5		SW6010B	04/06/12 08:57 / sld	04/02/12 14:34	ICP2-HE_120405B : 219		16117
Lead	22	mg/kg		5		SW6010B	04/06/12 08:57 / sld	04/02/12 14:34	ICP2-HE_120405B : 219		16117
Manganese	555	mg/kg		5		SW6010B	04/06/12 08:57 / sld	04/02/12 14:34	ICP2-HE_120405B : 219		16117
Zinc	101	mg/kg		5		SW6010B	04/06/12 08:57 / sld	04/02/12 14:34	ICP2-HE_120405B : 219		16117

JAN
04-23-12

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

Attachment C: Chain of Custody Forms and Sample Receipt Checklist

ANALYTICAL SUMMARY REPORT

April 17, 2012

MT DEQ-Site Response
PO Box 200901
Helena, MT 59620-0901

Workorder No.: H12030340 Quote ID: H645 - UBMC

Project Name: UBMC Surface Water and Sediment

Energy Laboratories Inc Helena MT received the following 32 samples for MT DEQ-Site Response on 3/27/2012 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H12030340-001	S35SW05	03/26/12 10:10	03/27/12	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Hardness as CaCO3 Anions by Ion Chromatography pH Metals Digestion by EPA 200.2 Preparation for TDS Preparation for TSS Solids, Total Dissolved Solids, Total Suspended
H12030340-002	S35SW07	03/26/12 9:00	03/27/12	Aqueous	Same As Above
H12030340-003	S35SW01	03/26/12 11:10	03/27/12	Aqueous	Same As Above
H12030340-004	S35SW06	03/26/12 11:10	03/27/12	Aqueous	Same As Above
H12030340-005	S35SW02	03/26/12 12:00	03/27/12	Aqueous	Same As Above
H12030340-006	S35SW04	03/26/12 13:45	03/27/12	Aqueous	Same As Above
H12030340-007	S35SW03	03/26/12 14:25	03/27/12	Aqueous	Same As Above
H12030340-008	UBMCBRSW25	03/26/12 15:10	03/27/12	Aqueous	Same As Above
H12030340-009	UBMCBRSW26	03/26/12 15:15	03/27/12	Aqueous	Same As Above
H12030340-010	UBMCBRSW22	03/26/12 15:50	03/27/12	Aqueous	Same As Above
H12030340-011	UBMCBRSW24	03/26/12 15:55	03/27/12	Aqueous	Same As Above
H12030340-012	UBMCBRSW01	03/26/12 16:50	03/27/12	Aqueous	Same As Above
H12030340-013	UBMCBRSW2	03/26/12 17:25	03/27/12	Aqueous	Same As Above
H12030340-014	UBMCBRSW38	03/27/12 8:50	03/27/12	Aqueous	Same As Above
H12030340-015	UBMCBRSW48	03/27/12 10:05	03/27/12	Aqueous	Same As Above
H12030340-016	UBMCBRSW23	03/27/12 10:30	03/27/12	Aqueous	Same As Above
H12030340-017	UBMCBRSW3A	03/27/12 10:55	03/27/12	Aqueous	Same As Above
H12030340-018	UBMCBRSW3B	03/27/12 11:15	03/27/12	Aqueous	Same As Above
H12030340-019	S35SD05	03/26/12 10:10	03/27/12	Sediment	Metals by ICP/ICPMS, Total Digestion, Total Metals
H12030340-020	S35SD06	03/26/12 11:10	03/27/12	Sediment	Same As Above
H12030340-021	S35SD01	03/26/12 11:10	03/27/12	Sediment	Same As Above

ANALYTICAL SUMMARY REPORT

H12030340-022	S35SD02	03/26/12 12:00 03/27/12	Sediment	Same As Above
H12030340-023	S35SD04	03/26/12 13:45 03/27/12	Sediment	Same As Above
H12030340-024	S35SD03	03/26/12 14:25 03/27/12	Sediment	Same As Above
H12030340-025	UBMCBRSD22	03/26/12 15:50 03/27/12	Sediment	Same As Above
H12030340-026	UBMCBRSD24	03/26/12 15:55 03/27/12	Sediment	Same As Above
H12030340-027	UBMCBRSD01	03/26/12 16:50 03/27/12	Sediment	Same As Above
H12030340-028	UBMCBRSD38	03/27/12 8:50 03/27/12	Sediment	Same As Above
H12030340-029	UBMCBRSD48	03/27/12 10:05 03/27/12	Sediment	Same As Above
H12030340-030	UBMCBRSD23	03/27/12 10:30 03/27/12	Sediment	Same As Above
H12030340-031	UBMCBRSD3A	03/27/12 10:55 03/27/12	Sediment	Same As Above
H12030340-032	UBMCBRSD3B	03/27/12 11:15 03/27/12	Sediment	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise reported.

Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

Attachment B: Laboratory Case Narrative

Workorder Receipt Checklist

H12030340

MT DEQ-Site Response

Login completed by: Wanda Johnson
Date Received: 3/27/2012
Reviewed by: BL2000\sdull
Received by: TLL
Reviewed Date: 4/2/2012
Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Container/Temp Blank temperature:	℃ See Comments		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Contact and Corrective Action Comments:

Cooler #1 received at a temperautre of 2.8C, Cooler #2 1.6C & Cooler #3 3.0C-Soils cooler. All samples received on ice. Call into client regarding sample ID for "UBMCBRSD01" on COC but the jar states "UBMCBRSW01". Also contacted client regarding "Total" metals which is on parameter sheet versus "Total Recoverable " metals on quote & what has historically been done on this site. Wj 3/27/12 ID should be "UBMCBRSD" and water metals should be Total Recoverable per A. Dreesbach. Wj 3/29/12

Chain of Custody and Analytical Request Record

PLEASE PRINT (Provide as much information as possible.)

Company Name: MTDEQ	Project Name, PWS, Permit, Etc.: UBMC Surface Water	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: Quote H-645	Contact Name: Shellie Haaland Phone/Fax: 841-5033 Email: shaaland@mt.gov		Sampler: (Please Print) Alan Dreesbach Jackie Janeske
Invoice Address:	Invoice Contact & Phone:	Purchase Order:	Quote/Bottle Order:

Special Report/Formats:

☐ DW ☐ POTW/WWTP ☐ State: _____ ☐ Other: _____

☐ EDD/EDT (Electronic Data) Format: _____ ☐ LEVEL IV ☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids
Vegetation Bioassay Other
DW - Drinking Water

ANALYSIS REQUESTED

SEE ATTACHED

Standard Turnaround (TAT)

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: Please copy results to adreesbach@portageinc.com 406-490-5155

Shipped by: Hand del

Cooler ID(s): Y

Receipt Temp: _____ °C

On Ice: Y N

Custody Seal: On Bottle Y N; On Cooler Y N

Intact: Y N

Signature Match: Y N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	SEE ATTACHED	
2	1 S35SW05	03/20/12	1010	W	X	Cooler #1 2.8° #12030340
2	2 S35SW07		0900			Cooler #2 1.6°
2	3 S35SW01		1100			
2	4 S35SW06		1110			
2	5 S35SW02		1200			
2	6 S35SW04		1345			
2	7 S35SW03		1425			
1	8 UBMCBRSW25		1510			
1	9 UBMCBRSW26		1515			
1	10 UBMCBRSW22		1550			

LABORATORY USE ONLY

Custody Record MUST be Signed

Relinquished by (print): Alan Dreesbach Date/Time: 3/21/12 1434 Signature:

Relinquished by (print): Date/Time: Signature:

Sample Disposal: Return to Client: _____ Lab Disposal: _____

Received by (print): Date/Time: Signature:

Received by (print): Date/Time: Signature:

Received by Laboratory: Tracy Loresh 3/21/12 14:34 Signature:

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.

Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

Chain of Custody and Analytical Request Record

PLEASE PRINT (Provide as much information as possible.)

Company Name: MDEQ	Project Name, PWS, Permit, Etc.: UBMC Surface Water	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: Quote H-645	Contact Name: Shellie Haaland Phone/Fax: 841-5033 Email: shaaland@mt.gov		Sampler: (Please Print) Alan Dreesbach Jackie Janoske
Invoice Address:	Invoice Contact & Phone:	Purchase Order:	Quote/Bottle Order:

Special Report/Formats:

☐ DW ☐ POTW/WWTP ☐ State: _____ ☐ Other: _____

☐ EDD/EDT (Electronic Data) Format: _____ ☐ LEVEL IV ☐ NELAC

Number of Containers
Sample Type: A Air W Water S Soils/Solids V Vegetation B Bioassay O Other D DW - Drinking Water

ANALYSIS REQUESTED

Standard Turnaround (TAT) — R U S H

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: Please copy results to adreesbach@portageinc.com 406 490.5155

Shipped by: Hand del.
Cooler ID(s): Y
Receipt Temp: °C
On Ice: (Y) N
Custody Seal On Bottle Y (N) On Cooler Y (N)
Intact Y N
Signature Match Y N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	SEE ATTACHED
1	UBMC3RSW24	03/26/12	1555	W	X
2	UBMCBRSW01	03/26/12	1650		
3	UBMCBRSW2	03/26/12	1725		
4	UBMCBRSW38	03/27/12	0850		
5	UBMCBRSW48		1005		
6	UBMCBRSW23		1030		
7	UBMCBRSW3A		1055		
8	UBMCBRSW3B		1115		
9					
10					

3/27/2012

Cooler #1 2.8
Cooler #2 1.6

LABORATORY USE ONLY H12030340

Custody Record MUST be Signed

Relinquished by (print): Alan Dreesbach Date/Time: 3/27/12 @ 1434 Signature:

Relinquished by (print): Date/Time: Signature:

Sample Disposal: Return to Client: _____ Lab Disposal: _____

Received by (print): Date/Time: Signature:

Received by (print): Date/Time: Signature:

Received by Laboratory: Tracy Loraas Date/Time: 3/27/12 14:34 Signature: Tracy Loraas

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.
This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our website at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

Chain of Custody and Analytical Request Record

PLEASE PRINT (Provide as much information as possible.)

Company Name: MDEQ	Project Name, PWS, Permit, Etc.: UBMC Sediment	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: Quote H-645	Contact Name: Phone/Fax: Shellie Haaland 841-5033 Email: shaaland@mt.gov		Sampler: (Please Print) Alan Dreesbach, Jackie Janowski
Invoice Address:	Invoice Contact & Phone:	Purchase Order:	Quote/Bottle Order:

Special Report/Formats:

☐ DW ☐ POTW/WWTP ☐ State: _____ ☐ Other: _____

☐ EDD/EDT (Electronic Data) Format: _____ ☐ LEVEL IV ☐ NELAC

ANALYSIS REQUESTED

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids
Vegetation Bioassay Other
DW - Drinking Water

SEE ATTACHED

Standard Turnaround (TAT)

RUSH

→ Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

Shipped by: Hand del

Cooler ID(s): Y

Receipt Temp: 3.0 °C

On Ice: (Y) N

Custody Seal: On Bottle Y (N) On Cooler Y (N)

Intact: Y N

Signature Match: Y N

LABORATORY USE ONLY: H12030340

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	SEE ATTACHED
1	S35SD05	03/26/12	1010	Sediment	X
2	S35SD06		1110		
3	S35SD01		1110		
4	S35SD02		1200		
5	S35SD04		1345		
6	S35SD03		1425		
7	UBMCBRSD22		1550		
8	UBMCBRSD24		1555		
9	UBMCBRSD01		1650		
10		~~03/27/12~~			

Custody Record MUST be Signed

Relinquished by (print): Alan Dreesbach Date/Time: 3/27/12 @ 1434 Signature:

Relinquished by (print): Date/Time: Signature:

Received by (print): Date/Time: Signature:

Received by (print): Date/Time: Signature:

Received by Laboratory: Tracy Crash Date/Time: 3/27/12 14:34 Signature:

Sample Disposal: Return to Client: _____ Lab Disposal: _____

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.
This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.

Chain of Custody and Analytical Request Record

PLEASE PRINT (Provide as much information as possible.)

Company Name: M DEQ

Report Mail Address: Quote H-645

Invoice Address:

Project Name, PWS, Permit, Etc.: UBMC Sediment

Contact Name: Phone/Fax: Shellie Haaland 841-5033 Email: shaaland@mt.gov

Invoice Contact & Phone:

Sample Origin State: MT

EPA/State Compliance: Yes ☐ No ☐

Sampler: (Please Print) Alan Dreesbach, Jackie Janoske

Purchase Order:

Quote/Bottle Order:

Special Report/Formats:

☐ DW
☐ POTW/WWTP
☐ State: _____
☐ Other: _____

☐ EDD/EDT (Electronic Data) Format: _____
☐ LEVEL IV
☐ NELAC

Number of Containers
Sample Type: A Air, W Water, S Soils/Solids, V Vegetation, B Bioassay, O Other
DW - Drinking Water

ANALYSIS REQUESTED

SEE ATTACHED

Standard Turnaround (TAT)

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: Please copy results to adreesbach@portageinc.com 406.490.5155

Shipped by: Hand del

Cooler ID(s): Y

Receipt Temp 3.0 °C

On Ice: (Y) N

Custody Seal On Bottle Y (N) On Cooler Y (N)

Intact Y N

Signature Match Y N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	SEE ATTACHED
1	UBMCBRSD38	03/27/12	0950	Sediment	X
2	UBMCBRSD48		1005		
3	UBMCBRSD23		1030		
4	UBMCBRSD3A		1055		
5	UBMCBRSD3B		1115		
6					
7					
8					
9					
10					

~~Cooler #1 2.8~~ ~~Cooler #2 1.6~~ H120303420

LABORATORY USE ONLY

proof 03/27/2012

Custody Record MUST be Signed

Relinquished by (print): Alan Dreesbach Date/Time: 3/27/12 @ 1434 Signature:

Relinquished by (print): Date/Time: Signature:

Sample Disposal: Return to Client: _____ Lab Disposal: _____

Received by (print): Date/Time: Signature:

Received by (print): Date/Time: Signature:

Received by Laboratory: Tracy Carol Date/Time: 3/27/12 14:34 Signature:

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.

UBMC Ground Water

SDG#:	**H12030390**
Number of Samples:	**15**
Sample Matrix:	**Groundwater**
Applicable Analytes:	**(15) pH, Conductivity, TSS, TDS, Anions: (Chloride and Sulfate), Hardness, Dissolved Metals: (Al, As, Cd, Ca, Cu, Fe, Pb, Mg, Mn, K, Na, and Zn)**
Reporting Tier:	**3**
Applicable TOS#:	**N/A**
Laboratory:	**Energy Laboratories**
Validation Level:	**EPA Level III**
Validator Affiliation:	**Portage, Inc.**
Project#:	**UBMC**
Project SAP/QUAPP:	**Final Sampling and Analysis Plan for Environmental Monitoring Section 35, Lewis and Clark County, Montana; Portage Inc., 2012; Final Sampling and Analysis Plan for Environmental Monitoring Upper Blackfoot Mining Complex, Lewis and Clark County, Montana; Portage Inc., 2012**

Validator  **Date Completed:4/25/12;05/10/13**

Portage Review:  **Date Completed:04/25/12;05/03/13**

REPORT ORGANIZATION:

Limitations & Validation (L&V) Report UBMC Ground Water is organized into the following five sections:

- Glossary of Terms & Method References
- Data Quality Statement
- L&V Report
- Attachment A: Laboratory Report Forms Corrected for Qualification
- Attachment B: Chain of Custody Forms & Sample Receipt Checklist

GLOSSARY OF VALIDATION TERMS & METHOD VALIDATION REFERENCES

Terms:

CRDL	Contract Required Detection Limit
IDL	Instrument Detection Limit
SOW	Statement of Work
SOP	Standard Operating Procedure
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ICV	Initial Calibration Verification
CCV	Continuing Calibration Verification
ICB	Initial Calibration Blank
CCB	Continuing Calibration Blank
PB	Preparation Blank
LCS	Laboratory Control Sample
SDS	Serial Dilution Sample
SDG	Sample Delivery Group

Qualifiers:

U - The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.
Note: This detection limit may be elevated to a level greater than the IDL due to a detection of a target compound in the method blank, and as a result, the sample value, which was less than ten times the blank result, has been qualified 'U' as a non-detect.

J - The analyte was positively identified in the sample, but the associated numerical value may not be an accurate representation of the amount actually present in the environmental sample. The data should be seriously considered for decision-making and are usable for many purposes.

R - The data are unusable (may or may not be present). Resampling and reanalysis are necessary for verification.

UJ - The material was analyzed for but was not detected. The sample quantitation limit is an estimated quantity.

Reference:

The validation of this data was performed according to:

1. *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, EPA540-R-04-004,October 2004.*
2. *USEPA Contract Laboratory Program Statement of Work For Inorganic Analysis, Multi-Media, Multi-Concentration, Document Number ILM04.0, January 2000.*

LIMITATIONS AND VALIDATION REPORT

INTRODUCTION:

The UBMC Ground Water ground water sample results were received by Portage, Inc. in April 2011. The laboratory analytical request provided for a summary data package attached for the pH, conductivity, alkalinity, TSS, TDS, chloride, sulfate, hardness, and dissolved metals (Al, As, Cd, Ca, Cu, Fe, Pb, Mg, Mn, K, Na, and Zn). The samples were analyzed in accordance with Standard Methods 4500 H-B, 2320B, 2510B, 2540D, 2540C, and 2340B, and USEPA Methods 300.0 and 200.8. Data validation was performed utilizing the USEPA Functional Guidelines for Inorganic Data Review. The following cross-reference has been provided to assist data users in comparing field identifications to the corresponding laboratory numbers.

Cross-Reference for UBMC Groundwater Water Samples

Field Id#:	Lab Id#:	Matrix:	Analysis Request:	Date of Collection:	Date of Laboratory Receipt:
S35MW08	H12030390-001	Groundwater	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Dissolved Metals	03/28/12	03/30/12
S35MW09	H12030390-002	Groundwater	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Dissolved Metals	03/28/12	03/30/12
S35MW06	H12030390-003	Groundwater	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Dissolved Metals	03/28/12	03/30/12
S35MW04	H12030390-004	Groundwater	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Dissolved Metals	03/28/12	03/30/12
S35MW07	H12030390-005	Groundwater	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Dissolved Metals	03/28/12	03/30/12
S35MW03	H12030390-006	Groundwater	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Dissolved Metals	03/28/12	03/30/12
UBMCTDMW07	H12030390-007	Groundwater	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Dissolved Metals	03/29/12	03/30/12
UBMCTDMW08	H12030390-008	Groundwater	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Dissolved Metals	03/29/12	03/30/12

Cross-Reference for UBMC Groundwater Water Samples					
UBMCTDMW05	H12030390-009	Groundwater	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Dissolved Metals	03/29/12	03/30/12
UBMCTDMW4D	H12030390-010	Groundwater	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Dissolved Metals	03/29/12	03/30/12
UBMCTDMW06	H12030390-011	Groundwater	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Dissolved Metals	03/29/12	03/30/12
UBMCTDMW3D	H12030390-012	Groundwater	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Dissolved Metals	03/29/12	03/30/12
UBMCTDMW01	H12030390-013	Groundwater	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Dissolved Metals	03/29/12	03/30/12
UBMCTDMW2D	H12030390-014	Groundwater	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Dissolved Metals	03/29/12	03/30/12
UBMCTDMW2S	H12030390-015	Groundwater	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Dissolved Metals	03/29/12	03/30/12

ANALYTICAL HOLDING TIMES:

The water samples associated with this SDG were collected on 03/28/12 and 03/29/12. The conductivity, TSS, TDS, results were analyzed on 03/30/12 within the 28-day holding time for conductivity, and the 7-day holding time for TSS and TDS. The chloride and sulfate results were analyzed on 04/03/12 within the 28-day holding time. The alkalinity results were analyzed on 04/02/12 within the 14-day holding time. The hardness results were analyzed on 04/04/12 within the 180-day holding time. The dissolved metals were analyzed on 04/02/12 and 04/03/12 within the 180-day holding time for the ICP Metals.

The pH samples were collected on 03/2/12 and 03/29/12, received on 03/30/12, and analyzed on 03/30/12. The pH results for samples UBMCTDMW3D, UBMCTDMW01, UBMCTDMW2D, and UBMCTDMW2S were analyzed within the 24-hour holding time. In the professional judgment of the validator, all remaining pH results have been qualified with a "J-" validation flag as prescribed by the USEPA Functional Guidelines and as the samples were analyzed outside the 24-hour holding time.

INITIAL AND CONTINUING CALIBRATION (ICV and CCV):

All ICV and CCV results were within the acceptance criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

PREPRATION BLANKS (PB):

For all analyses, blank results were analyzed at a proper frequency of 1 blank per 20 samples in the analytical batch.

The PB results were non-detect at level less than their respective MDLs and no qualification is warranted.

Field blank, trip blank, and equipment rinsate results were not included in this data deliverable.

INTERFERENCE CHECK SAMPLE (ICS):

All ICS results were within the acceptance criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

MATRIX SPIKE (MS)/MATRIX SPIKE DUPLICATE (MSD):

The MS/MSD recovery and all RPD results were within the acceptance criteria and analyzed at the proper frequency (1 in 20) as prescribed by the USEPA Functional Guidelines and the analytical methods. MS/MSD sample were obtained from project field samples.

LABORATORY DUPLICATE SAMPLE (LDS) RPD:

The conductivity (67%) LCS exhibited an RPD greater than 20%. All conductivity results have been qualified with a "J" validation flag.

All remaining LDS and field duplicate results were within the RPD criteria and ran at the proper frequency (1 in 20) prescribed by the USEPA Functional Guidelines and the analytical methods.

DUPLICATE SUMMARY TABLE:

Analyte	Matrix Spike Duplicate RPD	Laboratory Duplicate RPD	Field Duplicate RPD (UBMC)	Field Duplicate RPD (S35)
pH	N/A	4.4	0	-1.30719
Conductivity	N/A	**67**	0.809717	0.280505
TSS	N/A	8	20	0
TDS	N/A	0	-6.34921	2.040816
Alkalinity	N/A	0.3	-2.04082	0
Bicarbonate	N/A	0.5	0	0
Carbonate	N/A	2.7	0	0
Chloride	0.8	N/A	0	0
Sulfate	0.8	N/A	-6.45161	0
Hardness	N/A	N/A	2.620087	-3.52941
Al	0.2	N/A	0	-18.1818
Ca	3.3	N/A	0	0
Mg	5.2	N/A	0	0
K	1.8	N/A	4.081633	-1.9802
Na	1.7	N/A	0	0
As	0	N/A	0	0
Cd	0.1	N/A	0	0
Cu	0.6	N/A	0	-9.52381
Fe	2.8	N/A	0	0
Pb	1.2	N/A	0	0
Mn	0.9	N/A	0	0
Zn	0.9	N/A	0	0

*RPD greater than 20%, however, CRDL criteria not met, Dup ok

LABORATORY CONTROL SAMPLE (LCS):

The LCS results were of matrix types similar to the field samples and properly prepared with the field samples.

All analytes exhibited recoveries within the guidelines and analyzed at the proper frequency (1 in 20) as prescribed by the USEPA Functional Guidelines and analytical methods.

Surrogate analyses are not applicable to metals and miscellaneous wet chemistry analysis types and methods.

CHAIN OF CUSTODY:

The laboratory chain of custody (COC) forms are complete and accurate.

Two coolers were received by Energy Labs on 04/03/12 at 0.1°C and 0.9°C. Custody was maintained as documents by the field and laboratory personnel signatures, dates, and time of receipt.

REPORTING LIMTS:

The reporting limits presented by the laboratory were acceptable and met the screening level requirements set forth by the project QAPjP and SAP.

OVERALL ASSESSMENT OF DATA:

There were fifteen (15) groundwater field samples included in SDG# H11120229. Nine (9) field samples were analyzed for pH, conductivity, alkalinity, TSS, TDS, chloride, sulfate, hardness, and dissolved metals as outlined in the project QAPP.

All pH results, **excluding** UBMCTDMW3D, UBMCTDMW01, UBMCTDMW2D, and UBMCTDMW2S, have been qualified with a "J-" validation flag to denote the reported results are estimates with a low bias due to exceeded holding times.

The conductivity sample results have been qualified with a "J" validation flag to denote the reported results are estimates due to poor duplicate precision.

The remaining field sample data points have been assessed and remain unqualified.

All field sample data points presented in this SDG are valid and complete.

All samples were received by the lab in good condition. Detection limits, analytical methods, detection limits, and reporting were all within the project requirements.

Attachment A: Laboratory Report Forms

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID S35MW08
Lab ID: H12030390-001
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 03/28/12 09:40 **DateReceived:** 03/30/12
Report Date: 04/13/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.3	s.u.	J-	0.1		A4500-H B	03/30/12 12:22 / cmm		PHSC_101-H_120330A	42	R78901
Conductivity @ 25 C	1	umhos/cm	J	1		A2510 B	03/30/12 12:22 / cmm		PHSC_101-H_120330A	43	R78901
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/30/12 14:08 / cmm	03/30/12 11:09	J-124 (14410200)_120330A	13	16096
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	03/30/12 14:17 / cmm	03/30/12 11:14	J-124 (14410200)_120330B	9	16097
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	04/02/12 13:07 / cmm		MAN-TECH_120402A	18	R78946
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	04/02/12 13:07 / cmm		MAN-TECH_120402A	18	R78946
Carbonate as CO3	ND	mg/L		4		A2320 B	04/02/12 13:07 / cmm		MAN-TECH_120402A	18	R78946
Chloride	ND	mg/L		1		E300.0	04/03/12 15:05 / zeg		IC102-H_120403A	34	R79043
Sulfate	ND	mg/L		1		E300.0	04/03/12 15:05 / zeg		IC102-H_120403A	34	R79043
Hardness as CaCO3	ND	mg/L		1		A2340 B	04/04/12 10:24 / sld		WATERCALC_120404A	6	R78988
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	04/03/12 06:11 / dck		ICPMS204-B_120402A	202	R78968
Arsenic	ND	mg/L		0.003		E200.8	04/03/12 06:11 / dck		ICPMS204-B_120402A	202	R78968
Cadmium	ND	mg/L		0.00008		E200.8	04/03/12 06:11 / dck		ICPMS204-B_120402A	202	R78968
Calcium	ND	mg/L		1		E200.7	04/02/12 14:52 / sld		ICP2-HE_120402B	77	R78958
Copper	ND	mg/L		0.001		E200.8	04/03/12 06:11 / dck		ICPMS204-B_120402A	202	R78968
Iron	ND	mg/L		0.05		E200.8	04/03/12 06:11 / dck		ICPMS204-B_120402A	202	R78968
Lead	ND	mg/L		0.0005		E200.8	04/03/12 06:11 / dck		ICPMS204-B_120402A	202	R78968
Magnesium	ND	mg/L		1		E200.7	04/02/12 14:52 / sld		ICP2-HE_120402B	77	R78958
Manganese	ND	mg/L		0.005		E200.8	04/03/12 06:11 / dck		ICPMS204-B_120402A	202	R78968
Potassium	ND	mg/L		1		E200.7	04/02/12 14:52 / sld		ICP2-HE_120402B	77	R78958
Sodium	ND	mg/L		1		E200.7	04/02/12 14:52 / sld		ICP2-HE_120402B	77	R78958
Zinc	ND	mg/L		0.01		E200.8	04/03/12 06:11 / dck		ICPMS204-B_120402A	202	R78968

JAN
4-23-12

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID S35MW09
Lab ID: H12030390-002
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 03/28/12 09:45 **DateReceived:** 03/30/12
Report Date: 04/13/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	J- 5.8	s.u.		0.1		A4500-H B	03/30/12 12:26 / cmm		PHSC_101-H_120330A	44	R78901
Conductivity @ 25 C	J 2	umhos/cm		1		A2510 B	03/30/12 12:26 / cmm		PHSC_101-H_120330A	45	R78901
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/30/12 14:09 / cmm	03/30/12 11:09	-124 (14410200)_120330A	14	16096
Solids, Total Dissolved TDS @ 180 C	10	mg/L		10		A2540 C	03/30/12 14:17 / cmm	03/30/12 11:14	-124 (14410200)_120330B	10	16097
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	04/02/12 13:12 / cmm		MAN-TECH_120402A	20	R78946
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	04/02/12 13:12 / cmm		MAN-TECH_120402A	20	R78946
Carbonate as CO3	ND	mg/L		4		A2320 B	04/02/12 13:12 / cmm		MAN-TECH_120402A	20	R78946
Chloride	ND	mg/L		1		E300.0	04/03/12 15:18 / zeg		IC102-H_120403A	35	R79043
Sulfate	ND	mg/L		1		E300.0	04/03/12 15:18 / zeg		IC102-H_120403A	35	R79043
Hardness as CaCO3	ND	mg/L		1		A2340 B	04/04/12 10:24 / sld		WATERCALC_120404A	7	R78988
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	04/03/12 06:15 / dck		ICPMS204-B_120402A	203	R78968
Arsenic	ND	mg/L		0.003		E200.8	04/03/12 06:15 / dck		ICPMS204-B_120402A	203	R78968
Cadmium	ND	mg/L		0.00008		E200.8	04/03/12 06:15 / dck		ICPMS204-B_120402A	203	R78968
Calcium	ND	mg/L		1		E200.7	04/02/12 14:56 / sld		ICP2-HE_120402B	78	R78958
Copper	ND	mg/L		0.001		E200.8	04/03/12 06:15 / dck		ICPMS204-B_120402A	203	R78968
Iron	ND	mg/L		0.05		E200.8	04/03/12 06:15 / dck		ICPMS204-B_120402A	203	R78968
Lead	ND	mg/L		0.0005		E200.8	04/03/12 06:15 / dck		ICPMS204-B_120402A	203	R78968
Magnesium	ND	mg/L		1		E200.7	04/02/12 14:56 / sld		ICP2-HE_120402B	78	R78958
Manganese	ND	mg/L		0.005		E200.8	04/03/12 06:15 / dck		ICPMS204-B_120402A	203	R78968
Potassium	ND	mg/L		1		E200.7	04/02/12 14:56 / sld		ICP2-HE_120402B	78	R78958
Sodium	ND	mg/L		1		E200.7	04/02/12 14:56 / sld		ICP2-HE_120402B	78	R78958
Zinc	ND	mg/L		0.01		E200.8	04/03/12 06:15 / dck		ICPMS204-B_120402A	203	R78968

JAN 4-23-12

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID S35MW06
Lab ID: H12030390-003
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 03/28/12 14:15 **DateReceived:** 03/30/12
Report Date: 04/13/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	J- 7.5	s.u.		0.1		A4500-H B	03/30/12 12:29 / cmm		PHSC_101-H_120330A	46	R78901
Conductivity @ 25 C	J 401	umhos/cm		1		A2510 B	03/30/12 12:29 / cmm		PHSC_101-H_120330A	47	R78901
Solids, Total Suspended TSS @ 105 C	332	mg/L		10		A2540 D	03/30/12 14:09 / cmm	03/30/12 11:09	-124 (14410200)_120330A	15	16096
Solids, Total Dissolved TDS @ 180 C	216	mg/L		10		A2540 C	03/30/12 14:17 / cmm	03/30/12 11:14	-124 (14410200)_120330B	11	16097
INORGANICS											
Alkalinity, Total as CaCO3	200	mg/L		4		A2320 B	04/02/12 13:24 / cmm		MAN-TECH_120402A	24	R78946
Bicarbonate as HCO3	250	mg/L		4		A2320 B	04/02/12 13:24 / cmm		MAN-TECH_120402A	24	R78946
Carbonate as CO3	ND	mg/L		4		A2320 B	04/02/12 13:24 / cmm		MAN-TECH_120402A	24	R78946
Chloride	ND	mg/L		1		E300.0	04/03/12 15:59 / zeg		IC102-H_120403A	38	R79043
Sulfate	1	mg/L		1		E300.0	04/03/12 15:59 / zeg		IC102-H_120403A	38	R79043
Hardness as CaCO3	193	mg/L		1		A2340 B	04/04/12 10:24 / sld		WATERCALC_120404A	8	R78988
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	04/03/12 06:53 / dck		ICPMS204-B_120402A	211	R78968
Arsenic	ND	mg/L		0.003		E200.8	04/03/12 06:53 / dck		ICPMS204-B_120402A	211	R78968
Cadmium	ND	mg/L		0.00008		E200.8	04/03/12 06:53 / dck		ICPMS204-B_120402A	211	R78968
Calcium	51	mg/L		1		E200.7	04/02/12 14:59 / sld		ICP2-HE_120402B	79	R78958
Copper	0.002	mg/L		0.001		E200.8	04/03/12 06:53 / dck		ICPMS204-B_120402A	211	R78968
Iron	ND	mg/L		0.05		E200.8	04/03/12 06:53 / dck		ICPMS204-B_120402A	211	R78968
Lead	ND	mg/L		0.0005		E200.8	04/03/12 06:53 / dck		ICPMS204-B_120402A	211	R78968
Magnesium	16	mg/L		1		E200.7	04/02/12 14:59 / sld		ICP2-HE_120402B	79	R78958
Manganese	ND	mg/L		0.005		E200.8	04/03/12 06:53 / dck		ICPMS204-B_120402A	211	R78968
Potassium	1	mg/L		1		E200.7	04/02/12 14:59 / sld		ICP2-HE_120402B	79	R78958
Sodium	5	mg/L		1		E200.7	04/02/12 14:59 / sld		ICP2-HE_120402B	79	R78958
Zinc	ND	mg/L		0.01		E200.8	04/03/12 06:53 / dck		ICPMS204-B_120402A	211	R78968

JAN
4-23-12

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID S35MW04
Lab ID: H12030390-004
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 03/28/12 15:10 **DateReceived:** 03/30/12
Report Date: 04/13/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	J- 7.6	s.u.		0.1		A4500-H B	03/30/12 12:32 / cmm		PHSC_101-H_120330A	48	R78901
Conductivity @ 25 C	J 357	umhos/cm		1		A2510 B	03/30/12 12:32 / cmm		PHSC_101-H_120330A	49	R78901
Solids, Total Suspended TSS @ 105 C	470	mg/L		10		A2540 D	03/30/12 14:09 / cmm	03/30/12 11:09	-124 (14410200)_120330A	16	16096
Solids, Total Dissolved TDS @ 180 C	198	mg/L		10		A2540 C	03/30/12 14:17 / cmm	03/30/12 11:14	-124 (14410200)_120330B	12	16097
INORGANICS											
Alkalinity, Total as CaCO3	180	mg/L		4		A2320 B	04/02/12 13:31 / cmm		MAN-TECH_120402A	26	R78946
Bicarbonate as HCO3	220	mg/L		4		A2320 B	04/02/12 13:31 / cmm		MAN-TECH_120402A	26	R78946
Carbonate as CO3	ND	mg/L		4		A2320 B	04/02/12 13:31 / cmm		MAN-TECH_120402A	26	R78946
Chloride	ND	mg/L		1		E300.0	04/03/12 16:40 / zeg		IC102-H_120403A	41	R79043
Sulfate	1	mg/L		1		E300.0	04/03/12 16:40 / zeg		IC102-H_120403A	41	R79043
Hardness as CaCO3	167	mg/L		1		A2340 B	04/04/12 10:24 / sld		WATERCALC_120404A	9	R78988
METALS, DISSOLVED											
Aluminum	0.05	mg/L		0.03		E200.8	04/03/12 06:58 / dck		ICPMS204-B_120402A	212	R78968
Arsenic	ND	mg/L		0.003		E200.8	04/03/12 06:58 / dck		ICPMS204-B_120402A	212	R78968
Cadmium	ND	mg/L		0.00008		E200.8	04/03/12 06:58 / dck		ICPMS204-B_120402A	212	R78968
Calcium	50	mg/L		1		E200.7	04/02/12 15:03 / sld		ICP2-HE_120402B	80	R78958
Copper	ND	mg/L		0.001		E200.8	04/03/12 06:58 / dck		ICPMS204-B_120402A	212	R78968
Iron	ND	mg/L		0.05		E200.8	04/03/12 06:58 / dck		ICPMS204-B_120402A	212	R78968
Lead	ND	mg/L		0.0005		E200.8	04/03/12 06:58 / dck		ICPMS204-B_120402A	212	R78968
Magnesium	10	mg/L		1		E200.7	04/02/12 15:03 / sld		ICP2-HE_120402B	80	R78958
Manganese	ND	mg/L		0.005		E200.8	04/03/12 06:58 / dck		ICPMS204-B_120402A	212	R78968
Potassium	3	mg/L		1		E200.7	04/02/12 15:03 / sld		ICP2-HE_120402B	80	R78958
Sodium	2	mg/L		1		E200.7	04/02/12 15:03 / sld		ICP2-HE_120402B	80	R78958
Zinc	ND	mg/L		0.01		E200.8	04/03/12 06:58 / dck		ICPMS204-B_120402A	212	R78968

JAN 4-23-12

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID S35MW07
Lab ID: H12030390-005
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 03/28/12 15:15 **DateReceived:** 03/30/12
Report Date: 04/13/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	J- 7.7	s.u.		0.1		A4500-H B	03/30/12 12:35 / cmm		PHSC_101-H_120330A	50	R78901
Conductivity @ 25 C	J 356	umhos/cm		1		A2510 B	03/30/12 12:35 / cmm		PHSC_101-H_120330A	51	R78901
Solids, Total Suspended TSS @ 105 C	470	mg/L		10		A2540 D	03/30/12 14:09 / cmm	03/30/12 11:09	-124 (14410200)_120330A	17	16096
Solids, Total Dissolved TDS @ 180 C	194	mg/L		10		A2540 C	03/30/12 14:17 / cmm	03/30/12 11:14	-124 (14410200)_120330B	13	16097
INORGANICS											
Alkalinity, Total as CaCO3	180	mg/L		4		A2320 B	04/02/12 13:38 / cmm		MAN-TECH_120402A	28	R78946
Bicarbonate as HCO3	220	mg/L		4		A2320 B	04/02/12 13:38 / cmm		MAN-TECH_120402A	28	R78946
Carbonate as CO3	ND	mg/L		4		A2320 B	04/02/12 13:38 / cmm		MAN-TECH_120402A	28	R78946
Chloride	ND	mg/L		1		E300.0	04/03/12 16:53 / zeg		IC102-H_120403A	42	R79043
Sulfate	1	mg/L		1		E300.0	04/03/12 16:53 / zeg		IC102-H_120403A	42	R79043
Hardness as CaCO3	173	mg/L		1		A2340 B	04/04/12 10:24 / sld		WATERCALC_120404A	10	R78988
METALS, DISSOLVED											
Aluminum	0.06	mg/L		0.03		E200.8	04/03/12 07:02 / dck		ICPMS204-B_120402A	213	R78968
Arsenic	ND	mg/L		0.003		E200.8	04/03/12 07:02 / dck		ICPMS204-B_120402A	213	R78968
Cadmium	ND	mg/L		0.00008		E200.8	04/03/12 07:02 / dck		ICPMS204-B_120402A	213	R78968
Calcium	51	mg/L		1		E200.7	04/02/12 15:07 / sld		ICP2-HE_120402B	81	R78958
Copper	ND	mg/L		0.001		E200.8	04/03/12 07:02 / dck		ICPMS204-B_120402A	213	R78968
Iron	0.05	mg/L		0.05		E200.8	04/03/12 07:02 / dck		ICPMS204-B_120402A	213	R78968
Lead	ND	mg/L		0.0005		E200.8	04/03/12 07:02 / dck		ICPMS204-B_120402A	213	R78968
Magnesium	11	mg/L		1		E200.7	04/02/12 15:07 / sld		ICP2-HE_120402B	81	R78958
Manganese	ND	mg/L		0.005		E200.8	04/03/12 07:02 / dck		ICPMS204-B_120402A	213	R78968
Potassium	3	mg/L		1		E200.7	04/02/12 15:07 / sld		ICP2-HE_120402B	81	R78958
Sodium	2	mg/L		1		E200.7	04/02/12 15:07 / sld		ICP2-HE_120402B	81	R78958
Zinc	ND	mg/L		0.01		E200.8	04/03/12 07:02 / dck		ICPMS204-B_120402A	213	R78968

JAN 4-23-12

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID S35MW03
Lab ID: H12030390-006
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 03/28/12 16:20 **DateReceived:** 03/30/12
Report Date: 04/13/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	J 7.7	s.u.		0.1		A4500-H B	03/30/12 12:43 / cmm		PHSC_101-H_120330A	56	R78901
Conductivity @ 25 C	J 356	umhos/cm		1		A2510 B	03/30/12 12:43 / cmm		PHSC_101-H_120330A	57	R78901
Solids, Total Suspended TSS @ 105 C	136	mg/L		10		A2540 D	03/30/12 14:10 / cmm	03/30/12 11:09	-124 (14410200)_120330A	18	16096
Solids, Total Dissolved TDS @ 180 C	208	mg/L		10		A2540 C	03/30/12 14:18 / cmm	03/30/12 11:14	-124 (14410200)_120330B	14	16097
INORGANICS											
Alkalinity, Total as CaCO3	180	mg/L		4		A2320 B	04/02/12 13:45 / cmm		MAN-TECH_120402A	30	R78946
Bicarbonate as HCO3	220	mg/L		4		A2320 B	04/02/12 13:45 / cmm		MAN-TECH_120402A	30	R78946
Carbonate as CO3	ND	mg/L		4		A2320 B	04/02/12 13:45 / cmm		MAN-TECH_120402A	30	R78946
Chloride	1	mg/L		1		E300.0	04/03/12 17:07 / zeg		IC102-H_120403A	43	R79043
Sulfate	4	mg/L		1		E300.0	04/03/12 17:07 / zeg		IC102-H_120403A	43	R79043
Hardness as CaCO3	154	mg/L		1		A2340 B	04/04/12 10:24 / sld		WATERCALC_120404A	11	R78988
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	04/03/12 07:07 / dck		ICPMS204-B_120402A	214	R78968
Arsenic	ND	mg/L		0.003		E200.8	04/03/12 07:07 / dck		ICPMS204-B_120402A	214	R78968
Cadmium	ND	mg/L		0.00008		E200.8	04/03/12 07:07 / dck		ICPMS204-B_120402A	214	R78968
Calcium	44	mg/L		1		E200.7	04/02/12 15:11 / sld		ICP2-HE_120402B	82	R78958
Copper	ND	mg/L		0.001		E200.8	04/03/12 07:07 / dck		ICPMS204-B_120402A	214	R78968
Iron	ND	mg/L		0.05		E200.8	04/03/12 07:07 / dck		ICPMS204-B_120402A	214	R78968
Lead	ND	mg/L		0.0005		E200.8	04/03/12 07:07 / dck		ICPMS204-B_120402A	214	R78968
Magnesium	10	mg/L		1		E200.7	04/02/12 15:11 / sld		ICP2-HE_120402B	82	R78958
Manganese	ND	mg/L		0.005		E200.8	04/03/12 07:07 / dck		ICPMS204-B_120402A	214	R78968
Potassium	2	mg/L		1		E200.7	04/02/12 15:11 / sld		ICP2-HE_120402B	82	R78958
Sodium	11	mg/L		1		E200.7	04/02/12 15:11 / sld		ICP2-HE_120402B	82	R78958
Zinc	ND	mg/L		0.01		E200.8	04/03/12 07:07 / dck		ICPMS204-B_120402A	214	R78968

JAN
4-23-12

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCTDMW07
Lab ID: H12030390-007
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 03/29/12 08:15 **DateReceived:** 03/30/12
Report Date: 04/13/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	J- 5.3	s.u.		0.1		A4500-H B	03/30/12 12:46 / cmm		PHSC_101-H_120330A	58	R78901
Conductivity @ 25 C	J 2	umhos/cm		1		A2510 B	03/30/12 12:46 / cmm		PHSC_101-H_120330A	59	R78901
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/30/12 14:10 / cmm	03/30/12 11:09	-124 (14410200)_120330A	19	16096
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	03/30/12 14:18 / cmm	03/30/12 11:14	-124 (14410200)_120330B	15	16097
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	04/02/12 13:58 / cmm		MAN-TECH_120402A	34	R78946
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	04/02/12 13:58 / cmm		MAN-TECH_120402A	34	R78946
Carbonate as CO3	ND	mg/L		4		A2320 B	04/02/12 13:58 / cmm		MAN-TECH_120402A	34	R78946
Chloride	ND	mg/L		1		E300.0	04/03/12 17:21 / zeg		IC102-H_120403A	44	R79043
Sulfate	ND	mg/L		1		E300.0	04/03/12 17:21 / zeg		IC102-H_120403A	44	R79043
Hardness as CaCO3	ND	mg/L		1		A2340 B	04/04/12 10:24 / sld		WATERCALC_120404A	12	R78988
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	04/03/12 07:12 / dck		ICPMS204-B_120402A	215	R78968
Arsenic	ND	mg/L		0.003		E200.8	04/03/12 07:12 / dck		ICPMS204-B_120402A	215	R78968
Cadmium	ND	mg/L		0.00008		E200.8	04/03/12 07:12 / dck		ICPMS204-B_120402A	215	R78968
Calcium	ND	mg/L		1		E200.7	04/02/12 15:14 / sld		ICP2-HE_120402B	83	R78958
Copper	ND	mg/L		0.001		E200.8	04/03/12 07:12 / dck		ICPMS204-B_120402A	215	R78968
Iron	ND	mg/L		0.05		E200.8	04/03/12 07:12 / dck		ICPMS204-B_120402A	215	R78968
Lead	ND	mg/L		0.0005		E200.8	04/03/12 07:12 / dck		ICPMS204-B_120402A	215	R78968
Magnesium	ND	mg/L		1		E200.7	04/02/12 15:14 / sld		ICP2-HE_120402B	83	R78958
Manganese	ND	mg/L		0.005		E200.8	04/03/12 07:12 / dck		ICPMS204-B_120402A	215	R78968
Potassium	ND	mg/L		1		E200.7	04/02/12 15:14 / sld		ICP2-HE_120402B	83	R78958
Sodium	ND	mg/L		1		E200.7	04/02/12 15:14 / sld		ICP2-HE_120402B	83	R78958
Zinc	ND	mg/L		0.01		E200.8	04/03/12 07:12 / dck		ICPMS204-B_120402A	215	R78968

JAN
4-23-12

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCTDMW08
Lab ID: H12030390-008
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 03/29/12 08:20 **DateReceived:** 03/30/12
Report Date: 04/13/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	J 5.4	s.u.		0.1		A4500-H B	03/30/12 12:51 / cmm		PHSC_101-H_120330A	62	R78901
Conductivity @ 25 C	J 1	umhos/cm		1		A2510 B	03/30/12 12:51 / cmm		PHSC_101-H_120330A	63	R78901
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/30/12 14:10 / cmm	03/30/12 11:09	-124 (14410200)_120330A	21	16096
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	03/30/12 14:18 / cmm	03/30/12 11:14	-124 (14410200)_120330B	17	16097
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	04/02/12 14:03 / cmm		MAN-TECH_120402A	36	R78946
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	04/02/12 14:03 / cmm		MAN-TECH_120402A	36	R78946
Carbonate as CO3	ND	mg/L		4		A2320 B	04/02/12 14:03 / cmm		MAN-TECH_120402A	36	R78946
Chloride	ND	mg/L		1		E300.0	04/10/12 13:10 / cmm		IC102-H_120410A	24	R79125
Sulfate	ND	mg/L		1		E300.0	04/10/12 13:10 / cmm		IC102-H_120410A	24	R79125
Hardness as CaCO3	ND	mg/L		1		A2340 B	04/04/12 10:24 / sld		WATERCALC_120404A	13	R78988
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	04/03/12 07:16 / dck		ICPMS204-B_120402A	216	R78968
Arsenic	ND	mg/L		0.003		E200.8	04/03/12 07:16 / dck		ICPMS204-B_120402A	216	R78968
Cadmium	ND	mg/L		0.00008		E200.8	04/03/12 07:16 / dck		ICPMS204-B_120402A	216	R78968
Calcium	ND	mg/L		1		E200.7	04/02/12 15:18 / sld		ICP2-HE_120402B	84	R78958
Copper	ND	mg/L		0.001		E200.8	04/03/12 07:16 / dck		ICPMS204-B_120402A	216	R78968
Iron	ND	mg/L		0.05		E200.8	04/03/12 07:16 / dck		ICPMS204-B_120402A	216	R78968
Lead	ND	mg/L		0.0005		E200.8	04/03/12 07:16 / dck		ICPMS204-B_120402A	216	R78968
Magnesium	ND	mg/L		1		E200.7	04/02/12 15:18 / sld		ICP2-HE_120402B	84	R78958
Manganese	ND	mg/L		0.005		E200.8	04/03/12 07:16 / dck		ICPMS204-B_120402A	216	R78968
Potassium	ND	mg/L		1		E200.7	04/02/12 15:18 / sld		ICP2-HE_120402B	84	R78958
Sodium	ND	mg/L		1		E200.7	04/02/12 15:18 / sld		ICP2-HE_120402B	84	R78958
Zinc	ND	mg/L		0.01		E200.8	04/03/12 07:16 / dck		ICPMS204-B_120402A	216	R78968

JAN
4-23-12

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCTDMW05
Lab ID: H12030390-009
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 03/29/12 08:45
DateReceived: 03/30/12
Report Date: 04/13/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	J 8.0	s.u.		0.1		A4500-H B	03/30/12 12:54 / cmm		PHSC_101-H_120330A	64	R78901
Conductivity @ 25 C	J 289	umhos/cm		1		A2510 B	03/30/12 12:54 / cmm		PHSC_101-H_120330A	65	R78901
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/30/12 14:10 / cmm	03/30/12 11:09	-124 (14410200)_120330A	22	16096
Solids, Total Dissolved TDS @ 180 C	146	mg/L		10		A2540 C	03/30/12 14:18 / cmm	03/30/12 11:14	-124 (14410200)_120330B	18	16097
INORGANICS											
Alkalinity, Total as CaCO3	90	mg/L		4		A2320 B	04/02/12 14:10 / cmm		MAN-TECH_120402A	38	R78946
Bicarbonate as HCO3	110	mg/L		4		A2320 B	04/02/12 14:10 / cmm		MAN-TECH_120402A	38	R78946
Carbonate as CO3	ND	mg/L		4		A2320 B	04/02/12 14:10 / cmm		MAN-TECH_120402A	38	R78946
Chloride	ND	mg/L		1		E300.0	04/03/12 17:48 / zeg		IC102-H_120403A	46	R79043
Sulfate	33	mg/L		1		E300.0	04/03/12 17:48 / zeg		IC102-H_120403A	46	R79043
Hardness as CaCO3	137	mg/L		1		A2340 B	04/04/12 10:24 / sld		WATERCALC_120404A	14	R78988
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	04/03/12 07:21 / dck		ICPMS204-B_120402A	217	R78968
Arsenic	ND	mg/L		0.003		E200.8	04/03/12 07:21 / dck		ICPMS204-B_120402A	217	R78968
Cadmium	ND	mg/L		0.00008		E200.8	04/03/12 07:21 / dck		ICPMS204-B_120402A	217	R78968
Calcium	29	mg/L		1		E200.7	04/02/12 15:22 / sld		ICP2-HE_120402B	85	R78958
Copper	ND	mg/L		0.001		E200.8	04/03/12 07:21 / dck		ICPMS204-B_120402A	217	R78968
Iron	ND	mg/L		0.05		E200.8	04/03/12 07:21 / dck		ICPMS204-B_120402A	217	R78968
Lead	ND	mg/L		0.0005		E200.8	04/03/12 07:21 / dck		ICPMS204-B_120402A	217	R78968
Magnesium	16	mg/L		1		E200.7	04/02/12 15:22 / sld		ICP2-HE_120402B	85	R78958
Manganese	ND	mg/L		0.005		E200.8	04/03/12 07:21 / dck		ICPMS204-B_120402A	217	R78968
Potassium	ND	mg/L		1		E200.7	04/02/12 15:22 / sld		ICP2-HE_120402B	85	R78958
Sodium	2	mg/L		1		E200.7	04/02/12 15:22 / sld		ICP2-HE_120402B	85	R78958
Zinc	ND	mg/L		0.01		E200.8	04/03/12 07:21 / dck		ICPMS204-B_120402A	217	R78968

JLN
4-25-12

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCTDMW4D
Lab ID: H12030390-010
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 03/29/12 11:05 **DateReceived:** 03/30/12
Report Date: 04/13/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	J- 7.4	s.u.		0.1		A4500-H B	03/30/12 12:57 / cmm		PHSC_101-H_120330A	66	R78901
Conductivity @ 25 C	J 248	umhos/cm		1		A2510 B	03/30/12 12:57 / cmm		PHSC_101-H_120330A	67	R78901
Solids, Total Suspended TSS @ 105 C	22	mg/L		10		A2540 D	03/30/12 14:10 / cmm	03/30/12 11:09	-124 (14410200)_120330A	23	16096
Solids, Total Dissolved TDS @ 180 C	122	mg/L		10		A2540 C	03/30/12 14:18 / cmm	03/30/12 11:14	-124 (14410200)_120330B	19	16097
INORGANICS											
Alkalinity, Total as CaCO3	97	mg/L		4		A2320 B	04/02/12 14:23 / cmm		MAN-TECH_120402A	42	R78946
Bicarbonate as HCO3	120	mg/L		4		A2320 B	04/02/12 14:23 / cmm		MAN-TECH_120402A	42	R78946
Carbonate as CO3	ND	mg/L		4		A2320 B	04/02/12 14:23 / cmm		MAN-TECH_120402A	42	R78946
Chloride	ND	mg/L		1		E300.0	04/03/12 18:29 / zeg		IC102-H_120403A	49	R79043
Sulfate	15	mg/L		1		E300.0	04/03/12 18:29 / zeg		IC102-H_120403A	49	R79043
Hardness as CaCO3	116	mg/L		1		A2340 B	04/04/12 10:24 / sld		WATERCALC_120404A	15	R78988
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	04/03/12 07:26 / dck		ICPMS204-B_120402A	218	R78968
Arsenic	ND	mg/L		0.003		E200.8	04/03/12 07:26 / dck		ICPMS204-B_120402A	218	R78968
Cadmium	ND	mg/L		0.00008		E200.8	04/03/12 07:26 / dck		ICPMS204-B_120402A	218	R78968
Calcium	25	mg/L		1		E200.7	04/02/12 15:33 / sld		ICP2-HE_120402B	88	R78958
Copper	ND	mg/L		0.001		E200.8	04/03/12 07:26 / dck		ICPMS204-B_120402A	218	R78968
Iron	ND	mg/L		0.05		E200.8	04/03/12 07:26 / dck		ICPMS204-B_120402A	218	R78968
Lead	ND	mg/L		0.0005		E200.8	04/03/12 07:26 / dck		ICPMS204-B_120402A	218	R78968
Magnesium	13	mg/L		1		E200.7	04/02/12 15:33 / sld		ICP2-HE_120402B	88	R78958
Manganese	ND	mg/L		0.005		E200.8	04/03/12 07:26 / dck		ICPMS204-B_120402A	218	R78968
Potassium	ND	mg/L		1		E200.7	04/02/12 15:33 / sld		ICP2-HE_120402B	88	R78958
Sodium	2	mg/L		1		E200.7	04/02/12 15:33 / sld		ICP2-HE_120402B	88	R78958
Zinc	ND	mg/L		0.01		E200.8	04/03/12 07:26 / dck		ICPMS204-B_120402A	218	R78968

JLN
4-25-12

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCTDMW06
Lab ID: H12030390-011
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 03/29/12 11:10 **DateReceived:** 03/30/12
Report Date: 04/13/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	J- 7.4	s.u.		0.1		A4500-H B	03/30/12 12:59 / cmm		PHSC_101-H_120330A	68	R78901
Conductivity @ 25 C	J- 246	umhos/cm		1		A2510 B	03/30/12 12:59 / cmm		PHSC_101-H_120330A	69	R78901
Solids, Total Suspended TSS @ 105 C	18	mg/L		10		A2540 D	03/30/12 14:11 / cmm	03/30/12 11:09	-124 (14410200)_120330A	24	16096
Solids, Total Dissolved TDS @ 180 C	130	mg/L		10		A2540 C	03/30/12 14:19 / cmm	03/30/12 11:14	-124 (14410200)_120330B	20	16097
INORGANICS											
Alkalinity, Total as CaCO3	99	mg/L		4		A2320 B	04/02/12 14:30 / cmm		MAN-TECH_120402A	44	R78946
Bicarbonate as HCO3	120	mg/L		4		A2320 B	04/02/12 14:30 / cmm		MAN-TECH_120402A	44	R78946
Carbonate as CO3	ND	mg/L		4		A2320 B	04/02/12 14:30 / cmm		MAN-TECH_120402A	44	R78946
Chloride	ND	mg/L		1		E300.0	04/03/12 18:42 / zeg		IC102-H_120403A	50	R79043
Sulfate	16	mg/L		1		E300.0	04/03/12 18:42 / zeg		IC102-H_120403A	50	R79043
Hardness as CaCO3	113	mg/L		1		A2340 B	04/04/12 10:24 / sld		WATERCALC_120404A	16	R78988
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	04/03/12 07:31 / dck		ICPMS204-B_120402A	219	R78968
Arsenic	ND	mg/L		0.003		E200.8	04/03/12 07:31 / dck		ICPMS204-B_120402A	219	R78968
Cadmium	ND	mg/L		0.00008		E200.8	04/03/12 07:31 / dck		ICPMS204-B_120402A	219	R78968
Calcium	24	mg/L		1		E200.7	04/02/12 15:48 / sld		ICP2-HE_120402B	92	R78958
Copper	ND	mg/L		0.001		E200.8	04/03/12 07:31 / dck		ICPMS204-B_120402A	219	R78968
Iron	ND	mg/L		0.05		E200.8	04/03/12 07:31 / dck		ICPMS204-B_120402A	219	R78968
Lead	ND	mg/L		0.0005		E200.8	04/03/12 07:31 / dck		ICPMS204-B_120402A	219	R78968
Magnesium	13	mg/L		1		E200.7	04/02/12 15:48 / sld		ICP2-HE_120402B	92	R78958
Manganese	ND	mg/L		0.005		E200.8	04/03/12 07:31 / dck		ICPMS204-B_120402A	219	R78968
Potassium	ND	mg/L		1		E200.7	04/02/12 15:48 / sld		ICP2-HE_120402B	92	R78958
Sodium	2	mg/L		1		E200.7	04/02/12 15:48 / sld		ICP2-HE_120402B	92	R78958
Zinc	ND	mg/L		0.01		E200.8	04/03/12 07:31 / dck		ICPMS204-B_120402A	219	R78968

JAH
4-25-12

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCTDMW3D
Lab ID: H12030390-012
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 03/29/12 13:30 **DateReceived:** 03/30/12
Report Date: 04/13/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.4	s.u.		0.1		A4500-H B	03/30/12 13:02 / cmm		PHSC_101-H_120330A	70	R78901
Conductivity @ 25 C	J 669	umhos/cm		1		A2510 B	03/30/12 13:02 / cmm		PHSC_101-H_120330A	71	R78901
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/30/12 14:11 / cmm	03/30/12 12:43	-124 (14410200)_120330A	27	16101
Solids, Total Dissolved TDS @ 180 C	430	mg/L		10		A2540 C	03/30/12 14:19 / cmm	03/30/12 11:14	-124 (14410200)_120330B	21	16097
INORGANICS											
Alkalinity, Total as CaCO3	58	mg/L		4		A2320 B	04/02/12 14:37 / cmm		MAN-TECH_120402A	46	R78946
Bicarbonate as HCO3	71	mg/L		4		A2320 B	04/02/12 14:37 / cmm		MAN-TECH_120402A	46	R78946
Carbonate as CO3	ND	mg/L		4		A2320 B	04/02/12 14:37 / cmm		MAN-TECH_120402A	46	R78946
Chloride	ND	mg/L		1		E300.0	04/03/12 18:56 / zeg		IC102-H_120403A	51	R79043
Sulfate	260	mg/L		1		E300.0	04/03/12 18:56 / zeg		IC102-H_120403A	51	R79043
Hardness as CaCO3	335	mg/L		1		A2340 B	04/04/12 10:24 / sld		WATERCALC_120404A	17	R78988
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	04/03/12 07:54 / dck		ICPMS204-B_120402A	224	R78968
Arsenic	ND	mg/L		0.003		E200.8	04/03/12 07:54 / dck		ICPMS204-B_120402A	224	R78968
Cadmium	0.00011	mg/L		0.00008		E200.8	04/03/12 07:54 / dck		ICPMS204-B_120402A	224	R78968
Calcium	80	mg/L		1		E200.7	04/02/12 15:52 / sld		ICP2-HE_120402B	93	R78958
Copper	ND	mg/L		0.001		E200.8	04/03/12 07:54 / dck		ICPMS204-B_120402A	224	R78968
Iron	ND	mg/L		0.05		E200.8	04/03/12 07:54 / dck		ICPMS204-B_120402A	224	R78968
Lead	ND	mg/L		0.0005		E200.8	04/03/12 07:54 / dck		ICPMS204-B_120402A	224	R78968
Magnesium	33	mg/L		1		E200.7	04/02/12 15:52 / sld		ICP2-HE_120402B	93	R78958
Manganese	ND	mg/L		0.005		E200.8	04/03/12 07:54 / dck		ICPMS204-B_120402A	224	R78968
Potassium	ND	mg/L		1		E200.7	04/02/12 15:52 / sld		ICP2-HE_120402B	93	R78958
Sodium	2	mg/L		1		E200.7	04/02/12 15:52 / sld		ICP2-HE_120402B	93	R78958
Zinc	0.02	mg/L		0.01		E200.8	04/03/12 07:54 / dck		ICPMS204-B_120402A	224	R78968

JLN
4-23-12

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCTDMW01
Lab ID: H12030390-013
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 03/29/12 15:15 **DateReceived:** 03/30/12
Report Date: 04/13/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.5	s.u.		0.1		A4500-H B	03/30/12 13:04 / cmm		PHSC_101-H_120330A	72	R78901
Conductivity @ 25 C	J 886	umhos/cm		1		A2510 B	03/30/12 13:04 / cmm		PHSC_101-H_120330A	73	R78901
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/30/12 14:11 / cmm	03/30/12 12:43	-124 (14410200)_120330A	28	16101
Solids, Total Dissolved TDS @ 180 C	602	mg/L		10		A2540 C	03/30/12 14:19 / cmm	03/30/12 11:14	-124 (14410200)_120330B	22	16097
INORGANICS											
Alkalinity, Total as CaCO3	67	mg/L		4		A2320 B	04/02/12 14:43 / cmm		MAN-TECH_120402A	48	R78946
Bicarbonate as HCO3	82	mg/L		4		A2320 B	04/02/12 14:43 / cmm		MAN-TECH_120402A	48	R78946
Carbonate as CO3	ND	mg/L		4		A2320 B	04/02/12 14:43 / cmm		MAN-TECH_120402A	48	R78946
Chloride	ND	mg/L		1		E300.0	04/03/12 19:09 / zeg		IC102-H_120403A	52	R79043
Sulfate	380	mg/L		1		E300.0	04/03/12 19:09 / zeg		IC102-H_120403A	52	R79043
Hardness as CaCO3	453	mg/L		1		A2340 B	04/04/12 10:24 / sld		WATERCALC_120404A	18	R78988
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	04/03/12 08:13 / dck		ICPMS204-B_120402A	228	R78968
Arsenic	ND	mg/L		0.003		E200.8	04/03/12 08:13 / dck		ICPMS204-B_120402A	228	R78968
Cadmium	0.00057	mg/L		0.00008		E200.8	04/03/12 08:13 / dck		ICPMS204-B_120402A	228	R78968
Calcium	80	mg/L		1		E200.7	04/02/12 15:55 / sld		ICP2-HE_120402B	94	R78958
Copper	ND	mg/L		0.001		E200.8	04/03/12 08:13 / dck		ICPMS204-B_120402A	228	R78968
Iron	ND	mg/L		0.05		E200.8	04/03/12 08:13 / dck		ICPMS204-B_120402A	228	R78968
Lead	ND	mg/L		0.0005		E200.8	04/03/12 08:13 / dck		ICPMS204-B_120402A	228	R78968
Magnesium	62	mg/L		1		E200.7	04/02/12 15:55 / sld		ICP2-HE_120402B	94	R78958
Manganese	ND	mg/L		0.005		E200.8	04/03/12 08:13 / dck		ICPMS204-B_120402A	228	R78968
Potassium	1	mg/L		1		E200.7	04/02/12 15:55 / sld		ICP2-HE_120402B	94	R78958
Sodium	2	mg/L		1		E200.7	04/02/12 15:55 / sld		ICP2-HE_120402B	94	R78958
Zinc	0.29	mg/L		0.01		E200.8	04/03/12 08:13 / dck		ICPMS204-B_120402A	228	R78968

JLN
4-23-12

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCTDMW2D
Lab ID: H12030390-014
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 03/29/12 15:30 **DateReceived:** 03/30/12
Report Date: 04/13/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.2	s.u.		0.1		A4500-H B	03/30/12 13:07 / cmm		PHSC_101-H_120330A	74	R78901
Conductivity @ 25 C	J 261	umhos/cm		1		A2510 B	03/30/12 13:07 / cmm		PHSC_101-H_120330A	75	R78901
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	03/30/12 14:11 / cmm	03/30/12 12:43	-124 (14410200)_120330A	29	16101
Solids, Total Dissolved TDS @ 180 C	128	mg/L		10		A2540 C	03/30/12 14:19 / cmm	03/30/12 11:14	-124 (14410200)_120330B	23	16097
INORGANICS											
Alkalinity, Total as CaCO3	100	mg/L		4		A2320 B	04/02/12 14:50 / cmm		MAN-TECH_120402A	50	R78946
Bicarbonate as HCO3	120	mg/L		4		A2320 B	04/02/12 14:50 / cmm		MAN-TECH_120402A	50	R78946
Carbonate as CO3	ND	mg/L		4		A2320 B	04/02/12 14:50 / cmm		MAN-TECH_120402A	50	R78946
Chloride	ND	mg/L		1		E300.0	04/03/12 19:50 / zeg		IC102-H_120403A	55	R79043
Sulfate	22	mg/L		1		E300.0	04/03/12 19:50 / zeg		IC102-H_120403A	55	R79043
Hardness as CaCO3	126	mg/L		1		A2340 B	04/04/12 10:24 / sld		WATERCALC_120404A	19	R78988
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	04/03/12 08:18 / dck		ICPMS204-B_120402A	229	R78968
Arsenic	ND	mg/L		0.003		E200.8	04/03/12 08:18 / dck		ICPMS204-B_120402A	229	R78968
Cadmium	ND	mg/L		0.00008		E200.8	04/03/12 08:18 / dck		ICPMS204-B_120402A	229	R78968
Calcium	26	mg/L		1		E200.7	04/02/12 15:59 / sld		ICP2-HE_120402B	95	R78958
Copper	ND	mg/L		0.001		E200.8	04/03/12 08:18 / dck		ICPMS204-B_120402A	229	R78968
Iron	ND	mg/L		0.05		E200.8	04/03/12 08:18 / dck		ICPMS204-B_120402A	229	R78968
Lead	ND	mg/L		0.0005		E200.8	04/03/12 08:18 / dck		ICPMS204-B_120402A	229	R78968
Magnesium	15	mg/L		1		E200.7	04/02/12 15:59 / sld		ICP2-HE_120402B	95	R78958
Manganese	ND	mg/L		0.005		E200.8	04/03/12 08:18 / dck		ICPMS204-B_120402A	229	R78968
Potassium	ND	mg/L		1		E200.7	04/02/12 15:59 / sld		ICP2-HE_120402B	95	R78958
Sodium	1	mg/L		1		E200.7	04/02/12 15:59 / sld		ICP2-HE_120402B	95	R78958
Zinc	ND	mg/L		0.01		E200.8	04/03/12 08:18 / dck		ICPMS204-B_120402A	229	R78968

JLN
4-23-12

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID UBMCTDMW2S
Lab ID: H12030390-015
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 03/29/12 15:55
DateReceived: 03/30/12
Report Date: 04/13/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.5	s.u.		0.1		A4500-H B	03/30/12 13:09 / cmm		PHSC_101-H_120330A	76	R78901
Conductivity @ 25 C	J 1400	umhos/cm		1		A2510 B	03/30/12 13:09 / cmm		PHSC_101-H_120330A	77	R78901
Solids, Total Suspended TSS @ 105 C	42	mg/L		10		A2540 D	03/30/12 14:12 / cmm	03/30/12 12:43	-124 (14410200)_120330A	30	16101
Solids, Total Dissolved TDS @ 180 C	1040	mg/L		10		A2540 C	03/30/12 14:21 / cmm	03/30/12 11:14	-124 (14410200)_120330B	24	16097
INORGANICS											
Alkalinity, Total as CaCO3	120	mg/L		4		A2320 B	04/02/12 14:57 / cmm		MAN-TECH_120402A	52	R78946
Bicarbonate as HCO3	150	mg/L		4		A2320 B	04/02/12 14:57 / cmm		MAN-TECH_120402A	52	R78946
Carbonate as CO3	ND	mg/L		4		A2320 B	04/02/12 14:57 / cmm		MAN-TECH_120402A	52	R78946
Chloride	ND	mg/L		1		E300.0	04/03/12 20:04 / zeg		IC102-H_120403A	56	R79043
Sulfate	670	mg/L	D	2		E300.0	04/03/12 20:04 / zeg		IC102-H_120403A	56	R79043
Hardness as CaCO3	732	mg/L		1		A2340 B	04/06/12 08:07 / sld		WATERCALC_120406A	4	R79039
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	04/03/12 08:22 / dck		ICPMS204-B_120402A	230	R78968
Arsenic	ND	mg/L		0.003		E200.8	04/03/12 08:22 / dck		ICPMS204-B_120402A	230	R78968
Cadmium	0.0135	mg/L		0.00008		E200.8	04/03/12 08:22 / dck		ICPMS204-B_120402A	230	R78968
Calcium	128	mg/L		1		E200.8	04/04/12 16:05 / dck		ICPMS204-B_120404A	65	R79000
Copper	ND	mg/L		0.001		E200.8	04/03/12 08:22 / dck		ICPMS204-B_120402A	230	R78968
Iron	ND	mg/L		0.05		E200.8	04/03/12 08:22 / dck		ICPMS204-B_120402A	230	R78968
Lead	ND	mg/L		0.0005		E200.8	04/03/12 08:22 / dck		ICPMS204-B_120402A	230	R78968
Magnesium	108	mg/L		1		E200.8	04/04/12 16:05 / dck		ICPMS204-B_120404A	65	R79000
Manganese	27.7	mg/L		0.005		E200.8	04/04/12 16:05 / dck		ICPMS204-B_120404A	65	R79000
Potassium	2	mg/L		1		E200.7	04/02/12 16:03 / sld		ICP2-HE_120402B	96	R78958
Sodium	2	mg/L		1		E200.7	04/02/12 16:03 / sld		ICP2-HE_120402B	96	R78958
Zinc	9.47	mg/L		0.01		E200.8	04/04/12 16:05 / dck		ICPMS204-B_120404A	65	R79000

JAN
4-23-12

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

Attachment B: Chain of Custody Forms and Sample Receipt Checklist

Workorder Receipt Checklist

H12030404

MT DEQ-Site Response

Login completed by: Wanda Johnson
Date Received: 3/30/2012

Reviewed by: BL2000\sdull
Received by: elm

Reviewed Date: 4/4/2012
Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Container/Temp Blank temperature:	3.7°C On Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Contact and Corrective Action Comments:

None

Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT (Provide as much information as possible.)

Company Name: MDEQ

Report Mail Address: Route H-645

Invoice Address:

Project Name, PWS, Permit, Etc.: Section 35 Groundwater

Contact Name: Phone/Fax: Shellie Haaland 841-5033 shaaland@mt.gov

Invoice Contact & Phone:

Sample Origin State: MT

Email:

Purchase Order:

EPA/State Compliance: Yes ☐ No ☐

Sampler: (Please Print) Alan Brosdahl

Quote/Bottle Order:

Special Report/Formats:

☐ DW
☐ POTW/WWTP
☐ State: _____
☐ Other: _____

☐ EDD/EDT (Electronic Data) Format: _____
☐ LEVEL IV
☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids Vegetation Bioassay Other
DW - Drinking Water

ANALYSIS REQUESTED

SEE ATTACHED

Standard Turnaround (TAT)

R U S H

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: Please approve results to abrosdahl@portageinc.com 490-5135

Shipped by: Hand

Cooler ID(s): Y

Receipt Temp: 3.7 °C

On Ice: (Y) N

Custody Seal: On Bottle Y (N) On Cooler Y (N)

Intact: Y N

Signature Match: Y N

LABORATORY USE ONLY: H120304

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	SEE ATTACHED
1	535MW01	3/30/12	1139	W	X
2					
3					
4					
5					
6					
7					
8					
9					
10					

3/30/12 KB

Custody Record MUST be Signed

Relinquished by (print): Alan Brosdahl Date/Time: 3/30/12 1504 Signature:

Relinquished by (print): Date/Time: Signature:

Received by (print): Date/Time: Signature:

Received by (print): Date/Time: Signature:

Received by Laboratory: Esther Werner 3/30/12 15:04 Signature: Esther Werner

Sample Disposal: Return to Client: _____ Lab Disposal: _____

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.
This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
... for additional information, downloadable fee schedule, forms, and links.

ANALYTICAL SUMMARY REPORT

April 06, 2012

MT DEQ-Site Response
PO Box 200901
Helena, MT 59620-0901

Workorder No.: H12030404 Quote ID: H645 - UBMC

Project Name: Section 35 Groundwater

Energy Laboratories Inc Helena MT received the following 1 sample for MT DEQ-Site Response on 3/30/2012 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H12030404-001	S35MW01	03/30/12 11:39	03/30/12	Aqueous	Metals by ICP/ICPMS, Dissolved Alkalinity Conductivity Hardness as CaCO3 Anions by Ion Chromatography Preparation for TDS Preparation for TSS Solids, Total Dissolved Solids, Total Suspended

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise reported.

Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

UBMC Surface Water (Sediment)

SDG#:	**H12050150**
Number of Samples:	**8**
Sample Matrix:	**Sediment**
Applicable Analytes:	**(8) Extractable Metals (Al, As, Cd, Cu, Fe, Pb, Mn, and Zn)**
Reporting Tier:	**3**
Applicable TOS#:	**N/A**
Laboratory:	**Energy Laboratories**
Validation Level:	**EPA Level III**
Validator Affiliation:	**Portage, Inc.**
Project#:	**UBMC**
Project SAP/QUAPP:	**Final Sampling and Analysis Plan for Environmental Monitoring Upper Blackfoot Mining Complex Lewis and Clark County, Montana; Portage Inc., 2012**

Validator  **Date Completed:** **07/02/12**

Portage Review  **Date Completed:** **07/03/12**

REPORT ORGANIZATION:

Limitations & Validation (L&V) Report UBMC Section 35 Surface Water is organized into the following five sections:

- Glossary of Terms & Method References
- Data Quality Statement
- L&V Report
- Attachment A: Laboratory Report Forms Corrected for Qualification
- Attachment B: Chain of Custody Forms & Sample Receipt Checklist

GLOSSARY OF VALIDATION TERMS & METHOD VALIDATION REFERENCES

Terms:

CRDL	Contract Required Detection Limit
IDL	Instrument Detection Limit
SOW	Statement of Work
SOP	Standard Operating Procedure
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ICV	Initial Calibration Verification
CCV	Continuing Calibration Verification
ICB	Initial Calibration Blank
CCB	Continuing Calibration Blank
PB	Preparation Blank
LCS	Laboratory Control Sample
SDS	Serial Dilution Sample
SDG	Sample Delivery Group

Qualifiers:

U - The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.
Note: This detection limit may be elevated to a level greater than the IDL due to a detection of a target compound in the method blank, and as a result, the sample value, which was less than ten times the blank result, has been qualified 'U' as a non-detect.

J - The analyte was positively identified in the sample, but the associated numerical value may not be an accurate representation of the amount actually present in the environmental sample. The data should be seriously considered for decision-making and are usable for many purposes.

R - The data are unusable (may or may not be present). Resampling and reanalysis are necessary for verification.

UJ - The material was analyzed for but was not detected. The sample quantitation limit is an estimated quantity.

Reference:

The validation of this data was performed according to:

1. *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, EPA540-R-04-004,October 2004.*
2. *USEPA Contract Laboratory Program Statement of Work For Inorganic Analysis, Multi-Media, Multi-Concentration, Document Number ILM04.0, January 2000.*

LIMITATIONS AND VALIDATION REPORT

INTRODUCTION:

The UBMC Surface Water sediment sample results were received by Portage, Inc. in June 2012. The laboratory analytical request provided for a summary data package attached for the extractable metals (Al, As, Cd, Cu, Fe, Pb, Mn, and Zn). The samples were analyzed in accordance with USEPA Methods 3050B and 6010B. Data validation was performed utilizing the USEPA Functional Guidelines for Inorganic Data Review. The following cross-reference has been provided to assist data users in comparing field identifications to the corresponding laboratory numbers.

Cross-Reference for UBMC Surface Water Sediment Samples					
Field Id#:	**Lab Id#:**	**Matrix:**	**Analysis Request:**	**Date of Collection:**	**Date of Laboratory Receipt:**
BRSD-38	H12050150-001	Sediment	Metals	05/07/12	05/08/12
BRSD-48	H12050150-002	Sediment	Metals	05/07/12	05/08/12
BRSD-23	H12050150-003	Sediment	Metals	05/07/12	05/08/12
BRSD-3A	H12050150-004	Sediment	Metals	05/07/12	05/08/12
BRSD-3B	H12050150-005	Sediment	Metals	05/07/12	05/08/12
BRSD-22	H12050150-006	Sediment	Metals	05/07/12	05/08/12
BRSD-1	H12050150-007	Sediment	Metals	05/07/12	05/08/12
BRSD-24	H12050150-008	Sediment	Metals	05/07/12	05/08/12

ANALYTICAL HOLDING TIMES:

The sediment samples associated with this SDG were collected on 05/07/12. The metals were analyzed 05/14/12, 05/16/12, 05/18/12, 05/23/12, and 05/24/12 within the 180-day holding time for the ICP Metals.

INITIAL AND CONTINUING CALIBRATION (ICV and CCV):

All ICV and CCV results were within the acceptance criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

PREPRATION BLANKS (PB):

The aluminum, iron and zinc exhibited positive detections in the PB. However, all aluminum, iron, and zinc result warrant no qualification due to sample results greater than five times the blank value.

The remaining PB results were non-detect and no qualification is warranted.

For all analyses, blank results were analyzed at a proper frequency of 1 blank per 20 samples in the analytical batch.

Field blank, trip blank, and equipment rinsate results were not included in this data deliverable.

INTERFERENCE CHECK SAMPLE (ICS):

All ICS results were within the acceptance criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

MATRIX SPIKE (MS)/MATRIX SPIKE DUPLICATE (MSD):

The MS/MSD recovery and all RPD results were within the acceptance criteria and analyzed at the proper frequency (1 in 20) as prescribed by the USEPA Functional Guidelines and the analytical methods. MS/MSD sample were obtained from project field samples.

LABORATORY DUPLICATE SAMPLE (LDS) RPD:

All LDS and field duplicate results were within the RPD criteria and ran at the proper frequency (1 in 20) prescribed by the USEPA Functional Guidelines and the analytical methods.

DUPLICATE SUMMARY TABLE:

Analyte	Matrix Spike Duplicate RPD	Laboratory Duplicate RPD	Field Duplicate RPD
Al	2.3	N/A	23.70203
As	0.9	N/A	7.272727
Cd	2.6	N/A	10
Cu	4.0	N/A	-11.6041
Fe	3.4	N/A	13.42513
Pb	8.4	N/A	26.93878
Mn	18	N/A	-36.0934*
Zn	4.6	N/A	11.1437

*RPD greater than 35%, however, CRDL criteria not met, Dup ok

LABORATORY CONTROL SAMPLE (LCS):

The LCS results were of matrix types similar to the field samples and properly prepared with the field samples.

All analytes exhibited recoveries within the guidelines and analyzed at the proper frequency (1 in 20) as prescribed by the USEPA Functional Guidelines and analytical methods.

Surrogate analyses are not applicable to metals and miscellaneous wet chemistry analysis types and methods.

CHAIN OF CUSTODY:

The laboratory chain of custody (COC) forms are complete and accurate.

One cooler was received by Energy Labs on 05/08/12 at the proper preservation temperature. Custody was maintained as documents by the field and laboratory personnel signatures, dates, and time of receipt.

OVERALL ASSESSMENT OF DATA:

There were eight (8) sediment field samples included in SDG# H12050150. Eight (8) field samples were analyzed for metals as outlined in the project QAPP.

The field sample data points have been assessed and remain unqualified.

All samples were received by the lab in good condition. Detection limits, analytical methods, detection limits, and reporting were all within the project requirements.

Attachment A: Laboratory Report Forms

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSD-38
Lab ID: H12050150-001
Matrix: Sediment

Project: UBMC
Collection Date: 05/07/12 10:22
Report Date: 05/29/12
DateReceived: 05/08/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	6160	mg/kg	D	7		SW6010B	05/16/12 23:03 / stp	05/09/12 08:45	ICP2-HE_120516B	130	16555
Arsenic	68	mg/kg		5		SW6010B	05/14/12 17:45 / sld	05/09/12 08:45	ICP2-HE_120514B	65	16555
Cadmium	22	mg/kg		1		SW6010B	05/14/12 17:45 / sld	05/09/12 08:45	ICP2-HE_120514B	65	16555
Copper	463	mg/kg		5		SW6010B	05/23/12 23:32 / sld	05/21/12 10:32	ICP2-HE_120523B	166	16675
Iron	26100	mg/kg		5		SW6010B	05/16/12 23:03 / stp	05/09/12 08:45	ICP2-HE_120516B	130	16555
Lead	3920	mg/kg		5		SW6010B	05/14/12 17:45 / sld	05/09/12 08:45	ICP2-HE_120514B	65	16555
Manganese	5190	mg/kg		5		SW6010B	05/23/12 23:32 / sld	05/21/12 10:32	ICP2-HE_120523B	166	16675
Zinc	3510	mg/kg		5		SW6010B	05/14/12 17:45 / sld	05/09/12 08:45	ICP2-HE_120514B	65	16555

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSD-48
Lab ID: H12050150-002
Matrix: Sediment

Project: UBMC
Collection Date: 05/07/12 12:07
DateReceived: 05/08/12
Report Date: 05/29/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	6410	mg/kg	D	7		SW6010B	05/16/12 23:07 / stp	05/09/12 08:45	ICP2-HE_120516B : 131		16555
Arsenic	55	mg/kg		5		SW6010B	05/14/12 17:49 / sld	05/09/12 08:45	ICP2-HE_120514B : 66		16555
Cadmium	20	mg/kg		1		SW6010B	05/14/12 17:49 / sld	05/09/12 08:45	ICP2-HE_120514B : 66		16555
Copper	629	mg/kg		5		SW6010B	05/24/12 00:09 / sld	05/21/12 10:32	ICP2-HE_120523B : 176		16675
Iron	35000	mg/kg		5		SW6010B	05/16/12 23:07 / stp	05/09/12 08:45	ICP2-HE_120516B : 131		16555
Lead	4610	mg/kg		5		SW6010B	05/14/12 17:49 / sld	05/09/12 08:45	ICP2-HE_120514B : 66		16555
Manganese	4480	mg/kg		5		SW6010B	05/24/12 00:09 / sld	05/21/12 10:32	ICP2-HE_120523B : 176		16675
Zinc	3550	mg/kg		5		SW6010B	05/14/12 17:49 / sld	05/09/12 08:45	ICP2-HE_120514B : 66		16555

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSD-23
Lab ID: H12050150-003
Matrix: Sediment

Project: UBMC
Collection Date: 05/07/12 12:20
DateReceived: 05/08/12
Report Date: 05/29/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	3500	mg/kg	D	7		SW6010B	05/16/12 23:18 / stp	05/09/12 08:45	ICP2-HE_120516B : 134		16555
Arsenic	81	mg/kg		5		SW6010B	05/14/12 17:53 / sld	05/09/12 08:45	ICP2-HE_120514B : 67		16555
Cadmium	12	mg/kg		1		SW6010B	05/14/12 17:53 / sld	05/09/12 08:45	ICP2-HE_120514B : 67		16555
Copper	421	mg/kg		5		SW6010B	05/24/12 00:13 / sld	05/21/12 10:32	ICP2-HE_120523B : 177		16675
Iron	33400	mg/kg		5		SW6010B	05/16/12 23:18 / stp	05/09/12 08:45	ICP2-HE_120516B : 134		16555
Lead	1180	mg/kg		5		SW6010B	05/14/12 17:53 / sld	05/09/12 08:45	ICP2-HE_120514B : 67		16555
Manganese	6220	mg/kg		5		SW6010B	05/24/12 00:13 / sld	05/21/12 10:32	ICP2-HE_120523B : 177		16675
Zinc	1930	mg/kg		5		SW6010B	05/14/12 17:53 / sld	05/09/12 08:45	ICP2-HE_120514B : 67		16555

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSD-3A
Lab ID: H12050150-004
Matrix: Sediment

Project: UBMC
Collection Date: 05/07/12 12:52
DateReceived: 05/08/12
Report Date: 05/29/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	7740	mg/kg	D	7		SW6010B	05/16/12 23:22 / stp	05/09/12 08:45	ICP2-HE_120516B	135	16555
Arsenic	75	mg/kg		5		SW6010B	05/14/12 17:56 / sld	05/09/12 08:45	ICP2-HE_120514B	68	16555
Cadmium	15	mg/kg		1		SW6010B	05/14/12 17:56 / sld	05/09/12 08:45	ICP2-HE_120514B	68	16555
Copper	276	mg/kg		5		SW6010B	05/24/12 00:17 / sld	05/21/12 10:32	ICP2-HE_120523B	178	16675
Iron	28800	mg/kg		5		SW6010B	05/16/12 23:22 / stp	05/09/12 08:45	ICP2-HE_120516B	135	16555
Lead	733	mg/kg		5		SW6010B	05/14/12 17:56 / sld	05/09/12 08:45	ICP2-HE_120514B	68	16555
Manganese	7890	mg/kg		5		SW6010B	05/24/12 00:17 / sld	05/21/12 10:32	ICP2-HE_120523B	178	16675
Zinc	2840	mg/kg		5		SW6010B	05/14/12 17:56 / sld	05/09/12 08:45	ICP2-HE_120514B	68	16555

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSD-3B
Lab ID: H12050150-005
Matrix: Sediment

Project: UBMC
Collection Date: 05/07/12 13:15
DateReceived: 05/08/12
Report Date: 05/29/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	4790	mg/kg		5		SW6010B	05/16/12 23:25 / stp	05/09/12 08:45	ICP2-HE_120516B	136	16555
Arsenic	ND	mg/kg		5		SW6010B	05/14/12 18:00 / sld	05/09/12 08:45	ICP2-HE_120514B	69	16555
Cadmium	ND	mg/kg		1		SW6010B	05/14/12 18:00 / sld	05/09/12 08:45	ICP2-HE_120514B	69	16555
Copper	26	mg/kg		5		SW6010B	05/24/12 00:21 / sld	05/21/12 10:32	ICP2-HE_120523B	179	16675
Iron	10400	mg/kg		5		SW6010B	05/14/12 18:00 / sld	05/09/12 08:45	ICP2-HE_120514B	69	16555
Lead	25	mg/kg		5		SW6010B	05/14/12 18:00 / sld	05/09/12 08:45	ICP2-HE_120514B	69	16555
Manganese	454	mg/kg		5		SW6010B	05/24/12 00:21 / sld	05/21/12 10:32	ICP2-HE_120523B	179	16675
Zinc	98	mg/kg		5		SW6010B	05/14/12 18:00 / sld	05/09/12 08:45	ICP2-HE_120514B	69	16555

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSD-22
Lab ID: H12050150-006
Matrix: Sediment

Project: UBMC
Collection Date: 05/07/12 15:10
DateReceived: 05/08/12
Report Date: 05/29/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	9910	mg/kg	D	7		SW6010B	05/16/12 23:29 / stp	05/09/12 08:45	ICP2-HE_120516B : 137		16555
Arsenic	57	mg/kg		5		SW6010B	05/14/12 18:04 / sld	05/09/12 08:45	ICP2-HE_120514B : 70		16555
Cadmium	21	mg/kg		1		SW6010B	05/14/12 18:04 / sld	05/09/12 08:45	ICP2-HE_120514B : 70		16555
Copper	1380	mg/kg		5		SW6010B	05/24/12 00:24 / sld	05/21/12 10:32	ICP2-HE_120523B : 180		16675
Iron	31000	mg/kg		5		SW6010B	05/16/12 23:29 / stp	05/09/12 08:45	ICP2-HE_120516B : 137		16555
Lead	1390	mg/kg		5		SW6010B	05/14/12 18:04 / sld	05/09/12 08:45	ICP2-HE_120514B : 70		16555
Manganese	3860	mg/kg		5		SW6010B	05/24/12 00:24 / sld	05/21/12 10:32	ICP2-HE_120523B : 180		16675
Zinc	3600	mg/kg		5		SW6010B	05/14/12 18:04 / sld	05/09/12 08:45	ICP2-HE_120514B : 70		16555

Report Definitions: RL - Analyte reporting limit. D - RL increased due to sample matrix. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSD-1
Lab ID: H12050150-007
Matrix: Sediment

Project: UBMC
Collection Date: 05/07/12 15:45
Report Date: 05/29/12
DateReceived: 05/08/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	5480	mg/kg		5		SW6010B	05/16/12 23:33 / stp	05/09/12 08:45	ICP2-HE_120516B : 138		16555
Arsenic	38	mg/kg		5		SW6010B	05/14/12 18:08 / sld	05/09/12 08:45	ICP2-HE_120514B : 71		16555
Cadmium	1	mg/kg		1		SW6010B	05/14/12 18:08 / sld	05/09/12 08:45	ICP2-HE_120514B : 71		16555
Copper	23	mg/kg		5		SW6010B	05/24/12 00:28 / sld	05/21/12 10:32	ICP2-HE_120523B : 181		16675
Iron	10900	mg/kg		5		SW6010B	05/14/12 18:08 / sld	05/09/12 08:45	ICP2-HE_120514B : 71		16555
Lead	53	mg/kg		5		SW6010B	05/14/12 18:08 / sld	05/09/12 08:45	ICP2-HE_120514B : 71		16555
Manganese	386	mg/kg		5		SW6010B	05/24/12 00:28 / sld	05/21/12 10:32	ICP2-HE_120523B : 181		16675
Zinc	225	mg/kg		5		SW6010B	05/14/12 18:08 / sld	05/09/12 08:45	ICP2-HE_120514B : 71		16555

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSD-24
Lab ID: H12050150-008
Matrix: Sediment

Project: UBMC
Collection Date: 05/07/12 15:02
DateReceived: 05/08/12
Report Date: 05/29/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	7810	mg/kg		5		SW6010B	05/18/12 19:36 / sld	05/09/12 08:45	ICP2-HE_120518B : 145		16555
Arsenic	53	mg/kg		5		SW6010B	05/14/12 18:11 / sld	05/09/12 08:45	ICP2-HE_120514B : 72		16555
Cadmium	19	mg/kg		1		SW6010B	05/14/12 18:11 / sld	05/09/12 08:45	ICP2-HE_120514B : 72		16555
Copper	1550	mg/kg		5		SW6010B	05/24/12 00:32 / sld	05/21/12 10:32	ICP2-HE_120523B : 182		16675
Iron	27100	mg/kg	D	8		SW6010B	05/24/12 16:29 / sld	05/21/12 10:32	ICP2-HE_120524A : 28		16675
Lead	1060	mg/kg		5		SW6010B	05/14/12 18:11 / sld	05/09/12 08:45	ICP2-HE_120514B : 72		16555
Manganese	5560	mg/kg		5		SW6010B	05/24/12 00:32 / sld	05/21/12 10:32	ICP2-HE_120523B : 182		16675
Zinc	3220	mg/kg		5		SW6010B	05/14/12 18:11 / sld	05/09/12 08:45	ICP2-HE_120514B : 72		16555

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

Attachment B: Chain of Custody Forms and Sample Receipt Checklist

Workorder Receipt Checklist



H12050150

MT DEQ-Site Response

Login completed by: Wanda Johnson
Date Received: 5/8/2012

Reviewed by: BL2000\sdull
Received by: elm

Reviewed Date: 5/15/2012
Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Container/Temp Blank temperature:	2.4°C On Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Contact and Corrective Action Comments:

Samples were received in the laboratory at 14:44. Client put a time of 14:14 when he relinquished. Did not receive sample BRSD-2. Sample BRSD-24 was accidentally broken in laboratory. Contacted Alan Dreesbach regarding samples. Wj 5/8/12. Spoke with Alan Dreesbach and there is no sample BRSD-2. Ssample BRSD-24 is a duplicate of BRSD-22. Alan stated to split sample BRSD-22 to create BRSD-24. Wj 5/9/12

Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT (Provide as much information as possible.)

Company Name:	Project Name, PWS, Permit, Etc.	Sample Origin	EPA/State Compliance:
MDEQ	UBMC Sediment	State: MT	Yes ☐ No ☐
Report Mail Address:	**Contact Name:** Phone/Fax:	**Email:**	**Sampler: (Please Print)**
Quote H-645	Shellie Haaland 841-5033	shaaland@mt.gov	Alan Dreesbach, Brienne Mayer
Invoice Address:	**Invoice Contact & Phone:**	**Purchase Order:**	**Quote/Bottle Order:**

Special Report/Formats:

☐ DW ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: _____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids Vegetation Bioassay Other DW - Drinking Water

ANALYSIS REQUESTED

Bottle Order #9749

SEE ATTACHED

Standard Turnaround (TAT)

R U S H

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: Please copy results to adreesbach@portageinc.com 406-490-5135

Shipped by: Hand

Cooler ID(s): 4

Receipt Temp: 2.4 °C TB

On Ice: (Y) N

Custody Seal: On Bottle Y (N) On Cooler Y (N)

Intact: Y N

Signature Match: Y N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX
1	BRSD-38	5/7/12	1022	S
2	BRSD-48		1207	
3	BRSD-23		1220	
4	BRSD-3A		1252	
5	BRSD-3B		1315	
6	BRSD-2		1355	
7	BRSD-24		1502	
8	BRSD-22		1510	
9	BRSD-1		1545	
10				

LABORATORY USE ONLY #1205015O

Custody Record MUST be Signed

Relinquished by (print): Alan Dreesbach	Date/Time: 5/8/12 1317	Signature:	Received by (print):	Date/Time:	Signature:
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Sample Disposal: Return to Client: _____ Lab Disposal: _____			Received by Laboratory: Esther Merritt	Date/Time: 5/8/12 14:44	Signature:

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.

...information, downloadable fee schedule, forms, and links.

UBMC Surface Water

SDG#:	**H12050152**
Number of Samples:	**11**
Sample Matrix:	**Surface water**
Applicable Analytes:	**(11) pH, Conductivity, TSS, TDS, Alkalinity (Total, Bicarbonate, and Carbonate), Anions: (Chloride and Sulfate), Hardness, Dissolved Metals (Al, Ca, Mg, K, and Na), and Total Metals: (As, Cd, Cu, Fe, Pb, Mn, and Zn)**
Reporting Tier:	**3**
Applicable TOS#:	**N/A**
Laboratory:	**Energy Laboratories**
Validation Level:	**EPA Level III**
Validator Affiliation:	**Portage, Inc.**
Project#:	**UBMC**
Project SAP/QUAPP:	**Final Sampling and Analysis Plan for Environmental Monitoring Upper Blackfoot Mining Complex Lewis and Clark County, Montana; Portage Inc., 2012**



Validator:_____ **Date Completed:07/02/12;05/09/13**



Portage Review:_____ **Date Completed:07/03/12;05/09/13**

REPORT ORGANIZATION:

Limitations & Validation (L&V) Report UBMC Surface Water is organized into the following five sections:

- Glossary of Terms & Method References
- Data Quality Statement
- L&V Report
- Attachment A: Laboratory Report Forms Corrected for Qualification
- Attachment B: Chain of Custody Forms & Sample Receipt Checklist

GLOSSARY OF VALIDATION TERMS & METHOD VALIDATION REFERENCES

Terms:

CRDL	Contract Required Detection Limit
IDL	Instrument Detection Limit
SOW	Statement of Work
SOP	Standard Operating Procedure
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ICV	Initial Calibration Verification
CCV	Continuing Calibration Verification
ICB	Initial Calibration Blank
CCB	Continuing Calibration Blank
PB	Preparation Blank
LCS	Laboratory Control Sample
SDS	Serial Dilution Sample
SDG	Sample Delivery Group

Qualifiers:

U - The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.
Note: This detection limit may be elevated to a level greater than the IDL due to a detection of a target compound in the method blank, and as a result, the sample value, which was less than ten times the blank result, has been qualified 'U' as a non-detect.

J - The analyte was positively identified in the sample, but the associated numerical value may not be an accurate representation of the amount actually present in the environmental sample. The data should be seriously considered for decision-making and are usable for many purposes.

R - The data are unusable (may or may not be present). Resampling and reanalysis are necessary for verification.

UJ - The material was analyzed for but was not detected. The sample quantitation limit is an estimated quantity.

Reference:

The validation of this data was performed according to:

1. *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, EPA540-R-04-004,October 2004.*
2. *USEPA Contract Laboratory Program Statement of Work For Inorganic Analysis, Multi-Media, Multi-Concentration, Document Number ILM04.0, January 2000.*

LIMITATIONS AND VALIDATION REPORT

INTRODUCTION:

The UBMC Surface Water results were received by Portage, Inc. in June 2012. The laboratory analytical request provided for a summary data package attached for the pH, conductivity, alkalinity, TSS, TDS, chloride, sulfate, hardness, total recoverable metals (As, Cd, Cu, Fe, Pb, Mg, and Zn), and dissolved metals (Al, Ca, Mg, K, and Na). The samples were analyzed in accordance with Standard Methods 4500 H-B, 2320B, 2510B, 2540D, 2540C, and 2340B, and USEPA Methods 300.0 and 200.8. Data validation was performed utilizing the USEPA Functional Guidelines for Inorganic Data Review. The following cross-reference has been provided to assist data users in comparing field identifications to the corresponding laboratory numbers.

Cross-Reference for UBMC Surface Water Samples					
Field Id#:	**Lab Id#:**	**Matrix:**	**Analysis Request:**	**Date of Collection:**	**Date of Laboratory Receipt:**
BRSW-25-0917	H12050152-001	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Total Metals, Dissolved Metals	05/07/12	05/08/12
BRSW-26	H12050152-002	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Total Metals, Dissolved Metals	05/07/12	05/08/12
BRSW-38	H12050152-003	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Total Metals, Dissolved Metals	05/07/12	05/08/12
BRSW-48	H12050152-004	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Total Metals, Dissolved Metals	05/07/12	05/08/12
BRSW-23	H12050152-005	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Total Metals, Dissolved Metals	05/07/12	05/08/12
BRSW-3A	H12050152-006	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Total Metals, Dissolved Metals	05/07/12	05/08/12

Cross-Reference for UBMC Surface Water Samples					
Field Id#:	**Lab Id#:**	**Matrix:**	**Analysis Request:**	**Date of Collection:**	**Date of Laboratory Receipt:**
BRSW-3B	H12050152-007	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Total Metals, Dissolved Metals	05/07/12	05/08/12
BRSW-2	H12050152-008	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Total Metals, Dissolved Metals	05/07/12	05/08/12
BRSW-24	H12050152-009	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Total Metals, Dissolved Metals	05/07/12	05/08/12
BRSW-22	H12050152-010	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Total Metals, Dissolved Metals	05/07/12	05/08/12
BRSW-1	H12050152-011	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Total Metals, Dissolved Metals	05/07/12	05/08/12

LABORATORY CASE NARRATIVE:

The laboratory case narrative did not note any non conformance issues with the analytical data.

ANALYTICAL HOLDING TIMES:

The water samples associated with this SDG were collected on 05/07/12. The conductivity, TSS, TDS, results were analyzed on 05/09/12 within the 28-day holding time for conductivity, and the 7-day holding time for TSS and TDS. The chloride and sulfate results were analyzed on 05/10/12 within the 28-day holding time. The alkalinity results were analyzed on 05/09/12 within the 14-day holding time. The hardness results were analyzed on 05/11/12 within the 180-day holding time. The total and dissolved metals were analyzed 05/11/12 within the 180-day holding time for the ICP Metals.

The pH samples were collected on 05/07/12, received on 05/08/12, and analyzed on 05/09/12. In the professional judgment of the validator, all pH results have been qualified with a "J-" validation flag as prescribed by the USEPA Functional Guidelines and as the samples were analyzed outside the 24-hour holding time.

INITIAL AND CONTINUING CALIBRATION (ICV and CCV):

All ICV and CCV results were within the acceptance criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

PREPRATION BLANKS (PB):

For ICP-MS Batch # 16557, the arsenic, iron, lead, manganese, and zinc exhibited positive detections in the PB. However, all arsenic, iron, lead, manganese, and zinc result warrant no qualification due to sample results either less than the RL or greater than five times the blank value.

The remaining PB results were non-detect and no qualification is warranted.

For all analyses, blank results were analyzed at a proper frequency of 1 blank per 20 samples in the analytical batch

Field blank, trip blank, and equipment rinsate results were not included in this data deliverable.

INTERFERENCE CHECK SAMPLE (ICS):

All ICS results were within the acceptance criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

MATRIX SPIKE (MS)/MATRIX SPIKE DUPLICATE (MSD):

The MS/MSD recovery and all RPD results were within the acceptance criteria and analyzed at the proper frequency (1 in 20) as prescribed by the USEPA Functional Guidelines and the analytical methods. MS/MSD sample were obtained from project field samples.

LABORATORY DUPLICATE SAMPLE (LDS) RPD:

All LDS and field duplicate results were within the RPD criteria and ran at the proper frequency (1 in 20) prescribed by the USEPA Functional Guidelines and the analytical methods.

DUPLICATE SUMMARY TABLE:

Analyte	Matrix Spike Duplicate RPD	Laboratory Duplicate RPD	Field Duplicate RPD
pH	N/A	0.1	0
Conductivity	N/A	0	-0.48662
TSS	N/A	0	0
TDS	N/A	0	0.843882
Alkalinity	N/A	0.4	0
Bicarbonate	N/A	0.4	0
Carbonate	N/A	0	0
Chloride	0.1	N/A	0
Sulfate	0.7	N/A	0
Hardness	N/A	N/A	0
Al	3.4	N/A	0
Ca	2.2	N/A	0
Mg	0.9	N/A	0
K	2.2	N/A	0
Na	1.3	N/A	0
As	0.2	N/A	0
Cd	0.4	N/A	0.43956
Cu	0.1	N/A	1.709402
Fe	3.3	N/A	0
Pb	0.6	N/A	-2.98507
Mn	1.6	N/A	-5.40541
Zn	0.5	N/A	4.026846

LABORATORY CONTROL SAMPLE (LCS):

The LCS results were of matrix types similar to the field samples and properly prepared with the field samples.

All analytes exhibited recoveries within the guidelines and analyzed at the proper frequency (1 in 20) as prescribed by the USEPA Functional Guidelines and analytical methods.

Surrogate analyses are not applicable to metals and miscellaneous wet chemistry analysis types and methods.

CHAIN OF CUSTODY:

The laboratory chain of custody (COC) forms are complete and accurate.

One cooler was received by Energy Labs on 05/08/12 at the proper preservation temperature. Custody was maintained as documents by the field and laboratory personnel signatures, dates, and time of receipt.

REPORTING LIMTS:

The reporting limits presented by the laboratory were acceptable and met the screening level requirements set forth by the project QAPjP and SAP.

OVERALL ASSESSMENT OF DATA:

There were eleven (11) surface water field samples included in SDG# H12050157. Eleven (11) field samples were analyzed for pH, conductivity, alkalinity, TSS, TDS, chloride, sulfate, hardness, total metals, and dissolved metals as outlined in the project QAPP.

All pH results have been qualified with a "J-" validation flag to denote the reported results are estimates with a low bias due to exceeded holding times.

The remaining field sample data points have been assessed and remain unqualified.

All samples were received by the lab in good condition. Detection limits, analytical methods, detection limits, and reporting were all within the project requirements.

Attachment A: Laboratory Report Forms

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-25-0917
Lab ID: H12050152-001
Matrix: Surface Water

Project: UBMC
Collection Date: 05/07/12 09:17
Report Date: 05/21/12
DateReceived: 05/08/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	4.7	s.u.	J-	0.1		A4500-H B	05/09/12 11:22 / cmm		PHSC_101-H_120509A	25	R79840
Conductivity @ 25 C	1	umhos/cm		1		A2510 B	05/09/12 11:22 / cmm		PHSC_101-H_120509A	26	R79840
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/09/12 15:08 / cmm	05/09/12 14:41	-124 (14410200)_120509A	11	16567
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	05/09/12 14:53 / cmm		-124 (14410200)_120509B	15	TDS120509A
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	05/09/12 15:50 / cmm		MAN-TECH_120509B	28	R79862
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	05/09/12 15:50 / cmm		MAN-TECH_120509B	28	R79862
Carbonate as CO3	ND	mg/L		4		A2320 B	05/09/12 15:50 / cmm		MAN-TECH_120509B	28	R79862
Chloride	ND	mg/L		1		E300.0	05/10/12 16:10 / cmm		IC102-H_120510A	35	R79896
Sulfate	ND	mg/L		1		E300.0	05/10/12 16:10 / cmm		IC102-H_120510A	35	R79896
Hardness as CaCO3	ND	mg/L		1		A2340 B	05/11/12 11:45 / sld		WATERCALC_120511A	8	R79909
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/11/12 02:16 / sld		ICPMS204-B_120510B	194	R79906
Calcium	ND	mg/L		1		E200.8	05/11/12 02:16 / sld		ICPMS204-B_120510B	194	R79906
Magnesium	ND	mg/L		1		E200.8	05/11/12 02:16 / sld		ICPMS204-B_120510B	194	R79906
Potassium	ND	mg/L		1		E200.8	05/11/12 02:16 / sld		ICPMS204-B_120510B	194	R79906
Sodium	ND	mg/L		1		E200.8	05/11/12 02:16 / sld		ICPMS204-B_120510B	194	R79906
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	05/11/12 02:21 / sld		ICPMS204-B_120510B	195	R79906
Cadmium	ND	mg/L		0.00008		E200.8	05/11/12 02:21 / sld		ICPMS204-B_120510B	195	R79906
Copper	ND	mg/L		0.001		E200.8	05/11/12 02:21 / sld		ICPMS204-B_120510B	195	R79906
Iron	ND	mg/L		0.03		E200.8	05/11/12 02:21 / sld		ICPMS204-B_120510B	195	R79906
Lead	ND	mg/L		0.0005		E200.8	05/11/12 02:21 / sld		ICPMS204-B_120510B	195	R79906
Manganese	ND	mg/L		0.005		E200.8	05/11/12 02:21 / sld		ICPMS204-B_120510B	195	R79906
Zinc	ND	mg/L		0.01		E200.8	05/11/12 02:21 / sld		ICPMS204-B_120510B	195	R79906

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

JHN
07-02-12

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-26
Lab ID: H12050152-002
Matrix: Surface Water

Project: UBMC
Collection Date: 05/07/12 09:27
Report Date: 05/21/12
DateReceived: 05/08/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	4.5	s.u.	J-	0.1		A4500-H B	05/09/12 11:26 / cmm		PHSC_101-H_120509A	27	R79840
Conductivity @ 25 C	1	umhos/cm		1		A2510 B	05/09/12 11:26 / cmm		PHSC_101-H_120509A	28	R79840
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/09/12 15:08 / cmm	05/09/12 14:41	-124 (14410200)_120509A	12	16567
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	05/09/12 14:54 / cmm		-124 (14410200)_120509B	17	TDS120509A
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	05/09/12 16:03 / cmm		MAN-TECH_120509B	32	R79862
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	05/09/12 16:03 / cmm		MAN-TECH_120509B	32	R79862
Carbonate as CO3	ND	mg/L		4		A2320 B	05/09/12 16:03 / cmm		MAN-TECH_120509B	32	R79862
Chloride	ND	mg/L		1		E300.0	05/10/12 16:23 / cmm		IC102-H_120510A	36	R79896
Sulfate	ND	mg/L		1		E300.0	05/10/12 16:23 / cmm		IC102-H_120510A	36	R79896
Hardness as CaCO3	ND	mg/L		1		A2340 B	05/11/12 11:45 / sld		WATERCALC_120511A	9	R79909
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/11/12 02:25 / sld		ICPMS204-B_120510B	196	R79906
Calcium	ND	mg/L		1		E200.8	05/11/12 02:25 / sld		ICPMS204-B_120510B	196	R79906
Magnesium	ND	mg/L		1		E200.8	05/11/12 02:25 / sld		ICPMS204-B_120510B	196	R79906
Potassium	ND	mg/L		1		E200.8	05/11/12 02:25 / sld		ICPMS204-B_120510B	196	R79906
Sodium	ND	mg/L		1		E200.8	05/11/12 02:25 / sld		ICPMS204-B_120510B	196	R79906
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	05/11/12 02:30 / sld		ICPMS204-B_120510B	197	R79906
Cadmium	ND	mg/L		0.00008		E200.8	05/11/12 02:30 / sld		ICPMS204-B_120510B	197	R79906
Copper	ND	mg/L		0.001		E200.8	05/11/12 02:30 / sld		ICPMS204-B_120510B	197	R79906
Iron	ND	mg/L		0.03		E200.8	05/11/12 02:30 / sld		ICPMS204-B_120510B	197	R79906
Lead	ND	mg/L		0.0005		E200.8	05/11/12 02:30 / sld		ICPMS204-B_120510B	197	R79906
Manganese	ND	mg/L		0.005		E200.8	05/11/12 02:30 / sld		ICPMS204-B_120510B	197	R79906
Zinc	ND	mg/L		0.01		E200.8	05/11/12 02:30 / sld		ICPMS204-B_120510B	197	R79906

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

JAM
07-02-12

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-38
Lab ID: H12050152-003
Matrix: Surface Water

Project: UBMC
Collection Date: 05/07/12 10:09
Report Date: 05/21/12
DateReceived: 05/08/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.2	s.u.	J-	0.1		A4500-H B	05/09/12 11:29 / cmm		PHSC_101-H_120509A	29	R79840
Conductivity @ 25 C	227	umhos/cm		1		A2510 B	05/09/12 11:29 / cmm		PHSC_101-H_120509A	30	R79840
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/09/12 15:08 / cmm	05/09/12 14:41	-124 (14410200)_120509A	13	16567
Solids, Total Dissolved TDS @ 180 C	130	mg/L		10		A2540 C	05/09/12 14:54 / cmm		-124 (14410200)_120509B	18	TDS120509A
INORGANICS											
Alkalinity, Total as CaCO3	71	mg/L		4		A2320 B	05/09/12 16:10 / cmm		MAN-TECH_120509B	34	R79862
Bicarbonate as HCO3	86	mg/L		4		A2320 B	05/09/12 16:10 / cmm		MAN-TECH_120509B	34	R79862
Carbonate as CO3	ND	mg/L		4		A2320 B	05/09/12 16:10 / cmm		MAN-TECH_120509B	34	R79862
Chloride	ND	mg/L		1		E300.0	05/10/12 16:37 / cmm		IC102-H_120510A	37	R79896
Sulfate	39	mg/L		1		E300.0	05/10/12 16:37 / cmm		IC102-H_120510A	37	R79896
Hardness as CaCO3	101	mg/L		1		A2340 B	05/11/12 11:45 / sld		WATERCALC_120511A	10	R79909
METALS, DISSOLVED											
Aluminum	0.03	mg/L		0.03		E200.8	05/11/12 02:53 / sld		ICPMS204-B_120510B	202	R79906
Calcium	21	mg/L		1		E200.8	05/11/12 02:53 / sld		ICPMS204-B_120510B	202	R79906
Magnesium	12	mg/L		1		E200.8	05/11/12 02:53 / sld		ICPMS204-B_120510B	202	R79906
Potassium	ND	mg/L		1		E200.8	05/11/12 02:53 / sld		ICPMS204-B_120510B	202	R79906
Sodium	ND	mg/L		1		E200.8	05/11/12 02:53 / sld		ICPMS204-B_120510B	202	R79906
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	05/11/12 02:57 / sld	05/09/12 08:50	ICPMS204-B_120510B	203	16557
Cadmium	0.00521	mg/L		0.00008		E200.8	05/11/12 02:57 / sld	05/09/12 08:50	ICPMS204-B_120510B	203	16557
Copper	0.028	mg/L		0.001		E200.8	05/11/12 02:57 / sld	05/09/12 08:50	ICPMS204-B_120510B	203	16557
Iron	0.56	mg/L		0.03		E200.8	05/11/12 02:57 / sld	05/09/12 08:50	ICPMS204-B_120510B	203	16557
Lead	0.0214	mg/L		0.0005		E200.8	05/11/12 02:57 / sld	05/09/12 08:50	ICPMS204-B_120510B	203	16557
Manganese	0.698	mg/L		0.005		E200.8	05/11/12 02:57 / sld	05/09/12 08:50	ICPMS204-B_120510B	203	16557
Zinc	1.12	mg/L		0.01		E200.8	05/11/12 02:57 / sld	05/09/12 08:50	ICPMS204-B_120510B	203	16557

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

JAN 07-02-12

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-48
Lab ID: H12050152-004
Matrix: Surface Water

Project: UBMC
Collection Date: 05/07/12 11:42
DateReceived: 05/08/12
Report Date: 05/21/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.1	s.u.	J-	0.1		A4500-H B	05/09/12 11:32 / cmm		PHSC_101-H_120509A	31	R79840
Conductivity @ 25 C	226	umhos/cm		1		A2510 B	05/09/12 11:32 / cmm		PHSC_101-H_120509A	32	R79840
Solids, Total Suspended TSS @ 105 C	12	mg/L		10		A2540 D	05/09/12 15:08 / cmm	05/09/12 14:41	-124 (14410200)_120509A	14	16567
Solids, Total Dissolved TDS @ 180 C	127	mg/L		10		A2540 C	05/09/12 14:54 / cmm		-124 (14410200)_120509B	19	TDS120509A
INORGANICS											
Alkalinity, Total as CaCO3	79	mg/L		4		A2320 B	05/09/12 16:17 / cmm		MAN-TECH_120509B	36	R79862
Bicarbonate as HCO3	97	mg/L		4		A2320 B	05/09/12 16:17 / cmm		MAN-TECH_120509B	36	R79862
Carbonate as CO3	ND	mg/L		4		A2320 B	05/09/12 16:17 / cmm		MAN-TECH_120509B	36	R79862
Chloride	ND	mg/L		1		E300.0	05/10/12 16:50 / cmm		IC102-H_120510A	38	R79896
Sulfate	32	mg/L		1		E300.0	05/10/12 16:50 / cmm		IC102-H_120510A	38	R79896
Hardness as CaCO3	104	mg/L		1		A2340 B	05/11/12 11:45 / sld		WATERCALC_120511A	11	R79909
METALS, DISSOLVED											
Aluminum	0.05	mg/L		0.03		E200.8	05/11/12 03:02 / sld		ICPMS204-B_120510B	204	R79906
Calcium	21	mg/L		1		E200.8	05/11/12 03:02 / sld		ICPMS204-B_120510B	204	R79906
Magnesium	13	mg/L		1		E200.8	05/11/12 03:02 / sld		ICPMS204-B_120510B	204	R79906
Potassium	ND	mg/L		1		E200.8	05/11/12 03:02 / sld		ICPMS204-B_120510B	204	R79906
Sodium	ND	mg/L		1		E200.8	05/11/12 03:02 / sld		ICPMS204-B_120510B	204	R79906
METALS, TOTAL RECOVERABLE											
Arsenic	0.003	mg/L		0.003		E200.8	05/11/12 03:20 / sld	05/09/12 08:50	ICPMS204-B_120510B	208	16557
Cadmium	0.00381	mg/L		0.00008		E200.8	05/11/12 03:20 / sld	05/09/12 08:50	ICPMS204-B_120510B	208	16557
Copper	0.034	mg/L		0.001		E200.8	05/11/12 03:20 / sld	05/09/12 08:50	ICPMS204-B_120510B	208	16557
Iron	0.93	mg/L		0.03		E200.8	05/11/12 03:20 / sld	05/09/12 08:50	ICPMS204-B_120510B	208	16557
Lead	0.0483	mg/L		0.0005		E200.8	05/11/12 03:20 / sld	05/09/12 08:50	ICPMS204-B_120510B	208	16557
Manganese	0.657	mg/L		0.005		E200.8	05/11/12 03:20 / sld	05/09/12 08:50	ICPMS204-B_120510B	208	16557
Zinc	0.80	mg/L		0.01		E200.8	05/11/12 03:20 / sld	05/09/12 08:50	ICPMS204-B_120510B	208	16557

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

JAN
07-02-12

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-23
Lab ID: H12050152-005
Matrix: Surface Water

Project: UBMC
Collection Date: 05/07/12 12:17
Report Date: 05/21/12
DateReceived: 05/08/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.3	s.u.	J-	0.1		A4500-H B	05/09/12 11:35 / cmm		PHSC_101-H_120509A	33	R79840
Conductivity @ 25 C	222	umhos/cm		1		A2510 B	05/09/12 11:35 / cmm		PHSC_101-H_120509A	34	R79840
Solids, Total Suspended TSS @ 105 C	13	mg/L		10		A2540 D	05/09/12 15:09 / cmm	05/09/12 14:41	-124 (14410200)_120509A	16	16567
Solids, Total Dissolved TDS @ 180 C	127	mg/L		10		A2540 C	05/09/12 14:54 / cmm		-124 (14410200)_120509B	20	TDS120509A
INORGANICS											
Alkalinity, Total as CaCO3	80	mg/L		4		A2320 B	05/09/12 16:24 / cmm		MAN-TECH_120509B	38	R79862
Bicarbonate as HCO3	98	mg/L		4		A2320 B	05/09/12 16:24 / cmm		MAN-TECH_120509B	38	R79862
Carbonate as CO3	ND	mg/L		4		A2320 B	05/09/12 16:24 / cmm		MAN-TECH_120509B	38	R79862
Chloride	ND	mg/L		1		E300.0	05/10/12 17:04 / cmm		IC102-H_120510A	39	R79896
Sulfate	29	mg/L		1		E300.0	05/10/12 17:04 / cmm		IC102-H_120510A	39	R79896
Hardness as CaCO3	102	mg/L		1		A2340 B	05/11/12 11:45 / sld		WATERCALC_120511A	12	R79909
METALS, DISSOLVED											
Aluminum	0.04	mg/L		0.03		E200.8	05/11/12 03:24 / sld		ICPMS204-B_120510B	209	R79906
Calcium	21	mg/L		1		E200.8	05/11/12 03:24 / sld		ICPMS204-B_120510B	209	R79906
Magnesium	12	mg/L		1		E200.8	05/11/12 03:24 / sld		ICPMS204-B_120510B	209	R79906
Potassium	ND	mg/L		1		E200.8	05/11/12 03:24 / sld		ICPMS204-B_120510B	209	R79906
Sodium	ND	mg/L		1		E200.8	05/11/12 03:24 / sld		ICPMS204-B_120510B	209	R79906
METALS, TOTAL RECOVERABLE											
Arsenic	0.004	mg/L		0.003		E200.8	05/11/12 03:29 / sld	05/09/12 08:50	ICPMS204-B_120510B	210	16557
Cadmium	0.00362	mg/L		0.00008		E200.8	05/11/12 03:29 / sld	05/09/12 08:50	ICPMS204-B_120510B	210	16557
Copper	0.029	mg/L		0.001		E200.8	05/11/12 03:29 / sld	05/09/12 08:50	ICPMS204-B_120510B	210	16557
Iron	0.83	mg/L		0.03		E200.8	05/11/12 03:29 / sld	05/09/12 08:50	ICPMS204-B_120510B	210	16557
Lead	0.0705	mg/L		0.0005		E200.8	05/11/12 03:29 / sld	05/09/12 08:50	ICPMS204-B_120510B	210	16557
Manganese	0.567	mg/L		0.005		E200.8	05/11/12 03:29 / sld	05/09/12 08:50	ICPMS204-B_120510B	210	16557
Zinc	0.76	mg/L		0.01		E200.8	05/11/12 03:29 / sld	05/09/12 08:50	ICPMS204-B_120510B	210	16557

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

JAM
07-02-12

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-3A
Lab ID: H12050152-006
Matrix: Surface Water

Project: UBMC
Collection Date: 05/07/12 12:45
Report Date: 05/21/12
DateReceived: 05/08/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.0	s.u.	J-	0.1		A4500-H B	05/09/12 11:37 / cmm		PHSC_101-H_120509A	35	R79840
Conductivity @ 25 C	331	umhos/cm		1		A2510 B	05/09/12 11:37 / cmm		PHSC_101-H_120509A	36	R79840
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/09/12 15:09 / cmm	05/09/12 14:41	-124 (14410200)_120509A	17	16567
Solids, Total Dissolved TDS @ 180 C	207	mg/L		10		A2540 C	05/09/12 14:54 / cmm		-124 (14410200)_120509B	21	TDS120509A
INORGANICS											
Alkalinity, Total as CaCO3	72	mg/L		4		A2320 B	05/09/12 16:30 / cmm		MAN-TECH_120509B	40	R79862
Bicarbonate as HCO3	88	mg/L		4		A2320 B	05/09/12 16:30 / cmm		MAN-TECH_120509B	40	R79862
Carbonate as CO3	ND	mg/L		4		A2320 B	05/09/12 16:30 / cmm		MAN-TECH_120509B	40	R79862
Chloride	ND	mg/L		1		E300.0	05/10/12 17:18 / cmm		IC102-H_120510A	40	R79896
Sulfate	86	mg/L		1		E300.0	05/10/12 17:18 / cmm		IC102-H_120510A	40	R79896
Hardness as CaCO3	150	mg/L		1		A2340 B	05/11/12 11:45 / sld		WATERCALC_120511A	13	R79909
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/11/12 03:52 / sld		ICPMS204-B_120510B	215	R79906
Calcium	29	mg/L		1		E200.8	05/11/12 03:52 / sld		ICPMS204-B_120510B	215	R79906
Magnesium	19	mg/L		1		E200.8	05/11/12 03:52 / sld		ICPMS204-B_120510B	215	R79906
Potassium	ND	mg/L		1		E200.8	05/11/12 03:52 / sld		ICPMS204-B_120510B	215	R79906
Sodium	1	mg/L		1		E200.8	05/11/12 03:52 / sld		ICPMS204-B_120510B	215	R79906
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	05/11/12 03:56 / sld	05/09/12 08:50	ICPMS204-B_120510B	216	16557
Cadmium	0.00217	mg/L		0.00008		E200.8	05/11/12 03:56 / sld	05/09/12 08:50	ICPMS204-B_120510B	216	16557
Copper	0.005	mg/L		0.001		E200.8	05/11/12 03:56 / sld	05/09/12 08:50	ICPMS204-B_120510B	216	16557
Iron	0.13	mg/L		0.03		E200.8	05/11/12 03:56 / sld	05/09/12 08:50	ICPMS204-B_120510B	216	16557
Lead	0.0019	mg/L		0.0005		E200.8	05/11/12 03:56 / sld	05/09/12 08:50	ICPMS204-B_120510B	216	16557
Manganese	1.14	mg/L		0.005		E200.8	05/11/12 03:56 / sld	05/09/12 08:50	ICPMS204-B_120510B	216	16557
Zinc	0.83	mg/L		0.01		E200.8	05/11/12 03:56 / sld	05/09/12 08:50	ICPMS204-B_120510B	216	16557

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

JAN
07-02-12

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-3B
Lab ID: H12050152-007
Matrix: Surface Water

Project: UBMC
Collection Date: 05/07/12 13:15
Report Date: 05/21/12
DateReceived: 05/08/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.0	s.u.	J-	0.1		A4500-H B	05/09/12 11:40 / cmm		PHSC_101-H_120509A	37	R79840
Conductivity @ 25 C	230	umhos/cm		1		A2510 B	05/09/12 11:40 / cmm		PHSC_101-H_120509A	38	R79840
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/09/12 15:09 / cmm	05/09/12 14:41	-124 (14410200)_120509A	18	16567
Solids, Total Dissolved TDS @ 180 C	139	mg/L		10		A2540 C	05/09/12 14:55 / cmm		-124 (14410200)_120509B	22	TDS120509A
INORGANICS											
Alkalinity, Total as CaCO3	73	mg/L		4		A2320 B	05/09/12 16:37 / cmm		MAN-TECH_120509B	42	R79862
Bicarbonate as HCO3	89	mg/L		4		A2320 B	05/09/12 16:37 / cmm		MAN-TECH_120509B	42	R79862
Carbonate as CO3	ND	mg/L		4		A2320 B	05/09/12 16:37 / cmm		MAN-TECH_120509B	42	R79862
Chloride	ND	mg/L		1		E300.0	05/10/12 17:31 / cmm		IC102-H_120510A	41	R79896
Sulfate	39	mg/L		1		E300.0	05/10/12 17:31 / cmm		IC102-H_120510A	41	R79896
Hardness as CaCO3	110	mg/L		1		A2340 B	05/11/12 11:45 / sld		WATERCALC_120511A	14	R79909
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/11/12 04:01 / sld		ICPMS204-B_120510B	217	R79906
Calcium	22	mg/L		1		E200.8	05/11/12 04:01 / sld		ICPMS204-B_120510B	217	R79906
Magnesium	13	mg/L		1		E200.8	05/11/12 04:01 / sld		ICPMS204-B_120510B	217	R79906
Potassium	ND	mg/L		1		E200.8	05/11/12 04:01 / sld		ICPMS204-B_120510B	217	R79906
Sodium	1	mg/L		1		E200.8	05/11/12 04:01 / sld		ICPMS204-B_120510B	217	R79906
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	05/11/12 04:05 / sld	05/09/12 08:50	ICPMS204-B_120510B	218	16557
Cadmium	0.00152	mg/L		0.00008		E200.8	05/11/12 04:05 / sld	05/09/12 08:50	ICPMS204-B_120510B	218	16557
Copper	0.002	mg/L		0.001		E200.8	05/11/12 04:05 / sld	05/09/12 08:50	ICPMS204-B_120510B	218	16557
Iron	0.09	mg/L		0.03		E200.8	05/11/12 04:05 / sld	05/09/12 08:50	ICPMS204-B_120510B	218	16557
Lead	0.0011	mg/L		0.0005		E200.8	05/11/12 04:05 / sld	05/09/12 08:50	ICPMS204-B_120510B	218	16557
Manganese	0.662	mg/L		0.005		E200.8	05/11/12 04:05 / sld	05/09/12 08:50	ICPMS204-B_120510B	218	16557
Zinc	0.47	mg/L		0.01		E200.8	05/11/12 04:05 / sld	05/09/12 08:50	ICPMS204-B_120510B	218	16557

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

JAN
07-02-12

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-2
Lab ID: H12050152-008
Matrix: Surface Water

Project: UBMC
Collection Date: 05/07/12 13:55
Report Date: 05/21/12
DateReceived: 05/08/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.4	s.u.	J-	0.1		A4500-H B	05/09/12 11:43 / cmm		PHSC_101-H_120509A	39	R79840
Conductivity @ 25 C	2260	umhos/cm		1		A2510 B	05/09/12 11:43 / cmm		PHSC_101-H_120509A	40	R79840
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/09/12 15:09 / cmm	05/09/12 14:41	-124 (14410200)_120509A	19	16567
Solids, Total Dissolved TDS @ 180 C	2040	mg/L		10		A2540 C	05/09/12 14:57 / cmm		-124 (14410200)_120509B	23	TDS120509A
INORGANICS											
Alkalinity, Total as CaCO3	42	mg/L		4		A2320 B	05/09/12 16:43 / cmm		MAN-TECH_120509B	44	R79862
Bicarbonate as HCO3	52	mg/L		4		A2320 B	05/09/12 16:43 / cmm		MAN-TECH_120509B	44	R79862
Carbonate as CO3	ND	mg/L		4		A2320 B	05/09/12 16:43 / cmm		MAN-TECH_120509B	44	R79862
Chloride	ND	mg/L		1		E300.0	05/14/12 14:04 / cmm		IC102-H_120514A	19	R79964
Sulfate	1400	mg/L	D	5		E300.0	05/10/12 17:45 / cmm		IC102-H_120510A	42	R79896
Hardness as CaCO3	1370	mg/L		1		A2340 B	05/11/12 11:45 / sld		WATERCALC_120511A	15	R79909
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/11/12 04:10 / sld		ICPMS204-B_120510B	219	R79906
Calcium	241	mg/L		1		E200.8	05/11/12 04:10 / sld		ICPMS204-B_120510B	219	R79906
Magnesium	187	mg/L		1		E200.8	05/11/12 04:10 / sld		ICPMS204-B_120510B	219	R79906
Potassium	3	mg/L		1		E200.8	05/11/12 04:10 / sld		ICPMS204-B_120510B	219	R79906
Sodium	ND	mg/L		1		E200.8	05/11/12 04:10 / sld		ICPMS204-B_120510B	219	R79906
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	05/11/12 04:14 / sld	05/09/12 08:50	ICPMS204-B_120510B	220	16557
Cadmium	0.0301	mg/L		0.00008		E200.8	05/11/12 04:14 / sld	05/09/12 08:50	ICPMS204-B_120510B	220	16557
Copper	0.015	mg/L		0.001		E200.8	05/11/12 04:14 / sld	05/09/12 08:50	ICPMS204-B_120510B	220	16557
Iron	0.22	mg/L		0.03		E200.8	05/11/12 04:14 / sld	05/09/12 08:50	ICPMS204-B_120510B	220	16557
Lead	0.0543	mg/L		0.0005		E200.8	05/11/12 04:14 / sld	05/09/12 08:50	ICPMS204-B_120510B	220	16557
Manganese	12.0	mg/L		0.005		E200.8	05/17/12 01:54 / sld	05/09/12 08:50	ICPMS204-B_120516B	164	16557
Zinc	12.7	mg/L		0.01		E200.8	05/17/12 01:54 / sld	05/09/12 08:50	ICPMS204-B_120516B	164	16557

Report Definitions: RL - Analyte reporting limit. D - RL increased due to sample matrix.

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.

JHN 07-02-12

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-24
Lab ID: H12050152-009
Matrix: Surface Water

Project: UBMC
Collection Date: 05/07/12 15:02
Report Date: 05/21/12
DateReceived: 05/08/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.6	s.u.	J-	0.1		A4500-H B	05/09/12 11:45 / cmm		PHSC_101-H_120509A	41	R79840
Conductivity @ 25 C	206	umhos/cm		1		A2510 B	05/09/12 11:45 / cmm		PHSC_101-H_120509A	42	R79840
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/09/12 15:10 / cmm	05/09/12 14:41	-124 (14410200)_120509A	20	16567
Solids, Total Dissolved TDS @ 180 C	118	mg/L		10		A2540 C	05/09/12 14:57 / cmm		-124 (14410200)_120509B	24	TDS120509A
INORGANICS											
Alkalinity, Total as CaCO3	81	mg/L		4		A2320 B	05/09/12 16:57 / cmm		MAN-TECH_120509B	48	R79862
Bicarbonate as HCO3	99	mg/L		4		A2320 B	05/09/12 16:57 / cmm		MAN-TECH_120509B	48	R79862
Carbonate as CO3	ND	mg/L		4		A2320 B	05/09/12 16:57 / cmm		MAN-TECH_120509B	48	R79862
Chloride	ND	mg/L		1		E300.0	05/10/12 18:26 / cmm		IC102-H_120510A	45	R79896
Sulfate	22	mg/L		1		E300.0	05/10/12 18:26 / cmm		IC102-H_120510A	45	R79896
Hardness as CaCO3	94	mg/L		1		A2340 B	05/11/12 11:45 / sld		WATERCALC_120511A	16	R79909
METALS, DISSOLVED											
Aluminum	0.05	mg/L		0.03		E200.8	05/11/12 04:19 / sld		ICPMS204-B_120510B	221	R79906
Calcium	22	mg/L		1		E200.8	05/11/12 04:19 / sld		ICPMS204-B_120510B	221	R79906
Magnesium	10	mg/L		1		E200.8	05/11/12 04:19 / sld		ICPMS204-B_120510B	221	R79906
Potassium	ND	mg/L		1		E200.8	05/11/12 04:19 / sld		ICPMS204-B_120510B	221	R79906
Sodium	ND	mg/L		1		E200.8	05/11/12 04:19 / sld		ICPMS204-B_120510B	221	R79906
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	05/11/12 04:23 / sld		ICPMS204-B_120510B	222	R79906
Cadmium	0.00454	mg/L		0.00008		E200.8	05/11/12 04:23 / sld		ICPMS204-B_120510B	222	R79906
Copper	0.058	mg/L		0.001		E200.8	05/11/12 04:23 / sld		ICPMS204-B_120510B	222	R79906
Iron	ND	mg/L		0.03		E200.8	05/11/12 04:23 / sld		ICPMS204-B_120510B	222	R79906
Lead	0.0034	mg/L		0.0005		E200.8	05/11/12 04:23 / sld		ICPMS204-B_120510B	222	R79906
Manganese	0.079	mg/L		0.005		E200.8	05/17/12 01:59 / sld		ICPMS204-B_120516B	165	R80038
Zinc	0.73	mg/L		0.01		E200.8	05/17/12 01:59 / sld		ICPMS204-B_120516B	165	R80038

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

JAN
07-02-12

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-22
Lab ID: H12050152-010
Matrix: Surface Water

Project: UBMC
Collection Date: 05/07/12 15:10
DateReceived: 05/08/12
Report Date: 05/21/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.6	s.u.	J-	0.1		A4500-H B	05/09/12 11:48 / cmm		PHSC_101-H_120509A	43	R79840
Conductivity @ 25 C	205	umhos/cm		1		A2510 B	05/09/12 11:48 / cmm		PHSC_101-H_120509A	44	R79840
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/09/12 15:12 / cmm	05/09/12 14:41	-124 (14410200)_120509A	21	16567
Solids, Total Dissolved TDS @ 180 C	119	mg/L		10		A2540 C	05/09/12 14:57 / cmm		-124 (14410200)_120509B	25	TDS120509A
INORGANICS											
Alkalinity, Total as CaCO3	81	mg/L		4		A2320 B	05/09/12 17:04 / cmm		MAN-TECH_120509B	50	R79862
Bicarbonate as HCO3	99	mg/L		4		A2320 B	05/09/12 17:04 / cmm		MAN-TECH_120509B	50	R79862
Carbonate as CO3	ND	mg/L		4		A2320 B	05/09/12 17:04 / cmm		MAN-TECH_120509B	50	R79862
Chloride	ND	mg/L		1		E300.0	05/10/12 19:06 / cmm		IC102-H_120510A	48	R79896
Sulfate	22	mg/L		1		E300.0	05/10/12 19:06 / cmm		IC102-H_120510A	48	R79896
Hardness as CaCO3	94	mg/L		1		A2340 B	05/11/12 11:45 / sld		WATERCALC_120511A	17	R79909
METALS, DISSOLVED											
Aluminum	0.05	mg/L		0.03		E200.8	05/11/12 04:28 / sld		ICPMS204-B_120510B	223	R79906
Calcium	22	mg/L		1		E200.8	05/11/12 04:28 / sld		ICPMS204-B_120510B	223	R79906
Magnesium	10	mg/L		1		E200.8	05/11/12 04:28 / sld		ICPMS204-B_120510B	223	R79906
Potassium	ND	mg/L		1		E200.8	05/11/12 04:28 / sld		ICPMS204-B_120510B	223	R79906
Sodium	ND	mg/L		1		E200.8	05/11/12 04:28 / sld		ICPMS204-B_120510B	223	R79906
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	05/11/12 04:51 / sld		ICPMS204-B_120510B	228	R79906
Cadmium	0.00456	mg/L		0.00008		E200.8	05/11/12 04:51 / sld		ICPMS204-B_120510B	228	R79906
Copper	0.059	mg/L		0.001		E200.8	05/11/12 04:51 / sld		ICPMS204-B_120510B	228	R79906
Iron	ND	mg/L		0.03		E200.8	05/11/12 04:51 / sld		ICPMS204-B_120510B	228	R79906
Lead	0.0033	mg/L		0.0005		E200.8	05/11/12 04:51 / sld		ICPMS204-B_120510B	228	R79906
Manganese	0.072	mg/L		0.005		E200.8	05/11/12 04:51 / sld		ICPMS204-B_120510B	228	R79906
Zinc	0.76	mg/L		0.01		E200.8	05/11/12 04:51 / sld		ICPMS204-B_120510B	228	R79906

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

JH
07-02-12

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-1
Lab ID: H12050152-011
Matrix: Surface Water

Project: UBMC
Collection Date: 05/07/12 15:40
DateReceived: 05/08/12
Report Date: 05/21/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.7	s.u.	J-	0.1		A4500-H B	05/09/12 11:50 / cmm		PHSC_101-H_120509A	45	R79840
Conductivity @ 25 C	177	umhos/cm		1		A2510 B	05/09/12 11:50 / cmm		PHSC_101-H_120509A	46	R79840
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/09/12 15:12 / cmm	05/09/12 14:41	-124 (14410200)_120509A	22	16567
Solids, Total Dissolved TDS @ 180 C	85	mg/L		10		A2540 C	05/09/12 14:58 / cmm		-124 (14410200)_120509B	28	TDS120509A
INORGANICS											
Alkalinity, Total as CaCO3	93	mg/L		4		A2320 B	05/09/12 17:11 / cmm		MAN-TECH_120509B	52	R79862
Bicarbonate as HCO3	110	mg/L		4		A2320 B	05/09/12 17:11 / cmm		MAN-TECH_120509B	52	R79862
Carbonate as CO3	ND	mg/L		4		A2320 B	05/09/12 17:11 / cmm		MAN-TECH_120509B	52	R79862
Chloride	ND	mg/L		1		E300.0	05/10/12 19:20 / cmm		IC102-H_120510A	49	R79896
Sulfate	3	mg/L		1		E300.0	05/10/12 19:20 / cmm		IC102-H_120510A	49	R79896
Hardness as CaCO3	85	mg/L		1		A2340 B	05/11/12 11:45 / sld		WATERCALC_120511A	18	R79909
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/11/12 05:09 / sld		ICPMS204-B_120510B	232	R79906
Calcium	17	mg/L		1		E200.8	05/11/12 05:09 / sld		ICPMS204-B_120510B	232	R79906
Magnesium	10	mg/L		1		E200.8	05/11/12 05:09 / sld		ICPMS204-B_120510B	232	R79906
Potassium	ND	mg/L		1		E200.8	05/11/12 05:09 / sld		ICPMS204-B_120510B	232	R79906
Sodium	ND	mg/L		1		E200.8	05/11/12 05:09 / sld		ICPMS204-B_120510B	232	R79906
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	05/11/12 05:27 / sld	05/09/12 08:50	ICPMS204-B_120510B	236	16557
Cadmium	ND	mg/L		0.00008		E200.8	05/11/12 05:27 / sld	05/09/12 08:50	ICPMS204-B_120510B	236	16557
Copper	ND	mg/L		0.001		E200.8	05/11/12 05:27 / sld	05/09/12 08:50	ICPMS204-B_120510B	236	16557
Iron	0.05	mg/L		0.03		E200.8	05/11/12 05:27 / sld	05/09/12 08:50	ICPMS204-B_120510B	236	16557
Lead	ND	mg/L		0.0005		E200.8	05/11/12 05:27 / sld	05/09/12 08:50	ICPMS204-B_120510B	236	16557
Manganese	ND	mg/L		0.005		E200.8	05/11/12 05:27 / sld	05/09/12 08:50	ICPMS204-B_120510B	236	16557
Zinc	ND	mg/L		0.01		E200.8	05/11/12 05:27 / sld	05/09/12 08:50	ICPMS204-B_120510B	236	16557

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

JAM
07-02-12

Attachment B: Chain of Custody Forms and Sample Receipt Checklist

Chain of Custody and Analytical Request Record

Page 1 of 2

PLEASE PRINT (Provide as much information as possible.)

Company Name:	Project Name, PWS, Permit, Etc.	Sample Origin	EPA/State Compliance:
MDEQ	UBMC Surface Water	State: MT	Yes ☐ No ☐
Report Mail Address:	**Contact Name:** Phone/Fax:	**Email:**	**Sampler: (Please Print)**
Quote H-645	Shellie Haaland 841-5033	shallande mt.gov	Alan Droesbach, Brienne Meyer
Invoice Address:	**Invoice Contact & Phone:**	**Purchase Order:**	**Quote/Bottle Order:**

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Special Report/Formats:

☐ DW ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: _____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids Vegetation Bioassay Other DW - Drinking Water

ANALYSIS REQUESTED

Bottle Order #9714

SEE ATTACHED

Standard Turnaround (TAT)

R U S H

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: Please copy results to adroesbach@portageinc.com 406-490-5155 5135

Shipped by: Hand del.
Cooler ID(s): 1
Receipt Temp 2.4 °C
On Ice: (Y) N
Custody Seal On Bottle Y (N) On Cooler Y (N)
Intact Y N
Signature Match Y N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX
1	BRSW-25-0917	5/7/12	0917	W
2	BRSW-26		0927	
3	BRSW-38		1009	
4	BRSW-48		1142	
5	BRSW-23		1217	
6	BRSW-3A		1245	
7	BRSW-3B		1315	
8	BRSW-2		1355	
9	BRSW-24		1502	
10	BRSW-22		1510	

X

LABORATORY USE ONLY H12050152

Custody Record MUST be Signed

Relinquished by (print): Alan Droesbach Date/Time: 5/8/12 1414 Signature:
Relinquished by (print): Date/Time: Signature:
Sample Disposal: Return to Client: _____ Lab Disposal: _____

Received by (print): Date/Time: Signature:
Received by (print): Date/Time: Signature:
Received by Laboratory: Esther Merritt Date/Time: 5/8/12 14:14 Signature: Esther Merritt

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.
This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

Chain of Custody and Analytical Request Record

PLEASE PRINT (Provide as much information as possible.)

Company Name:	Project Name, PWS, Permit, Etc.	Sample Origin	EPA/State Compliance:
MDEQ	UBMC Surface Water	State: MT	Yes ☐ No ☐
Report Mail Address:	**Contact Name:** Phone/Fax:	Email:	Sampler: (Please Print)
Quote H-645	Shellie Haaland 841-5033	shalland@mt.gov	Alan Dreesbach, Brienne Mayer
Invoice Address:	**Invoice Contact & Phone:**	**Purchase Order:**	**Quote/Bottle Order:**

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Special Report/Formats:

☐ DW ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: _____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids
Vegetation Bioassay Other
DW - Drinking Water

ANALYSIS REQUESTED

Standard Turnaround (TAT)

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: Please copy results to adreesbach@portageinc.com 406-490-~~5155~~ 5135

Shipped by: Hand
Cooler ID(s): 1
Receipt Temp: 2.4 °C TB
On Ice: (Y) N
Custody Seal: On Bottle Y (N) / On Cooler Y (N)
Intact: Y N
Signature Match: Y N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	Bottle Order #9714 SEE ATTACHED
1	BRSW-1	05/07/12	1540	W	X
2					
3					
4					
5					
6					
7	BJM 5/8/12				
8					
9					
10					

LABORATORY USE ONLY #12050652

Custody Record MUST be Signed

Relinquished by (print): Alan Dreesbach	Date/Time: 5/8/12 14:14	Signature:	Received by (print): / Date/Time: / Signature:
Relinquished by (print):	Date/Time:	Signature:	Received by (print): / Date/Time: / Signature:
Sample Disposal: Return to Client: _____ Lab Disposal: _____			Received by Laboratory: Esther Merritt 5/8/12 14:14

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.
This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

Workorder Receipt Checklist



H12050152

MT DEQ-Site Response

Login completed by: Tracy L. Lorash
Date Received: 5/8/2012

Reviewed by: BL2000\sdull
Received by: elm

Reviewed Date: 5/10/2012
Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Container/Temp Blank temperature:	2.4°C On Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Contact and Corrective Action Comments:

None

UBMC Groundwater

SDG#:	**H12050222**
Number of Samples:	**9**
Sample Matrix:	**Groundwater**
Applicable Analytes:	**(9) pH, Conductivity, TSS, TDS, Alkalinity (Total, Bicarbonate, and Carbonate), Anions: (Chloride and Sulfate), Hardness, Dissolved Metals (Al, As, Cd, Ca, Cu, Fe, Pb, Mg, K, Na, and Zn)**
Reporting Tier:	**3**
Applicable TOS#:	**N/A**
Laboratory:	**Energy Laboratories**
Validation Level:	**EPA Level III**
Validator Affiliation:	**Portage, Inc.**
Project#:	**UBMC**
Project SAP/QUAPP:	**Final Sampling and Analysis Plan for Environmental Monitoring Upper Blackfoot Mining Complex Lewis and Clark County, Montana; Portage Inc., 2012**



Validator **Date Completed:07/02/12'05/09/13**



Portage Review: _____ **Date Completed:07/03/12;05/09/13**

REPORT ORGANIZATION:

Limitations & Validation (L&V) Report UBMC Groundwater is organized into the following five sections:

- Glossary of Terms & Method References
- Data Quality Statement
- L&V Report
- Attachment A: Laboratory Report Forms Corrected for Qualification
- Attachment B: Chain of Custody Forms & Sample Receipt Checklist

GLOSSARY OF VALIDATION TERMS & METHOD VALIDATION REFERENCES

Terms:

CRDL	Contract Required Detection Limit
IDL	Instrument Detection Limit
SOW	Statement of Work
SOP	Standard Operating Procedure
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ICV	Initial Calibration Verification
CCV	Continuing Calibration Verification
ICB	Initial Calibration Blank
CCB	Continuing Calibration Blank
PB	Preparation Blank
LCS	Laboratory Control Sample
SDS	Serial Dilution Sample
SDG	Sample Delivery Group

Qualifiers:

U - The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.
Note: This detection limit may be elevated to a level greater than the IDL due to a detection of a target compound in the method blank, and as a result, the sample value, which was less than ten times the blank result, has been qualified 'U' as a non-detect.

J - The analyte was positively identified in the sample, but the associated numerical value may not be an accurate representation of the amount actually present in the environmental sample. The data should be seriously considered for decision-making and are usable for many purposes.

R - The data are unusable (may or may not be present). Resampling and reanalysis are necessary for verification.

UJ - The material was analyzed for but was not detected. The sample quantitation limit is an estimated quantity.

Reference:

The validation of this data was performed according to:

1. *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, EPA540-R-04-004,October 2004.*
2. *USEPA Contract Laboratory Program Statement of Work For Inorganic Analysis, Multi-Media, Multi-Concentration, Document Number ILM04.0, January 2000.*

LIMITATIONS AND VALIDATION REPORT

INTRODUCTION:

The UBMC Groundwater sample results were received by Portage, Inc. in June 2012. The laboratory analytical request provided for a summary data package attached for the pH, conductivity, alkalinity, TSS, TDS, chloride, sulfate, hardness, and dissolved metals (Al, As, Cd, Ca, Cu, Fe, Pb, Mg, Mn, K, Na, Zn). The samples were analyzed in accordance with Standard Methods 4500 H-B, 2320B, 2510B, 2540D, 2540C, and 2340B, and USEPA Methods 300.0, 200.7, and 200.8. Data validation was performed utilizing the USEPA Functional Guidelines for Inorganic Data Review. The following cross-reference has been provided to assist data users in comparing field identifications to the corresponding laboratory numbers.

Cross-Reference for UBMC Groundwater Samples					
Field Id#:	**Lab Id#:**	**Matrix:**	**Analysis Request:**	**Date of Collection:**	**Date of Laboratory Receipt:**
TDMW-7	H12050222-001	Groundwater	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Dissolved Metals	05/09/12	05/11/12
TDMW-8	H12050222-002	Groundwater	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Dissolved Metals	05/09/12	05/11/12
TDMW-5	H12050222-003	Groundwater	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Dissolved Metals	05/09/12	05/11/12
TDMW-4D	H12050222-004	Groundwater	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Dissolved Metals	05/09/12	05/11/12
TDMW-3D	H12050222-005	Groundwater	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Dissolved Metals	05/09/12	05/11/12
TDMW-6	H12050222-006	Groundwater	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Dissolved Metals	05/09/12	05/11/12
TDMW-1	H12050222-007	Groundwater	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Dissolved Metals	05/09/12	05/11/12
TDMW-2S	H12050222-008	Groundwater	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Dissolved Metals	05/09/12	05/11/12

Cross-Reference for UBMC Groundwater Samples					
Field Id#:	**Lab Id#:**	**Matrix:**	**Analysis Request:**	**Date of Collection:**	**Date of Laboratory Receipt:**
TDMW-2D	H12050222-009	Groundwater	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Dissolved Metals	05/09/12	05/11/12

LABORATORY CASE NARRATIVE:

The laboratory case narrative did not note any non conformance issues with the analytical data.

ANALYTICAL HOLDING TIMES:

The water samples associated with this SDG were collected on 05/09/12. The conductivity, TSS, TDS, results were analyzed on 05/11/12 within the 28-day holding time for conductivity, and the 7-day holding time for TSS and TDS. The chloride and sulfate results were analyzed on 05/14/12 within the 28-day holding time. The alkalinity results were analyzed on 05/14/12 within the 14-day holding time. The hardness results were analyzed on 05/24/12 within the 180-day holding time. The dissolved metals were analyzed 05/14/12, 05/17/12, and 05/22/12 within the 180-day holding time for the ICP Metals.

The pH samples were collected on 05/09/12, received on 05/11/12, and analyzed on 05/11/12. In the professional judgment of the validator, all pH results have been qualified with a "J-" validation flag as prescribed by the USEPA Functional Guidelines and as the samples were received and analyzed outside the 24-hour holding time.

INITIAL AND CONTINUING CALIBRATION (ICV and CCV):

All ICV and CCV results were within the acceptance criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

PREPRATION BLANKS (PB):

For all analyses, blank results were analyzed at a proper frequency of 1 blank per 20 samples in the analytical batch.

The PB results were non-detect at level less than their respective MDLs and no qualification is warranted.

Field blank, trip blank, and equipment rinsate results were not included in this data deliverable.

INTERFERENCE CHECK SAMPLE (ICS):

All ICS results were within the acceptance criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

MATRIX SPIKE (MS)/MATRIX SPIKE DUPLICATE (MSD):

The MS/MSD recovery and all RPD results were within the acceptance criteria and analyzed at the proper frequency (1 in 20) as prescribed by the USEPA Functional Guidelines and the analytical methods. MS/MSD sample were obtained from project field samples.

LABORATORY DUPLICATE SAMPLE (LDS) RPD:

All LDS and field duplicate results were within the RPD criteria and ran at the proper frequency (1 in 20) prescribed by the USEPA Functional Guidelines and the analytical methods.

DUPLICATE SUMMARY TABLE:

Analyte	Matrix Spike Duplicate RPD	Laboratory Duplicate RPD	Field Duplicate RPD
pH	N/A	1.8	-12.9032
Conductivity	N/A	0	-0.21254
TSS	N/A	0	0
TDS	N/A	0	2.564103
Alkalinity	N/A	0.4	2.247191
Bicarbonate	N/A	0.4	0
Carbonate	N/A	0	0
Chloride	1.2	N/A	0
Sulfate	1.0	N/A	0
Hardness	N/A	N/A	-1.42518
Al	0.5	N/A	0
Ca	1.8	N/A	0
Mg	1.5	N/A	-12.5
K	0.8	N/A	0
Na	1.0	N/A	0
As	0.20	N/A	0
Cd	0.2	N/A	-50*
Cu	1	N/A	0
Fe	0	N/A	-62.5*
Pb	0	N/A	0
Mn	1.4	N/A	0
Zn	2.7	N/A	0

*RPD Criteria greater than 20%, however, CRDL criteria not met, Dup ok

LABORATORY CONTROL SAMPLE (LCS):

The LCS results were of matrix types similar to the field samples and properly prepared with the field samples.

All analytes exhibited recoveries within the guidelines and analyzed at the proper frequency (1 in 20) as prescribed by the USEPA Functional Guidelines and analytical methods.

Surrogate analyses are not applicable to metals and miscellaneous wet chemistry analysis types and methods.

CHAIN OF CUSTODY:

The laboratory chain of custody (COC) forms are complete and accurate.

One cooler was received by Energy Labs on 05/11/12 at the proper preservation temperature. Custody was maintained as documents by the field and laboratory personnel signatures, dates, and time of receipt.

OVERALL ASSESSMENT OF DATA:

There were nine (9) groundwater field samples included in SDG# H12050222. Nine (9) field samples were analyzed for pH, conductivity, alkalinity, TSS, TDS, chloride, sulfate, hardness, and dissolved metals as outlined in the project QAPP.

All pH results have been qualified with a "J-" validation flag to denote the reported results are estimates with a low bias due to exceeded holding times.

The remaining field sample data points have been assessed and remain unqualified.

All field sample data points presented in this SDG are valid and complete.

All samples were received by the lab in good condition. Detection limits, analytical methods, detection limits, and reporting were all within the project requirements.

Attachment A: Laboratory Report Forms

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID TDMW-7
Lab ID: H12050222-001
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 05/09/12 12:26 **DateReceived:** 05/11/12
Report Date: 06/06/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.1	s.u.	J-	0.1		A4500-H B	05/11/12 15:40 / cmm		PHSC_101-H_120511A	32	R79900
Conductivity @ 25 C	1	umhos/cm		1		A2510 B	05/11/12 15:40 / cmm		PHSC_101-H_120511A	33	R79900
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/14/12 15:11 / cmm	05/14/12 14:45	J-124 (14410200)_120514A	3	16614
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	05/14/12 14:48 / cmm		J-124 (14410200)_120514B	4	TDS120514A
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	05/14/12 17:33 / cmm		MAN-TECH_120514A	12	R79960
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	05/14/12 17:33 / cmm		MAN-TECH_120514A	12	R79960
Carbonate as CO3	ND	mg/L		4		A2320 B	05/14/12 17:33 / cmm		MAN-TECH_120514A	12	R79960
Chloride	ND	mg/L		1		E300.0	05/14/12 14:32 / cmm		IC102-H_120514A	21	R79964
Sulfate	ND	mg/L		1		E300.0	05/14/12 14:32 / cmm		IC102-H_120514A	21	R79964
Hardness as CaCO3	ND	mg/L		1		A2340 B	05/24/12 08:36 / wjj		WATERCALC_120524A	1	R80170
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/17/12 02:12 / sld		ICPMS204-B_120516B	168	R80038
Arsenic	ND	mg/L		0.003		E200.8	05/17/12 02:12 / sld		ICPMS204-B_120516B	168	R80038
Cadmium	ND	mg/L		0.00008		E200.8	05/22/12 17:49 / dck		ICPMS204-B_120522A	78	R80136
Calcium	ND	mg/L		1		E200.7	05/14/12 12:15 / sld		ICP2-HE_120514A	36	R79951
Copper	ND	mg/L		0.001		E200.8	05/17/12 02:12 / sld		ICPMS204-B_120516B	168	R80038
Iron	ND	mg/L		0.05		E200.8	05/22/12 17:49 / dck		ICPMS204-B_120522A	78	R80136
Lead	ND	mg/L		0.0005		E200.8	05/17/12 02:12 / sld		ICPMS204-B_120516B	168	R80038
Magnesium	ND	mg/L		1		E200.7	05/14/12 12:15 / sld		ICP2-HE_120514A	36	R79951
Manganese	ND	mg/L		0.005		E200.8	05/22/12 17:49 / dck		ICPMS204-B_120522A	78	R80136
Potassium	ND	mg/L		1		E200.7	05/14/12 12:15 / sld		ICP2-HE_120514A	36	R79951
Sodium	ND	mg/L		1		E200.7	05/14/12 12:15 / sld		ICP2-HE_120514A	36	R79951
Zinc	ND	mg/L		0.01		E200.8	05/22/12 17:49 / dck		ICPMS204-B_120522A	78	R80136

JAN
07-02-12

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID TDMW-8
Lab ID: H12050222-002
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 05/09/12 12:40 **DateReceived:** 05/11/12
Report Date: 06/06/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.2	s.u.	J-	0.1		A4500-H B	05/11/12 15:46 / cmm		PHSC_101-H_120511A : 36		R79900
Conductivity @ 25 C	1	umhos/cm		1		A2510 B	05/11/12 15:46 / cmm		PHSC_101-H_120511A : 37		R79900
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/14/12 15:11 / cmm	05/14/12 14:45	J-124 (14410200)_120514A : 5		16614
Solids, Total Dissolved TDS @ 180 C	ND	mg/L	H	10		A2540 C	05/30/12 13:55 / cmm		-124 (14410200)_120530B : 14		TDS120530A
TDS was re-analyzed past the recommended hold time to confirm analytical results.											
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	05/14/12 17:38 / cmm		MAN-TECH_120514A : 14		R79960
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	05/14/12 17:38 / cmm		MAN-TECH_120514A : 14		R79960
Carbonate as CO3	ND	mg/L		4		A2320 B	05/14/12 17:38 / cmm		MAN-TECH_120514A : 14		R79960
Chloride	ND	mg/L		1		E300.0	05/14/12 14:45 / cmm		IC102-H_120514A : 22		R79964
Sulfate	ND	mg/L		1		E300.0	05/14/12 14:45 / cmm		IC102-H_120514A : 22		R79964
Hardness as CaCO3	ND	mg/L		1		A2340 B	05/24/12 08:36 / wjj		WATERCALC_120524A : 2		R80170
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/17/12 02:49 / sld		ICPMS204-B_120516B : 176		R80038
Arsenic	ND	mg/L		0.003		E200.8	05/17/12 02:49 / sld		ICPMS204-B_120516B : 176		R80038
Cadmium	ND	mg/L		0.00008		E200.8	05/22/12 17:53 / dck		ICPMS204-B_120522A : 79		R80136
Calcium	ND	mg/L		1		E200.7	05/14/12 12:19 / sld		ICP2-HE_120514A : 37		R79951
Copper	ND	mg/L		0.001		E200.8	05/17/12 02:49 / sld		ICPMS204-B_120516B : 176		R80038
Iron	ND	mg/L		0.05		E200.8	05/17/12 02:49 / sld		ICPMS204-B_120516B : 176		R80038
Lead	ND	mg/L		0.0005		E200.8	05/17/12 02:49 / sld		ICPMS204-B_120516B : 176		R80038
Magnesium	ND	mg/L		1		E200.7	05/14/12 12:19 / sld		ICP2-HE_120514A : 37		R79951
Manganese	ND	mg/L		0.005		E200.8	05/17/12 02:49 / sld		ICPMS204-B_120516B : 176		R80038
Potassium	ND	mg/L		1		E200.7	05/14/12 12:19 / sld		ICP2-HE_120514A : 37		R79951
Sodium	ND	mg/L		1		E200.7	05/14/12 12:19 / sld		ICP2-HE_120514A : 37		R79951
Zinc	ND	mg/L		0.01		E200.8	05/17/12 02:49 / sld		ICPMS204-B_120516B : 176		R80038

JAN
07-02-12

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID TDMW-5
Lab ID: H12050222-003
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 05/09/12 13:25
DateReceived: 05/11/12
Report Date: 06/06/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.6	s.u. J-		0.1		A4500-H B	05/11/12 15:49 / cmm		PHSC_101-H_120511A	38	R79900
Conductivity @ 25 C	183	umhos/cm		1		A2510 B	05/11/12 15:49 / cmm		PHSC_101-H_120511A	39	R79900
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/14/12 15:11 / cmm	05/14/12 14:45	J-124 (14410200)_120514A	6	16614
Solids, Total Dissolved TDS @ 180 C	114	mg/L		10		A2540 C	05/14/12 14:49 / cmm		J-124 (14410200)_120514B	8	TDS120514A
INORGANICS											
Alkalinity, Total as CaCO3	40	mg/L		4		A2320 B	05/14/12 17:45 / cmm		MAN-TECH_120514A	16	R79960
Bicarbonate as HCO3	49	mg/L		4		A2320 B	05/14/12 17:45 / cmm		MAN-TECH_120514A	16	R79960
Carbonate as CO3	ND	mg/L		4		A2320 B	05/14/12 17:45 / cmm		MAN-TECH_120514A	16	R79960
Chloride	ND	mg/L		1		E300.0	05/14/12 14:59 / cmm		IC102-H_120514A	23	R79964
Sulfate	43	mg/L		1		E300.0	05/14/12 14:59 / cmm		IC102-H_120514A	23	R79964
Hardness as CaCO3	74	mg/L		1		A2340 B	05/14/12 12:34 / abb		CALC_120516B	747	R80002
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/17/12 02:54 / sld		ICPMS204-B_120516B	177	R80038
Arsenic	ND	mg/L		0.003		E200.8	05/17/12 02:54 / sld		ICPMS204-B_120516B	177	R80038
Cadmium	ND	mg/L		0.00008		E200.8	05/22/12 17:58 / dck		ICPMS204-B_120522A	80	R80136
Calcium	20	mg/L		1		E200.7	05/14/12 12:34 / sld		ICP2-HE_120514A	41	R79951
Copper	ND	mg/L		0.001		E200.8	05/17/12 02:54 / sld		ICPMS204-B_120516B	177	R80038
Iron	ND	mg/L		0.05		E200.8	05/17/12 02:54 / sld		ICPMS204-B_120516B	177	R80038
Lead	ND	mg/L		0.0005		E200.8	05/17/12 02:54 / sld		ICPMS204-B_120516B	177	R80038
Magnesium	6	mg/L		1		E200.7	05/14/12 12:34 / sld		ICP2-HE_120514A	41	R79951
Manganese	ND	mg/L		0.005		E200.8	05/17/12 02:54 / sld		ICPMS204-B_120516B	177	R80038
Potassium	ND	mg/L		1		E200.7	05/14/12 12:34 / sld		ICP2-HE_120514A	41	R79951
Sodium	1	mg/L		1		E200.7	05/14/12 12:34 / sld		ICP2-HE_120514A	41	R79951
Zinc	ND	mg/L		0.01		E200.8	05/17/12 02:54 / sld		ICPMS204-B_120516B	177	R80038

JLM
07-02-12

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID TDMW-4D
Lab ID: H12050222-004
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 05/09/12 15:41 **DateReceived:** 05/11/12
Report Date: 06/06/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.1	s.u. J-		0.1		A4500-H B	05/11/12 15:52 / cmm		PHSC_101-H_120511A	40	R79900
Conductivity @ 25 C	192	umhos/cm		1		A2510 B	05/11/12 15:52 / cmm		PHSC_101-H_120511A	41	R79900
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/14/12 15:11 / cmm	05/14/12 14:45	J-124 (14410200)_120514A	7	16614
Solids, Total Dissolved TDS @ 180 C	116	mg/L		10		A2540 C	05/14/12 14:50 / cmm		J-124 (14410200)_120514B	9	TDS120514A
INORGANICS											
Alkalinity, Total as CaCO3	62	mg/L		4		A2320 B	05/14/12 17:58 / cmm		MAN-TECH_120514A	20	R79960
Bicarbonate as HCO3	75	mg/L		4		A2320 B	05/14/12 17:58 / cmm		MAN-TECH_120514A	20	R79960
Carbonate as CO3	ND	mg/L		4		A2320 B	05/14/12 17:58 / cmm		MAN-TECH_120514A	20	R79960
Chloride	ND	mg/L		1		E300.0	05/14/12 15:12 / cmm		IC102-H_120514A	24	R79964
Sulfate	31	mg/L		1		E300.0	05/14/12 15:12 / cmm		IC102-H_120514A	24	R79964
Hardness as CaCO3	76	mg/L		1		A2340 B	05/14/12 12:37 / abb		CALC_120516B	867	R80002
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/17/12 02:59 / sld		ICPMS204-B_120516B	178	R80038
Arsenic	ND	mg/L		0.003		E200.8	05/17/12 02:59 / sld		ICPMS204-B_120516B	178	R80038
Cadmium	ND	mg/L		0.00008		E200.8	05/22/12 18:03 / dck		ICPMS204-B_120522A	81	R80136
Calcium	17	mg/L		1		E200.7	05/14/12 12:37 / sld		ICP2-HE_120514A	42	R79951
Copper	ND	mg/L		0.001		E200.8	05/17/12 02:59 / sld		ICPMS204-B_120516B	178	R80038
Iron	ND	mg/L		0.05		E200.8	05/17/12 02:59 / sld		ICPMS204-B_120516B	178	R80038
Lead	ND	mg/L		0.0005		E200.8	05/17/12 02:59 / sld		ICPMS204-B_120516B	178	R80038
Magnesium	8	mg/L		1		E200.7	05/14/12 12:37 / sld		ICP2-HE_120514A	42	R79951
Manganese	ND	mg/L		0.005		E200.8	05/17/12 02:59 / sld		ICPMS204-B_120516B	178	R80038
Potassium	ND	mg/L		1		E200.7	05/14/12 12:37 / sld		ICP2-HE_120514A	42	R79951
Sodium	3	mg/L		1		E200.7	05/14/12 12:37 / sld		ICP2-HE_120514A	42	R79951
Zinc	ND	mg/L		0.01		E200.8	05/17/12 02:59 / sld		ICPMS204-B_120516B	178	R80038

JLN
07-02-12

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID TDMW-3D
Lab ID: H12050222-005
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 05/09/12 16:40
DateReceived: 05/11/12
Report Date: 06/06/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.8	s.u. J-		0.1		A4500-H B	05/11/12 15:55 / cmm		PHSC_101-H_120511A	42	R79900
Conductivity @ 25 C	470	umhos/cm		1		A2510 B	05/11/12 15:55 / cmm		PHSC_101-H_120511A	43	R79900
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/14/12 15:12 / cmm	05/14/12 14:45	J-124 (14410200)_120514A	8	16614
Solids, Total Dissolved TDS @ 180 C	316	mg/L		10		A2540 C	05/14/12 14:50 / cmm		-124 (14410200)_120514B	10	TDS120514A
INORGANICS											
Alkalinity, Total as CaCO3	45	mg/L		4		A2320 B	05/14/12 18:05 / cmm		MAN-TECH_120514A	22	R79960
Bicarbonate as HCO3	54	mg/L		4		A2320 B	05/14/12 18:05 / cmm		MAN-TECH_120514A	22	R79960
Carbonate as CO3	ND	mg/L		4		A2320 B	05/14/12 18:05 / cmm		MAN-TECH_120514A	22	R79960
Chloride	ND	mg/L		1		E300.0	05/14/12 15:26 / cmm		IC102-H_120514A	25	R79964
Sulfate	180	mg/L		1		E300.0	05/14/12 15:26 / cmm		IC102-H_120514A	25	R79964
Hardness as CaCO3	209	mg/L		1		A2340 B	05/24/12 08:36 / wjj		WATERCALC_120524A	3	R80170
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/17/12 03:03 / sld		ICPMS204-B_120516B	179	R80038
Arsenic	ND	mg/L		0.003		E200.8	05/17/12 03:03 / sld		ICPMS204-B_120516B	179	R80038
Cadmium	0.00015	mg/L		0.00008		E200.8	05/22/12 18:07 / dck		ICPMS204-B_120522A	82	R80136
Calcium	52	mg/L		1		E200.7	05/14/12 12:49 / sld		ICP2-HE_120514A	45	R79951
Copper	ND	mg/L		0.001		E200.8	05/17/12 03:03 / sld		ICPMS204-B_120516B	179	R80038
Iron	ND	mg/L		0.05		E200.8	05/17/12 03:03 / sld		ICPMS204-B_120516B	179	R80038
Lead	0.0015	mg/L		0.0005		E200.8	05/17/12 03:03 / sld		ICPMS204-B_120516B	179	R80038
Magnesium	22	mg/L		1		E200.8	05/22/12 18:07 / dck		ICPMS204-B_120522A	82	R80136
Manganese	0.011	mg/L		0.005		E200.8	05/17/12 03:03 / sld		ICPMS204-B_120516B	179	R80038
Potassium	ND	mg/L		1		E200.7	05/14/12 12:49 / sld		ICP2-HE_120514A	45	R79951
Sodium	2	mg/L		1		E200.7	05/14/12 12:49 / sld		ICP2-HE_120514A	45	R79951
Zinc	0.05	mg/L		0.01		E200.8	05/17/12 03:03 / sld		ICPMS204-B_120516B	179	R80038

JLN
07-02-12

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID TDMW-6
Lab ID: H12050222-006
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 05/09/12 16:50 **DateReceived:** 05/11/12
Report Date: 06/06/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.6	s.u.	J-	0.1		A4500-H B	05/11/12 15:58 / cmm		PHSC_101-H_120511A	44	R79900
Conductivity @ 25 C	471	umhos/cm		1		A2510 B	05/11/12 15:58 / cmm		PHSC_101-H_120511A	45	R79900
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/14/12 15:12 / cmm	05/14/12 14:45	J-124 (14410200)_120514A	9	16614
Solids, Total Dissolved TDS @ 180 C	308	mg/L		10		A2540 C	05/14/12 14:51 / cmm		-124 (14410200)_120514B	11	TDS120514A
INORGANICS											
Alkalinity, Total as CaCO3	44	mg/L		4		A2320 B	05/14/12 18:11 / cmm		MAN-TECH_120514A	24	R79960
Bicarbonate as HCO3	54	mg/L		4		A2320 B	05/14/12 18:11 / cmm		MAN-TECH_120514A	24	R79960
Carbonate as CO3	ND	mg/L		4		A2320 B	05/14/12 18:11 / cmm		MAN-TECH_120514A	24	R79960
Chloride	ND	mg/L		1		E300.0	05/14/12 15:40 / cmm		IC102-H_120514A	26	R79964
Sulfate	180	mg/L		1		E300.0	05/14/12 15:40 / cmm		IC102-H_120514A	26	R79964
Hardness as CaCO3	212	mg/L		1		A2340 B	05/24/12 08:36 / wjj		WATERCALC_120524A	4	R80170
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/17/12 03:08 / sld		ICPMS204-B_120516B	180	R80038
Arsenic	ND	mg/L		0.003		E200.8	05/17/12 03:08 / sld		ICPMS204-B_120516B	180	R80038
Cadmium	0.00017	mg/L		0.00008		E200.8	05/22/12 18:12 / dck		ICPMS204-B_120522A	83	R80136
Calcium	52	mg/L		1		E200.7	05/14/12 12:52 / sld		ICP2-HE_120514A	46	R79951
Copper	ND	mg/L		0.001		E200.8	05/17/12 03:08 / sld		ICPMS204-B_120516B	180	R80038
Iron	ND	mg/L		0.05		E200.8	05/17/12 03:08 / sld		ICPMS204-B_120516B	180	R80038
Lead	0.0025	mg/L		0.0005		E200.8	05/17/12 03:08 / sld		ICPMS204-B_120516B	180	R80038
Magnesium	22	mg/L		1		E200.8	05/22/12 18:12 / dck		ICPMS204-B_120522A	83	R80136
Manganese	0.021	mg/L		0.005		E200.8	05/17/12 03:08 / sld		ICPMS204-B_120516B	180	R80038
Potassium	ND	mg/L		1		E200.7	05/14/12 12:52 / sld		ICP2-HE_120514A	46	R79951
Sodium	2	mg/L		1		E200.7	05/14/12 12:52 / sld		ICP2-HE_120514A	46	R79951
Zinc	0.05	mg/L		0.01		E200.8	05/17/12 03:08 / sld		ICPMS204-B_120516B	180	R80038

JTN
07-02-12

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID TDMW-1
Lab ID: H12050222-007
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 05/09/12 17:50 **DateReceived:** 05/11/12
Report Date: 06/06/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.1	s.u.	J-	0.1		A4500-H B	05/11/12 16:01 / cmm		PHSC_101-H_120511A	46	R79900
Conductivity @ 25 C	576	umhos/cm		1		A2510 B	05/11/12 16:01 / cmm		PHSC_101-H_120511A	47	R79900
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/14/12 15:12 / cmm	05/14/12 14:45	-124 (14410200)_120514A	10	16614
Solids, Total Dissolved TDS @ 180 C	379	mg/L		10		A2540 C	05/14/12 14:51 / cmm		-124 (14410200)_120514B	12	TDS120514A
INORGANICS											
Alkalinity, Total as CaCO3	61	mg/L		4		A2320 B	05/16/12 17:34 / cmm		MAN-TECH_120516B	18	R80023
Bicarbonate as HCO3	75	mg/L		4		A2320 B	05/16/12 17:34 / cmm		MAN-TECH_120516B	18	R80023
Carbonate as CO3	ND	mg/L		4		A2320 B	05/16/12 17:34 / cmm		MAN-TECH_120516B	18	R80023
Chloride	ND	mg/L		1		E300.0	05/14/12 15:53 / cmm		IC102-H_120514A	27	R79964
Sulfate	220	mg/L		1		E300.0	05/14/12 15:53 / cmm		IC102-H_120514A	27	R79964
Hardness as CaCO3	263	mg/L		1		A2340 B	05/24/12 08:36 / wjj		WATERCALC_120524A	5	R80170
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/17/12 03:12 / sld		ICPMS204-B_120516B	181	R80038
Arsenic	ND	mg/L		0.003		E200.8	05/17/12 03:12 / sld		ICPMS204-B_120516B	181	R80038
Cadmium	0.00119	mg/L		0.00008		E200.8	05/22/12 18:48 / dck		ICPMS204-B_120522A	91	R80136
Calcium	50	mg/L		1		E200.7	05/14/12 12:56 / sld		ICP2-HE_120514A	47	R79951
Copper	ND	mg/L		0.001		E200.8	05/17/12 03:12 / sld		ICPMS204-B_120516B	181	R80038
Iron	ND	mg/L		0.05		E200.8	05/17/12 03:12 / sld		ICPMS204-B_120516B	181	R80038
Lead	ND	mg/L		0.0005		E200.8	05/17/12 03:12 / sld		ICPMS204-B_120516B	181	R80038
Magnesium	38	mg/L		1		E200.8	05/22/12 18:48 / dck		ICPMS204-B_120522A	91	R80136
Manganese	0.028	mg/L		0.005		E200.8	05/17/12 03:12 / sld		ICPMS204-B_120516B	181	R80038
Potassium	ND	mg/L		1		E200.7	05/14/12 12:56 / sld		ICP2-HE_120514A	47	R79951
Sodium	1	mg/L		1		E200.7	05/14/12 12:56 / sld		ICP2-HE_120514A	47	R79951
Zinc	1.24	mg/L		0.01		E200.8	05/17/12 03:12 / sld		ICPMS204-B_120516B	181	R80038

JAN
07-02-12

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID TDMW-2S
Lab ID: H12050222-008
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 05/09/12 19:02 **DateReceived:** 05/11/12
Report Date: 06/06/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.0	s.u. J-		0.1		A4500-H B	05/11/12 16:04 / cmm		PHSC_101-H_120511A	48	R79900
Conductivity @ 25 C	2610	umhos/cm		1		A2510 B	05/11/12 16:04 / cmm		PHSC_101-H_120511A	49	R79900
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/14/12 15:12 / cmm	05/14/12 14:45	-124 (14410200)_120514A	11	16614
Solids, Total Dissolved TDS @ 180 C	2400	mg/L		10		A2540 C	05/14/12 14:54 / cmm		-124 (14410200)_120514B	13	TDS120514A
INORGANICS											
Alkalinity, Total as CaCO3	130	mg/L		4		A2320 B	05/16/12 17:41 / cmm		MAN-TECH_120516B	20	R80023
Bicarbonate as HCO3	160	mg/L		4		A2320 B	05/16/12 17:41 / cmm		MAN-TECH_120516B	20	R80023
Carbonate as CO3	ND	mg/L		4		A2320 B	05/16/12 17:41 / cmm		MAN-TECH_120516B	20	R80023
Chloride	ND	mg/L		1		E300.0	05/17/12 13:33 / cmm		IC102-H_120517A	21	R80063
Sulfate	1500	mg/L	D	10		E300.0	05/14/12 16:34 / cmm		IC102-H_120514A	30	R79964
Hardness as CaCO3	1480	mg/L		1		A2340 B	05/24/12 08:36 / wjj		WATERCALC_120524A	6	R80170
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/17/12 03:36 / sld		ICPMS204-B_120516B	186	R80038
Arsenic	ND	mg/L		0.003		E200.8	05/17/12 03:36 / sld		ICPMS204-B_120516B	186	R80038
Cadmium	0.0207	mg/L		0.00008		E200.8	05/22/12 18:53 / dck		ICPMS204-B_120522A	92	R80136
Calcium	243	mg/L		1		E200.8	05/22/12 18:53 / dck		ICPMS204-B_120522A	92	R80136
Copper	0.002	mg/L		0.001		E200.8	05/22/12 18:53 / dck		ICPMS204-B_120522A	92	R80136
Iron	0.12	mg/L		0.05		E200.8	05/17/12 03:36 / sld		ICPMS204-B_120516B	186	R80038
Lead	0.0007	mg/L		0.0005		E200.8	05/17/12 03:36 / sld		ICPMS204-B_120516B	186	R80038
Magnesium	230	mg/L		1		E200.8	05/22/12 18:53 / dck		ICPMS204-B_120522A	92	R80136
Manganese	58.6	mg/L		0.005		E200.7	05/14/12 13:00 / sld		ICP2-HE_120514A	48	R79951
Potassium	2	mg/L		1		E200.7	05/14/12 13:00 / sld		ICP2-HE_120514A	48	R79951
Sodium	2	mg/L		1		E200.7	05/14/12 13:00 / sld		ICP2-HE_120514A	48	R79951
Zinc	11.4	mg/L		0.01		E200.7	05/14/12 13:00 / sld		ICP2-HE_120514A	48	R79951

JLH
07-08-12

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID TDMW-2D
Lab ID: H12050222-009
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 05/09/12 18:30 **DateReceived:** 05/11/12
Report Date: 06/06/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.8	s.u.	J-	0.1		A4500-H B	05/11/12 16:07 / cmm		PHSC_101-H_120511A	50	R79900
Conductivity @ 25 C	280	umhos/cm		1		A2510 B	05/11/12 16:07 / cmm		PHSC_101-H_120511A	51	R79900
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	05/14/12 15:13 / cmm	05/14/12 14:45	-124 (14410200)_120514A	12	16614
Solids, Total Dissolved TDS @ 180 C	159	mg/L		10		A2540 C	05/14/12 16:03 / cmm		-124 (14410200)_120514B	46	TDS120514A
INORGANICS											
Alkalinity, Total as CaCO3	110	mg/L		4		A2320 B	05/14/12 18:31 / cmm		MAN-TECH_120514A	30	R79960
Bicarbonate as HCO3	130	mg/L		4		A2320 B	05/14/12 18:31 / cmm		MAN-TECH_120514A	30	R79960
Carbonate as CO3	ND	mg/L		4		A2320 B	05/14/12 18:31 / cmm		MAN-TECH_120514A	30	R79960
Chloride	ND	mg/L		1		E300.0	05/14/12 17:15 / cmm		IC102-H_120514A	33	R79964
Sulfate	36	mg/L		1		E300.0	05/14/12 17:15 / cmm		IC102-H_120514A	33	R79964
Hardness as CaCO3	126	mg/L		1		A2340 B	05/24/12 08:36 / wjj		WATERCALC_120524A	7	R80170
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	05/17/12 03:40 / sld		ICPMS204-B_120516B	187	R80038
Arsenic	ND	mg/L		0.003		E200.8	05/17/12 03:40 / sld		ICPMS204-B_120516B	187	R80038
Cadmium	ND	mg/L		0.00008		E200.8	05/22/12 18:57 / dck		ICPMS204-B_120522A	93	R80136
Calcium	28	mg/L		1		E200.7	05/14/12 13:04 / sld		ICP2-HE_120514A	49	R79951
Copper	ND	mg/L		0.001		E200.8	05/17/12 03:40 / sld		ICPMS204-B_120516B	187	R80038
Iron	ND	mg/L		0.05		E200.8	05/17/12 03:40 / sld		ICPMS204-B_120516B	187	R80038
Lead	ND	mg/L		0.0005		E200.8	05/17/12 03:40 / sld		ICPMS204-B_120516B	187	R80038
Magnesium	14	mg/L		1		E200.7	05/14/12 13:04 / sld		ICP2-HE_120514A	49	R79951
Manganese	ND	mg/L		0.005		E200.8	05/17/12 03:40 / sld		ICPMS204-B_120516B	187	R80038
Potassium	ND	mg/L		1		E200.7	05/14/12 13:04 / sld		ICP2-HE_120514A	49	R79951
Sodium	1	mg/L		1		E200.7	05/14/12 13:04 / sld		ICP2-HE_120514A	49	R79951
Zinc	ND	mg/L		0.01		E200.8	05/17/12 03:40 / sld		ICPMS204-B_120516B	187	R80038

JAN
07-08-12

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

UBMC Surface Water and Sediment

SDG#:	**H12100099**
Number of Samples:	**19**
Sample Matrix:	**(11) Sediment and (8) Surface water**
Applicable Analytes:	**(11) pH, Conductivity, TSS, TDS, Alkalinity (Total, Bicarbonate, and Carbonate), Anions: (Chloride and Sulfate), Hardness, Dissolved Metals (Al, Ca, Mg, K, and Na), and Total Recoverable Metals: (As, Cd, Cu, Fe, Pb, Mn, and Zn) and (8) for Total Extractable Metals: (Al, As, Cd, Cu, Fe, Pb, Mn, and Zn)**
Reporting Tier:	**3**
Applicable TOS#:	**N/A**
Laboratory:	**Energy Laboratories**
Validation Level:	**EPA Level III**
Validator Affiliation:	**Portage, Inc.**
Project#:	**UBMC**
Project SAP/QUAPP:	**Final Sampling and Analysis Plan for Environmental Monitoring Upper Blackfoot Mining Complex, Lewis and Clark County, Montana; Portage Inc., 2012**



Validator **Date Completed:01/25/13;05/09/13**



Portage Review: **Date Completed:01/25/13;05/09/13**

REPORT ORGANIZATION:

Limitations & Validation (L&V) Report UBMC Surface Water and Sediment is organized into the following five sections:

- Glossary of Terms & Method References
- Data Quality Statement
- L&V Report
- Attachment A: Laboratory Report Forms Corrected for Qualification
- Attachment B: Chain of Custody Forms & Sample Receipt Checklist

GLOSSARY OF VALIDATION TERMS & METHOD VALIDATION REFERENCES

Terms:

CRDL	Contract Required Detection Limit
IDL	Instrument Detection Limit
SOW	Statement of Work
SOP	Standard Operating Procedure
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ICV	Initial Calibration Verification
CCV	Continuing Calibration Verification
ICB	Initial Calibration Blank
CCB	Continuing Calibration Blank
PB	Preparation Blank
LCS	Laboratory Control Sample
SDS	Serial Dilution Sample
SDG	Sample Delivery Group

Qualifiers:

U - The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.
Note: This detection limit may be elevated to a level greater than the IDL due to a detection of a target compound in the method blank, and as a result, the sample value, which was less than ten times the blank result, has been qualified 'U' as a non-detect.

J - The analyte was positively identified in the sample, but the associated numerical value may not be an accurate representation of the amount actually present in the environmental sample. The data should be seriously considered for decision-making and are usable for many purposes.

R - The data are unusable (may or may not be present). Resampling and reanalysis are necessary for verification.

UJ - The material was analyzed for but was not detected. The sample quantitation limit is an estimated quantity.

Reference:

The validation of this data was performed according to:

1. *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, EPA540-R-04-004,October 2004.*
2. *USEPA Contract Laboratory Program Statement of Work For Inorganic Analysis, Multi-Media, Multi-Concentration, Document Number ILM04.0, January 2000.*

LIMITATIONS AND VALIDATION REPORT

INTRODUCTION:

The UBMC Surface Water surface water and sediment sample results were received by Portage, Inc. in October 2012. The laboratory analytical request provided for a summary data package attached for the pH, conductivity, alkalinity, TSS, TDS, chloride, sulfate, hardness, total recoverable metals (As, Cd, Cu, Fe, Pb, Mg, and Zn), dissolved metals (Al, Ca, Mg, K, and Na), and total recoverable metals: (Al, As, Cd, Cu, Fe, Pb, Mn, and Zn). The samples were analyzed in accordance with Standard Methods 4500 H-B, 2320B, 2510B, 2540D, 2540C, and 2340B, USEPA SW-846 Methods 3050B and 6010B, and USEPA Methods 300.0, 200.7, and 200.8. Data validation was performed utilizing the USEPA Functional Guidelines for Inorganic Data Review. The following cross-reference has been provided to assist data users in comparing field identifications to the corresponding laboratory numbers.

Cross-Reference for UBMC Sediment and Surface Water Samples					
Field Id#:	**Lab Id#:**	**Matrix:**	**Analysis Request:**	**Date of Collection:**	**Date of Laboratory Receipt:**
BRSW-25	H12100099-001	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Total Metals, Dissolved Metals	10/03/12	10/03/12
BRSW-26	H12100099-002	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Total Metals, Dissolved Metals	10/03/12	10/03/12
BRSW-38	H12100099-003	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Total Metals, Dissolved Metals	10/03/12	10/03/12
BRSW-48	H12100099-004	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Total Metals, Dissolved Metals	10/03/12	10/03/12
BRSW-23	H12100099-005	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Total Metals, Dissolved Metals	10/03/12	10/03/12
BRSW-3A	H12100099-006	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Total Metals, Dissolved Metals	10/03/12	10/03/12

Cross-Reference for UBMC Sediment and Surface Water Samples					
Field Id#:	**Lab Id#:**	**Matrix:**	**Analysis Request:**	**Date of Collection:**	**Date of Laboratory Receipt:**
BRSW-3B	H12100099-007	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Total Metals, Dissolved Metals	10/03/12	10/03/12
BRSW-2	H12100099-008	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Total Metals, Dissolved Metals	10/03/12	10/03/12
BRSW-22	H12100099-009	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Total Metals, Dissolved Metals	10/03/12	10/03/12
BRSW-24	H12100099-010	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Total Metals, Dissolved Metals	10/03/12	10/03/12
BRSW-1	H12100099-011	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Total Metals, Dissolved Metals	10/03/12	10/03/12
BRSD-38	H12100099-012	Sediment	Total Extractable Metals	10/03/12	10/03/12
BRSD-48	H12100099-013	Sediment	Total Extractable Metals	10/03/12	10/03/12
BRSD-23	H12100099-014	Sediment	Total Extractable Metals	10/03/12	10/03/12
BRSD-3A	H12100099-015	Sediment	Total Extractable Metals	10/03/12	10/03/12
BRSD-3B	H12100099-016	Sediment	Total Extractable Metals	10/03/12	10/03/12
BRSD-22	H12100099-017	Sediment	Total Extractable Metals	10/03/12	10/03/12
BRSD-24	H12100099-018	Sediment	Total Extractable Metals	10/03/12	10/03/12
BRSD-1	H12100099-019	Sediment	Total Extractable Metals	10/03/12	10/03/12

LABORATORY CASE NARRATIVE:

The laboratory case narrative did not note any non conformance issues with the analytical data.

ANALYTICAL HOLDING TIMES:

The water samples associated with this SDG were collected on 10/02/12. The conductivity, TSS, and TDS results were analyzed on 10/04/12 within the 28-day holding time for conductivity, and the 7-day holding time for TSS and TDS. The chloride and sulfate results were analyzed on 10/05/12 within the 28-day holding time. The alkalinity results were analyzed on 10/04/12 within the 14-day holding time. The hardness results were analyzed on 10/08/12 within the 180-day holding time. The total extractable, total recoverable, and dissolved metals were analyzed 10/04/12, 10/05/12, 10/16/12, and 10/17/12 within the 180-day holding time for the ICP Metals.

The pH samples were collected on 10/02/12, received on 10/03/12, and analyzed on 10/04/12. In the professional judgment of the validator, all pH results have been qualified with a "J-" validation flag as prescribed by the USEPA Functional Guidelines and as the samples were analyzed outside the 24-hour holding time.

INITIAL AND CONTINUING CALIBRATION (ICV and CCV):

All ICV and CCV results were within the acceptance criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

PREPRATION BLANKS (PB):

For all analyses, blank results were analyzed at a proper frequency of 1 blank per 20 samples in the analytical batch.

The iron sediment method blank exhibited detectable activity. No qualification is warranted as all iron sample results were greater than five times the value in the blank.

The remaining PB results were non-detect at level less than their respective MDLs and no qualification is warranted.

Field blank, trip blank, and equipment rinsate results were not included in this data deliverable.

INTERFERENCE CHECK SAMPLE (ICS):

All ICS results were within the acceptance criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

MATRIX SPIKE (MS)/MATRIX SPIKE DUPLICATE (MSD):

The arsenic (58% and 60%), lead (67% and 50%), and zinc (67% and 43%) sediment MS/MSD results and the manganese (42%) MSD results were outside the 75-125% recovery criteria. The arsenic, lead, manganese and zinc sediment samples results were qualified with a "J-" validation flag due to low MS/MSD recovery and sample results less than the MDL

The remaining MS/MSD recovery and all RPD results were within the acceptance criteria and analyzed at the proper frequency (1 in 20) as prescribed by the USEPA Functional Guidelines and the analytical methods. MS/MSD sample were obtained from project field samples.

LABORATORY DUPLICATE SAMPLE (LDS) RPD:

The lead (47.1%) and manganese (46.5%) sediment field duplicate results exhibited an RPD greater than the +/-35% RPD acceptance criteria. Lead and manganese sample results would warrant qualification with a "J" validation flag. However, they have already been qualified "J-" due to low MS/MSD recovery. The poor duplicate precision adds further merit to the qualifications.

All LDS and remaining field duplicate results were within the RPD criteria and ran at the proper frequency (1 in 20) prescribed by the USEPA Functional Guidelines and the analytical methods.

DUPLICATE SUMMARY TABLE:

Surface Water:

Analyte	Matrix Spike Duplicate RPD	Laboratory Duplicate RPD	Field Duplicate RPD
pH	N/A	0.3	1.342282
Conductivity	N/A	4.5	0.636943
TSS	N/A	0	0
TDS	N/A	0	3.773585
Alkalinity	N/A	0.4	0
Bicarbonate	N/A	0.4	0
Carbonate	N/A	0	0
Chloride	0.7	N/A	0
Sulfate	0.6	N/A	0
Hardness	N/A	N/A	0.630915
Al		N/A	0
Ca	0.2	N/A	0
Mg	0.3	N/A	0
K	1.7	N/A	0
Na	1.5	N/A	0
As	1.7	N/A	0
Cd	1.3	N/A	0.163265
Cu	2.8	N/A	11.11111
Fe	1.6	N/A	0
Pb	2.6	N/A	8.333333
Mn	0.2	N/A	0
Zn	1.7	N/A	5.504587

*RPD greater than 20%, however, CRDL criteria not met, Dup ok

Sediment:

Analyte	Matrix Spike Duplicate RPD	Laboratory Duplicate RPD	Field Duplicate RPD
Al	7.0	N/A	5.558841
As	1.7	N/A	26.50602
Cd	4.7	N/A	35
Cu	13	N/A	35
Fe	2.8	N/A	-3.07692
Pb	9.3	N/A	**47.05882**
Mn	18	N/A	**46.54088**
Zn	20	N/A	30.18868

*RPD greater than 35%, however, CRDL criteria not met, Dup ok

LABORATORY CONTROL SAMPLE (LCS):

The LCS results were of matrix types similar to the field samples and properly prepared with the field samples.

All analytes exhibited recoveries within the guidelines and analyzed at the proper frequency (1 in 20) as prescribed by the USEPA Functional Guidelines and analytical methods.

Surrogate analyses are not applicable to metals and miscellaneous wet chemistry analysis types and methods.

CHAIN OF CUSTODY:

The laboratory chain of custody (COC) forms are complete and accurate.

One cooler was received by Energy Labs on 10/03/12 at 3.3°C. Custody was maintained as documents by the field and laboratory personnel signatures, dates, and time of receipt.

REPORTING LIMTS:

The reporting limits presented by the laboratory were acceptable and met the screening level requirements set forth by the project QAPjP and SAP.

OVERALL ASSESSMENT OF DATA:

There were eleven (11) surface water and eight (8) sediment field samples included in SDG# H12100099. Eleven (11) field samples were analyzed for pH, conductivity, alkalinity, TSS, TDS, chloride, sulfate, hardness, total recoverable metals, and dissolved metals and eight (8) field samples were analyzed for total extractable metals as outlined in the project QAPP.

All pH results have been qualified with a "J-" validation flag to denote the reported results are estimates with a low bias due to exceeded holding times.

The arsenic and lead sediment sample results have been qualified with a "J-" validation flag to denote the reported results are estimates with a low bias due to low MS/MSD recovery.

The manganese and zinc sediment sample results have been qualified with a "J-" validation flag to denote the reported results are estimates with a low bias due to low MS/MSD recovery and poor field duplicate precision.

The remaining field sample data points have been assessed and remain unqualified.

All field sample data points presented in this SDG are valid and complete.

All samples were received by the lab in good condition. Detection limits, analytical methods, detection limits, and reporting were all within the project requirements.

Attachment A: Laboratory Report Forms

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-25
Lab ID: H12100099-001
Matrix: Aqueous

Project: UBMC Surface Water/Sediment
Collection Date: 10/02/12 09:48 **DateReceived:** 10/03/12
Report Date: 10/25/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.5	s.u.	J- H	0.1		A4500-H B	10/04/12 10:55 / cmm		PHSC_101-H_121004A	37	R83422
Conductivity @ 25 C	1	umhos/cm		1		A2510 B	10/04/12 10:55 / cmm		PHSC_101-H_121004A	38	R83422
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/04/12 15:48 / cmm	10/04/12 14:25	-124 (14410200)_121004A	18	18263
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	10/04/12 16:00 / cmm		-124 (14410200)_121004B	12	TDS121004A
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	10/04/12 18:44 / cmm		MAN-TECH_121004B	48	R83460
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	10/04/12 18:44 / cmm		MAN-TECH_121004B	48	R83460
Carbonate as CO3	ND	mg/L		4		A2320 B	10/04/12 18:44 / cmm		MAN-TECH_121004B	48	R83460
Chloride	ND	mg/L		1		E300.0	10/05/12 01:46 / cmm		IC102-H_121004A	51	R83467
Sulfate	ND	mg/L		1		E300.0	10/05/12 01:46 / cmm		IC102-H_121004A	51	R83467
Hardness as CaCO3	ND	mg/L		1		A2340 B	10/08/12 07:58 / sld		WATERCALC_121008A	5	R83484
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	10/05/12 17:30 / sld		ICP2-HE_121005A	114	R83483
Calcium	ND	mg/L		1		E200.7	10/04/12 11:28 / sld		ICP2-HE_121004A	29	R83458
Magnesium	ND	mg/L		1		E200.7	10/04/12 11:28 / sld		ICP2-HE_121004A	29	R83458
Potassium	ND	mg/L		1		E200.7	10/04/12 11:28 / sld		ICP2-HE_121004A	29	R83458
Sodium	ND	mg/L		1		E200.7	10/04/12 11:28 / sld		ICP2-HE_121004A	29	R83458
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	10/11/12 21:06 / dck	10/04/12 08:57	ICPMS204-B_121010C	387	18257
Cadmium	ND	mg/L		0.00008		E200.8	10/11/12 21:06 / dck	10/04/12 08:57	ICPMS204-B_121010C	387	18257
Copper	ND	mg/L		0.001		E200.8	10/11/12 21:06 / dck	10/04/12 08:57	ICPMS204-B_121010C	387	18257
Iron	ND	mg/L		0.03		E200.8	10/11/12 21:06 / dck	10/04/12 08:57	ICPMS204-B_121010C	387	18257
Lead	ND	mg/L		0.0005		E200.8	10/15/12 17:17 / dck	10/04/12 08:57	ICPMS204-B_121015A	32	18257
Manganese	ND	mg/L		0.005		E200.8	10/11/12 21:06 / dck	10/04/12 08:57	ICPMS204-B_121010C	387	18257
Zinc	ND	mg/L		0.01		E200.8	10/11/12 21:06 / dck	10/04/12 08:57	ICPMS204-B_121010C	387	18257

JAM
2-19-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-26
Lab ID: H12100099-002
Matrix: Aqueous

Project: UBMC Surface Water/Sediment
Collection Date: 10/02/12 09:59 **DateReceived:** 10/03/12
Report Date: 10/25/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.1	s.u. J-	H	0.1		A4500-H B	10/04/12 10:58 / cmm		PHSC_101-H_121004A	39	R83422
Conductivity @ 25 C	1	umhos/cm		1		A2510 B	10/04/12 10:58 / cmm		PHSC_101-H_121004A	40	R83422
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/04/12 15:48 / cmm	10/04/12 14:25	-124 (14410200)_121004A	19	18263
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	10/04/12 16:00 / cmm		-124 (14410200)_121004B	13	TDS121004A
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	10/04/12 18:49 / cmm		MAN-TECH_121004B	50	R83460
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	10/04/12 18:49 / cmm		MAN-TECH_121004B	50	R83460
Carbonate as CO3	ND	mg/L		4		A2320 B	10/04/12 18:49 / cmm		MAN-TECH_121004B	50	R83460
Chloride	ND	mg/L		1		E300.0	10/05/12 01:59 / cmm		IC102-H_121004A	52	R83467
Sulfate	ND	mg/L		1		E300.0	10/05/12 01:59 / cmm		IC102-H_121004A	52	R83467
Hardness as CaCO3	ND	mg/L		1		A2340 B	10/08/12 07:58 / sld		WATERCALC_121008A	6	R83484
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	10/05/12 17:34 / sld		ICP2-HE_121005A	115	R83483
Calcium	ND	mg/L		1		E200.7	10/04/12 11:32 / sld		ICP2-HE_121004A	30	R83458
Magnesium	ND	mg/L		1		E200.7	10/04/12 11:32 / sld		ICP2-HE_121004A	30	R83458
Potassium	ND	mg/L		1		E200.7	10/04/12 11:32 / sld		ICP2-HE_121004A	30	R83458
Sodium	ND	mg/L		1		E200.7	10/04/12 11:32 / sld		ICP2-HE_121004A	30	R83458
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	10/11/12 21:28 / dck	10/04/12 08:57	ICPMS204-B_121010C	392	18257
Cadmium	ND	mg/L		0.00008		E200.8	10/11/12 21:28 / dck	10/04/12 08:57	ICPMS204-B_121010C	392	18257
Copper	ND	mg/L		0.001		E200.8	10/11/12 21:28 / dck	10/04/12 08:57	ICPMS204-B_121010C	392	18257
Iron	ND	mg/L		0.03		E200.8	10/11/12 21:28 / dck	10/04/12 08:57	ICPMS204-B_121010C	392	18257
Lead	ND	mg/L		0.0005		E200.8	10/15/12 17:21 / dck	10/04/12 08:57	ICPMS204-B_121015A	33	18257
Manganese	ND	mg/L		0.005		E200.8	10/11/12 21:28 / dck	10/04/12 08:57	ICPMS204-B_121010C	392	18257
Zinc	ND	mg/L		0.01		E200.8	10/11/12 21:28 / dck	10/04/12 08:57	ICPMS204-B_121010C	392	18257

JAN
2-19-13

Report Definitions: RL - Analyte reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-38
Lab ID: H12100099-003
Matrix: Aqueous

Project: UBMC Surface Water/Sediment
Collection Date: 10/02/12 10:19 **DateReceived:** 10/03/12
Report Date: 10/25/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.3	s.u. J-	H	0.1		A4500-H B	10/04/12 11:00 / cmm		PHSC_101-H_121004A	41	R83422
Conductivity @ 25 C	298	umhos/cm		1		A2510 B	10/04/12 11:00 / cmm		PHSC_101-H_121004A	42	R83422
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/04/12 15:48 / cmm	10/04/12 14:25	-124 (14410200)_121004A	20	18263
Solids, Total Dissolved TDS @ 180 C	166	mg/L		10		A2540 C	10/04/12 16:00 / cmm		-124 (14410200)_121004B	14	TDS121004A
INORGANICS											
Alkalinity, Total as CaCO3	93	mg/L		4		A2320 B	10/04/12 18:56 / cmm		MAN-TECH_121004B	52	R83460
Bicarbonate as HCO3	110	mg/L		4		A2320 B	10/04/12 18:56 / cmm		MAN-TECH_121004B	52	R83460
Carbonate as CO3	ND	mg/L		4		A2320 B	10/04/12 18:56 / cmm		MAN-TECH_121004B	52	R83460
Chloride	ND	mg/L		1		E300.0	10/05/12 02:11 / cmm		IC102-H_121004A	53	R83467
Sulfate	54	mg/L		1		E300.0	10/05/12 02:11 / cmm		IC102-H_121004A	53	R83467
Hardness as CaCO3	145	mg/L		1		A2340 B	10/04/12 11:54 / abb		CALC_121005A	243	R83473
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	10/05/12 17:38 / sld		ICP2-HE_121005A	116	R83483
Calcium	30	mg/L		1		E200.7	10/04/12 11:54 / sld		ICP2-HE_121004A	36	R83458
Magnesium	17	mg/L		1		E200.7	10/04/12 11:54 / sld		ICP2-HE_121004A	36	R83458
Potassium	ND	mg/L		1		E200.7	10/04/12 11:54 / sld		ICP2-HE_121004A	36	R83458
Sodium	1	mg/L		1		E200.7	10/04/12 11:54 / sld		ICP2-HE_121004A	36	R83458
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	10/11/12 21:33 / dck	10/04/12 08:57	ICPMS204-B_121010C	393	18257
Cadmium	0.00399	mg/L		0.00008		E200.8	10/11/12 21:33 / dck	10/04/12 08:57	ICPMS204-B_121010C	393	18257
Copper	0.005	mg/L		0.001		E200.8	10/11/12 21:33 / dck	10/04/12 08:57	ICPMS204-B_121010C	393	18257
Iron	0.15	mg/L		0.03		E200.8	10/11/12 21:33 / dck	10/04/12 08:57	ICPMS204-B_121010C	393	18257
Lead	0.0092	mg/L		0.0005		E200.8	10/15/12 17:26 / dck	10/04/12 08:57	ICPMS204-B_121015A	34	18257
Manganese	0.748	mg/L		0.005		E200.8	10/11/12 21:33 / dck	10/04/12 08:57	ICPMS204-B_121010C	393	18257
Zinc	0.89	mg/L		0.01		E200.8	10/11/12 21:33 / dck	10/04/12 08:57	ICPMS204-B_121010C	393	18257

JAN 2-A13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-48
Lab ID: H12100099-004
Matrix: Aqueous

Project: UBMC Surface Water/Sediment
Collection Date: 10/02/12 12:12 **DateReceived:** 10/03/12
Report Date: 10/25/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.6	s.u. J-	H	0.1		A4500-H B	10/04/12 11:03 / cmm		PHSC_101-H_121004A	43	R83422
Conductivity @ 25 C	300	umhos/cm		1		A2510 B	10/04/12 11:03 / cmm		PHSC_101-H_121004A	44	R83422
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/04/12 15:49 / cmm	10/04/12 14:25	-124 (14410200)_121004A	21	18263
Solids, Total Dissolved TDS @ 180 C	164	mg/L		10		A2540 C	10/04/12 16:01 / cmm		-124 (14410200)_121004B	15	TDS121004A
INORGANICS											
Alkalinity, Total as CaCO3	100	mg/L		4		A2320 B	10/05/12 15:35 / cmm		MAN-TECH_121005B	43	R83488
Bicarbonate as HCO3	130	mg/L		4		A2320 B	10/05/12 15:35 / cmm		MAN-TECH_121005B	43	R83488
Carbonate as CO3	ND	mg/L		4		A2320 B	10/05/12 15:35 / cmm		MAN-TECH_121005B	43	R83488
Chloride	ND	mg/L		1		E300.0	10/05/12 02:24 / cmm		IC102-H_121004A	54	R83467
Sulfate	47	mg/L		1		E300.0	10/05/12 02:24 / cmm		IC102-H_121004A	54	R83467
Hardness as CaCO3	154	mg/L		1		A2340 B	10/08/12 07:58 / sld		WATERCALC_121008A	7	R83484
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	10/05/12 17:41 / sld		ICP2-HE_121005A	117	R83483
Calcium	29	mg/L		1		E200.7	10/04/12 11:58 / sld		ICP2-HE_121004A	37	R83458
Magnesium	20	mg/L		1		E200.7	10/04/12 11:58 / sld		ICP2-HE_121004A	37	R83458
Potassium	ND	mg/L		1		E200.7	10/04/12 11:58 / sld		ICP2-HE_121004A	37	R83458
Sodium	1	mg/L		1		E200.7	10/04/12 11:58 / sld		ICP2-HE_121004A	37	R83458
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	10/11/12 21:55 / dck	10/04/12 08:57	ICPMS204-B_121010C	398	18257
Cadmium	0.00199	mg/L		0.00008		E200.8	10/11/12 21:55 / dck	10/04/12 08:57	ICPMS204-B_121010C	398	18257
Copper	0.007	mg/L		0.001		E200.8	10/11/12 21:55 / dck	10/04/12 08:57	ICPMS204-B_121010C	398	18257
Iron	0.47	mg/L		0.03		E200.8	10/11/12 21:55 / dck	10/04/12 08:57	ICPMS204-B_121010C	398	18257
Lead	0.0229	mg/L		0.0005		E200.8	10/15/12 17:30 / dck	10/04/12 08:57	ICPMS204-B_121015A	35	18257
Manganese	0.874	mg/L		0.005		E200.8	10/11/12 21:55 / dck	10/04/12 08:57	ICPMS204-B_121010C	398	18257
Zinc	0.41	mg/L		0.01		E200.8	10/11/12 21:55 / dck	10/04/12 08:57	ICPMS204-B_121010C	398	18257

JAN
2-19-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-23
Lab ID: H12100099-005
Matrix: Aqueous

Project: UBMC Surface Water/Sediment
Collection Date: 10/02/12 12:45 **DateReceived:** 10/03/12
Report Date: 10/25/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.8	s.u. J-	H	0.1		A4500-H B	10/04/12 11:06 / cmm		PHSC_101-H_121004A	45	R83422
Conductivity @ 25 C	301	umhos/cm		1		A2510 B	10/04/12 11:06 / cmm		PHSC_101-H_121004A	46	R83422
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/04/12 15:50 / cmm	10/04/12 14:25	-124 (14410200)_121004A	23	18263
Solids, Total Dissolved TDS @ 180 C	164	mg/L		10		A2540 C	10/04/12 16:01 / cmm		-124 (14410200)_121004B	17	TDS121004A
INORGANICS											
Alkalinity, Total as CaCO3	110	mg/L		4		A2320 B	10/05/12 15:42 / cmm		MAN-TECH_121005B	45	R83488
Bicarbonate as HCO3	130	mg/L		4		A2320 B	10/05/12 15:42 / cmm		MAN-TECH_121005B	45	R83488
Carbonate as CO3	ND	mg/L		4		A2320 B	10/05/12 15:42 / cmm		MAN-TECH_121005B	45	R83488
Chloride	ND	mg/L		1		E300.0	10/05/12 02:36 / cmm		IC102-H_121004A	55	R83467
Sulfate	44	mg/L		1		E300.0	10/05/12 02:36 / cmm		IC102-H_121004A	55	R83467
Hardness as CaCO3	159	mg/L		1		A2340 B	10/08/12 07:58 / sld		WATERCALC_121008A	8	R83484
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	10/05/12 17:45 / sld		ICP2-HE_121005A	118	R83483
Calcium	29	mg/L		1		E200.7	10/04/12 12:02 / sld		ICP2-HE_121004A	38	R83458
Magnesium	21	mg/L		1		E200.7	10/04/12 12:02 / sld		ICP2-HE_121004A	38	R83458
Potassium	ND	mg/L		1		E200.7	10/04/12 12:02 / sld		ICP2-HE_121004A	38	R83458
Sodium	1	mg/L		1		E200.7	10/04/12 12:02 / sld		ICP2-HE_121004A	38	R83458
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	10/11/12 22:00 / dck	10/04/12 08:57	ICPMS204-B_121010C	399	18257
Cadmium	0.00118	mg/L		0.00008		E200.8	10/11/12 22:00 / dck	10/04/12 08:57	ICPMS204-B_121010C	399	18257
Copper	0.004	mg/L		0.001		E200.8	10/11/12 22:00 / dck	10/04/12 08:57	ICPMS204-B_121010C	399	18257
Iron	0.08	mg/L		0.03		E200.8	10/11/12 22:00 / dck	10/04/12 08:57	ICPMS204-B_121010C	399	18257
Lead	0.0090	mg/L		0.0005		E200.8	10/15/12 17:35 / dck	10/04/12 08:57	ICPMS204-B_121015A	36	18257
Manganese	0.349	mg/L		0.005		E200.8	10/11/12 22:00 / dck	10/04/12 08:57	ICPMS204-B_121010C	399	18257
Zinc	0.25	mg/L		0.01		E200.8	10/11/12 22:00 / dck	10/04/12 08:57	ICPMS204-B_121010C	399	18257

JAH
2-19-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-3A
Lab ID: H12100099-006
Matrix: Aqueous

Project: UBMC Surface Water/Sediment
Collection Date: 10/02/12 13:18 **DateReceived:** 10/03/12
Report Date: 10/25/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.6	s.u. J-	H	0.1		A4500-H B	10/04/12 11:08 / cmm		PHSC_101-H_121004A	47	R83422
Conductivity @ 25 C	271	umhos/cm		1		A2510 B	10/04/12 11:08 / cmm		PHSC_101-H_121004A	48	R83422
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/04/12 15:50 / cmm	10/04/12 14:25	-124 (14410200)_121004A	24	18263
Solids, Total Dissolved TDS @ 180 C	143	mg/L		10		A2540 C	10/04/12 16:01 / cmm		-124 (14410200)_121004B	18	TDS121004A
INORGANICS											
Alkalinity, Total as CaCO3	110	mg/L		4		A2320 B	10/05/12 15:50 / cmm		MAN-TECH_121005B	47	R83488
Bicarbonate as HCO3	140	mg/L		4		A2320 B	10/05/12 15:50 / cmm		MAN-TECH_121005B	47	R83488
Carbonate as CO3	ND	mg/L		4		A2320 B	10/05/12 15:50 / cmm		MAN-TECH_121005B	47	R83488
Chloride	ND	mg/L		1		E300.0	10/05/12 02:49 / cmm		IC102-H_121004A	56	R83467
Sulfate	21	mg/L		1		E300.0	10/05/12 02:49 / cmm		IC102-H_121004A	56	R83467
Hardness as CaCO3	136	mg/L		1		A2340 B	10/08/12 07:58 / sld		WATERCALC_121008A	9	R83484
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	10/05/12 17:49 / sld		ICP2-HE_121005A	119	R83483
Calcium	29	mg/L		1		E200.7	10/04/12 12:05 / sld		ICP2-HE_121004A	39	R83458
Magnesium	16	mg/L		1		E200.7	10/04/12 12:05 / sld		ICP2-HE_121004A	39	R83458
Potassium	ND	mg/L		1		E200.7	10/04/12 12:05 / sld		ICP2-HE_121004A	39	R83458
Sodium	1	mg/L		1		E200.7	10/04/12 12:05 / sld		ICP2-HE_121004A	39	R83458
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	10/11/12 22:05 / dck	10/04/12 08:57	ICPMS204-B_121010C	400	18257
Cadmium	0.00025	mg/L		0.00008		E200.8	10/11/12 22:05 / dck	10/04/12 08:57	ICPMS204-B_121010C	400	18257
Copper	0.001	mg/L		0.001		E200.8	10/11/12 22:05 / dck	10/04/12 08:57	ICPMS204-B_121010C	400	18257
Iron	ND	mg/L		0.03		E200.8	10/11/12 22:05 / dck	10/04/12 08:57	ICPMS204-B_121010C	400	18257
Lead	0.0008	mg/L		0.0005		E200.8	10/15/12 17:39 / dck	10/04/12 08:57	ICPMS204-B_121015A	37	18257
Manganese	0.199	mg/L		0.005		E200.8	10/11/12 22:05 / dck	10/04/12 08:57	ICPMS204-B_121010C	400	18257
Zinc	0.22	mg/L		0.01		E200.8	10/11/12 22:05 / dck	10/04/12 08:57	ICPMS204-B_121010C	400	18257

JAN
2-19-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-3B
Lab ID: H12100099-007
Matrix: Aqueous

Project: UBMC Surface Water/Sediment
Collection Date: 10/02/12 13:49 **DateReceived:** 10/03/12
Report Date: 10/25/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.8	s.u.	J- H	0.1		A4500-H B	10/04/12 11:39 / cmm		PHSC_101-H_121004A	54	R83422
Conductivity @ 25 C	213	umhos/cm		1		A2510 B	10/04/12 11:39 / cmm		PHSC_101-H_121004A	55	R83422
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/04/12 15:51 / cmm	10/04/12 14:26	-124 (14410200)_121004A	27	18264
Solids, Total Dissolved TDS @ 180 C	108	mg/L		10		A2540 C	10/04/12 16:02 / cmm		-124 (14410200)_121004B	19	TDS121004A
INORGANICS											
Alkalinity, Total as CaCO3	110	mg/L		4		A2320 B	10/05/12 15:57 / cmm		MAN-TECH_121005B	49	R83488
Bicarbonate as HCO3	130	mg/L		4		A2320 B	10/05/12 15:57 / cmm		MAN-TECH_121005B	49	R83488
Carbonate as CO3	ND	mg/L		4		A2320 B	10/05/12 15:57 / cmm		MAN-TECH_121005B	49	R83488
Chloride	ND	mg/L		1		E300.0	10/05/12 03:52 / cmm		IC102-H_121004A	61	R83467
Sulfate	6	mg/L		1		E300.0	10/05/12 03:52 / cmm		IC102-H_121004A	61	R83467
Hardness as CaCO3	111	mg/L		1		A2340 B	10/08/12 07:58 / sld		WATERCALC_121008A	10	R83484
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	10/05/12 17:53 / sld		ICP2-HE_121005A	120	R83483
Calcium	23	mg/L		1		E200.7	10/04/12 12:09 / sld		ICP2-HE_121004A	40	R83458
Magnesium	13	mg/L		1		E200.7	10/04/12 12:09 / sld		ICP2-HE_121004A	40	R83458
Potassium	ND	mg/L		1		E200.7	10/04/12 12:09 / sld		ICP2-HE_121004A	40	R83458
Sodium	1	mg/L		1		E200.7	10/04/12 12:09 / sld		ICP2-HE_121004A	40	R83458
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	10/11/12 22:09 / dck	10/04/12 08:57	ICPMS204-B_121010C	401	18257
Cadmium	ND	mg/L		0.00008		E200.8	10/11/12 22:09 / dck	10/04/12 08:57	ICPMS204-B_121010C	401	18257
Copper	ND	mg/L		0.001		E200.8	10/11/12 22:09 / dck	10/04/12 08:57	ICPMS204-B_121010C	401	18257
Iron	ND	mg/L		0.03		E200.8	10/11/12 22:09 / dck	10/04/12 08:57	ICPMS204-B_121010C	401	18257
Lead	ND	mg/L		0.0005		E200.8	10/15/12 18:01 / dck	10/04/12 08:57	ICPMS204-B_121015A	42	18257
Manganese	ND	mg/L		0.005		E200.8	10/11/12 22:09 / dck	10/04/12 08:57	ICPMS204-B_121010C	401	18257
Zinc	0.26	mg/L		0.01		E200.8	10/11/12 22:09 / dck	10/04/12 08:57	ICPMS204-B_121010C	401	18257

JAN
2-19-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-2
Lab ID: H12100099-008
Matrix: Aqueous

Project: UBMC Surface Water/Sediment
Collection Date: 10/02/12 14:45 **DateReceived:** 10/03/12
Report Date: 10/25/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.8	s.u. J-	H	0.1		A4500-H B	10/04/12 11:45 / cmm		PHSC_101-H_121004A	58	R83422
Conductivity @ 25 C	3880	umhos/cm		1		A2510 B	10/04/12 11:45 / cmm		PHSC_101-H_121004A	59	R83422
Solids, Total Suspended TSS @ 105 C	11	mg/L		10		A2540 D	10/04/12 15:51 / cmm	10/04/12 14:26	-124 (14410200)_121004A	29	18264
Solids, Total Dissolved TDS @ 180 C	3640	mg/L		10		A2540 C	10/04/12 16:02 / cmm		-124 (14410200)_121004B	20	TDS121004A
INORGANICS											
Alkalinity, Total as CaCO3	38	mg/L		4		A2320 B	10/05/12 16:11 / cmm		MAN-TECH_121005B	53	R83488
Bicarbonate as HCO3	46	mg/L		4		A2320 B	10/05/12 16:11 / cmm		MAN-TECH_121005B	53	R83488
Carbonate as CO3	ND	mg/L		4		A2320 B	10/05/12 16:11 / cmm		MAN-TECH_121005B	53	R83488
Chloride	ND	mg/L		1		E300.0	10/05/12 04:05 / cmm		IC102-H_121004A	62	R83467
Sulfate	2500	mg/L	D	5		E300.0	10/11/12 18:17 / cmm		IC102-H_121011B	28	R83652
Hardness as CaCO3	3100	mg/L		1		A2340 B	10/08/12 07:58 / sld		WATERCALC_121008A	11	R83484
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	10/05/12 17:57 / sld		ICP2-HE_121005A	121	R83483
Calcium	497	mg/L		1		E200.7	10/05/12 17:57 / sld		ICP2-HE_121005A	121	R83483
Magnesium	424	mg/L		1		E200.7	10/05/12 17:57 / sld		ICP2-HE_121005A	121	R83483
Potassium	6	mg/L		1		E200.7	10/04/12 12:13 / sld		ICP2-HE_121004A	41	R83458
Sodium	2	mg/L		1		E200.7	10/04/12 12:13 / sld		ICP2-HE_121004A	41	R83458
METALS, TOTAL RECOVERABLE											
Arsenic	0.006	mg/L		0.003		E200.8	10/11/12 22:14 / dck	10/04/12 08:57	ICPMS204-B_121010C	402	18257
Cadmium	0.0130	mg/L		0.00008		E200.8	10/11/12 22:14 / dck	10/04/12 08:57	ICPMS204-B_121010C	402	18257
Copper	0.025	mg/L		0.001		E200.8	10/11/12 22:14 / dck	10/04/12 08:57	ICPMS204-B_121010C	402	18257
Iron	0.86	mg/L		0.03		E200.8	10/11/12 22:14 / dck	10/04/12 08:57	ICPMS204-B_121010C	402	18257
Lead	0.115	mg/L		0.0005		E200.8	10/15/12 18:06 / dck	10/04/12 08:57	ICPMS204-B_121015A	43	18257
Manganese	5.60	mg/L		0.005		E200.8	10/15/12 18:06 / dck	10/04/12 08:57	ICPMS204-B_121015A	43	18257
Zinc	1.92	mg/L		0.01		E200.8	10/11/12 22:14 / dck	10/04/12 08:57	ICPMS204-B_121010C	402	18257

JAN
2-19-13

Report Definitions: RL - Analyte reporting limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
H - Analysis performed past recommended holding time.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-22
Lab ID: H12100099-009
Matrix: Aqueous

Project: UBMC Surface Water/Sediment
Collection Date: 10/02/12 15:28 **DateReceived:** 10/03/12
Report Date: 10/25/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.5	s.u.	J- H	0.1		A4500-H B	10/04/12 11:47 / cmm		PHSC_101-H_121004A	60	R83422
Conductivity @ 25 C	315	umhos/cm		1		A2510 B	10/04/12 11:47 / cmm		PHSC_101-H_121004A	61	R83422
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/04/12 15:51 / cmm	10/04/12 14:26	-124 (14410200)_121004A	30	18264
Solids, Total Dissolved TDS @ 180 C	189	mg/L		10		A2540 C	10/04/12 16:02 / cmm		-124 (14410200)_121004B	21	TDS121004A
INORGANICS											
Alkalinity, Total as CaCO3	98	mg/L		4		A2320 B	10/05/12 16:34 / cmm		MAN-TECH_121005B	60	R83488
Bicarbonate as HCO3	120	mg/L		4		A2320 B	10/05/12 16:34 / cmm		MAN-TECH_121005B	60	R83488
Carbonate as CO3	ND	mg/L		4		A2320 B	10/05/12 16:34 / cmm		MAN-TECH_121005B	60	R83488
Chloride	ND	mg/L		1		E300.0	10/05/12 04:17 / cmm		IC102-H_121004A	63	R83467
Sulfate	57	mg/L		1		E300.0	10/05/12 04:17 / cmm		IC102-H_121004A	63	R83467
Hardness as CaCO3	159	mg/L		1		A2340 B	10/08/12 07:58 / sld		WATERCALC_121008A	12	R83484
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	10/05/12 18:08 / sld		ICP2-HE_121005A	124	R83483
Calcium	40	mg/L		1		E200.7	10/04/12 12:17 / sld		ICP2-HE_121004A	42	R83458
Magnesium	14	mg/L		1		E200.7	10/04/12 12:17 / sld		ICP2-HE_121004A	42	R83458
Potassium	ND	mg/L		1		E200.7	10/04/12 12:17 / sld		ICP2-HE_121004A	42	R83458
Sodium	1	mg/L		1		E200.7	10/04/12 12:17 / sld		ICP2-HE_121004A	42	R83458
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	10/15/12 18:10 / dck	10/04/12 08:57	ICPMS204-B_121015A	44	18257
Cadmium	0.00613	mg/L		0.00008		E200.8	10/15/12 18:10 / dck	10/04/12 08:57	ICPMS204-B_121015A	44	18257
Copper	0.019	mg/L		0.001		E200.8	10/15/12 18:10 / dck	10/04/12 08:57	ICPMS204-B_121015A	44	18257
Iron	ND	mg/L		0.03		E200.8	10/15/12 18:10 / dck	10/04/12 08:57	ICPMS204-B_121015A	44	18257
Lead	0.0050	mg/L		0.0005		E200.8	10/15/12 18:10 / dck	10/04/12 08:57	ICPMS204-B_121015A	44	18257
Manganese	ND	mg/L		0.005		E200.8	10/15/12 18:10 / dck	10/04/12 08:57	ICPMS204-B_121015A	44	18257
Zinc	1.12	mg/L		0.01		E200.8	10/15/12 18:10 / dck	10/04/12 08:57	ICPMS204-B_121015A	44	18257

JAN
2-19-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-24
Lab ID: H12100099-010
Matrix: Aqueous

Project: UBMC Surface Water/Sediment
Collection Date: 10/02/12 15:47 **DateReceived:** 10/03/12
Report Date: 10/25/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.4	s.u.	J- H	0.1		A4500-H B	10/04/12 11:49 / cmm		PHSC_101-H_121004A	62	R83422
Conductivity @ 25 C	313	umhos/cm		1		A2510 B	10/04/12 11:49 / cmm		PHSC_101-H_121004A	63	R83422
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/04/12 15:52 / cmm	10/04/12 14:26	-124 (14410200)_121004A	31	18264
Solids, Total Dissolved TDS @ 180 C	182	mg/L		10		A2540 C	10/04/12 16:02 / cmm		-124 (14410200)_121004B	22	TDS121004A
INORGANICS											
Alkalinity, Total as CaCO3	98	mg/L		4		A2320 B	10/05/12 16:41 / cmm		MAN-TECH_121005B	62	R83488
Bicarbonate as HCO3	120	mg/L		4		A2320 B	10/05/12 16:41 / cmm		MAN-TECH_121005B	62	R83488
Carbonate as CO3	ND	mg/L		4		A2320 B	10/05/12 16:41 / cmm		MAN-TECH_121005B	62	R83488
Chloride	ND	mg/L		1		E300.0	10/05/12 04:30 / cmm		IC102-H_121004A	64	R83467
Sulfate	57	mg/L		1		E300.0	10/05/12 04:30 / cmm		IC102-H_121004A	64	R83467
Hardness as CaCO3	158	mg/L		1		A2340 B	10/08/12 07:58 / sld		WATERCALC_121008A	13	R83484
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	10/05/12 18:12 / sld		ICP2-HE_121005A	125	R83483
Calcium	40	mg/L		1		E200.7	10/04/12 12:28 / sld		ICP2-HE_121004A	45	R83458
Magnesium	14	mg/L		1		E200.7	10/04/12 12:28 / sld		ICP2-HE_121004A	45	R83458
Potassium	ND	mg/L		1		E200.7	10/04/12 12:28 / sld		ICP2-HE_121004A	45	R83458
Sodium	1	mg/L		1		E200.7	10/04/12 12:28 / sld		ICP2-HE_121004A	45	R83458
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	10/11/12 22:22 / dck	10/04/12 08:57	ICPMS204-B_121010C	404	18257
Cadmium	0.00612	mg/L		0.00008		E200.8	10/11/12 22:22 / dck	10/04/12 08:57	ICPMS204-B_121010C	404	18257
Copper	0.017	mg/L		0.001		E200.8	10/11/12 22:22 / dck	10/04/12 08:57	ICPMS204-B_121010C	404	18257
Iron	ND	mg/L		0.03		E200.8	10/11/12 22:22 / dck	10/04/12 08:57	ICPMS204-B_121010C	404	18257
Lead	0.0046	mg/L		0.0005		E200.8	10/15/12 18:14 / dck	10/04/12 08:57	ICPMS204-B_121015A	45	18257
Manganese	ND	mg/L		0.005		E200.8	10/15/12 18:14 / dck	10/04/12 08:57	ICPMS204-B_121015A	45	18257
Zinc	1.06	mg/L		0.01		E200.8	10/11/12 22:22 / dck	10/04/12 08:57	ICPMS204-B_121010C	404	18257

JHN 2-19-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSW-1
Lab ID: H12100099-011
Matrix: Aqueous

Project: UBMC Surface Water/Sediment
Collection Date: 10/02/12 16:20 **DateReceived:** 10/03/12
Report Date: 10/25/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.9	s.u.	J- H	0.1		A4500-H B	10/04/12 11:52 / cmm		PHSC_101-H_121004A	64	R83422
Conductivity @ 25 C	218	umhos/cm		1		A2510 B	10/04/12 11:52 / cmm		PHSC_101-H_121004A	65	R83422
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/04/12 15:52 / cmm	10/04/12 14:26	-124 (14410200)_121004A	32	18264
Solids, Total Dissolved TDS @ 180 C	108	mg/L		10		A2540 C	10/04/12 16:03 / cmm		-124 (14410200)_121004B	23	TDS121004A
INORGANICS											
Alkalinity, Total as CaCO3	110	mg/L		4		A2320 B	10/05/12 16:48 / cmm		MAN-TECH_121005B	64	R83488
Bicarbonate as HCO3	130	mg/L		4		A2320 B	10/05/12 16:48 / cmm		MAN-TECH_121005B	64	R83488
Carbonate as CO3	ND	mg/L		4		A2320 B	10/05/12 16:48 / cmm		MAN-TECH_121005B	64	R83488
Chloride	ND	mg/L		1		E300.0	10/05/12 04:42 / cmm		IC102-H_121004A	65	R83467
Sulfate	5	mg/L		1		E300.0	10/05/12 04:42 / cmm		IC102-H_121004A	65	R83467
Hardness as CaCO3	115	mg/L		1		A2340 B	10/08/12 07:58 / sld		WATERCALC_121008A	14	R83484
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	10/05/12 18:26 / sld		ICP2-HE_121005A	129	R83483
Calcium	23	mg/L		1		E200.7	10/04/12 12:32 / sld		ICP2-HE_121004A	46	R83458
Magnesium	14	mg/L		1		E200.7	10/04/12 12:32 / sld		ICP2-HE_121004A	46	R83458
Potassium	ND	mg/L		1		E200.7	10/04/12 12:32 / sld		ICP2-HE_121004A	46	R83458
Sodium	1	mg/L		1		E200.7	10/04/12 12:32 / sld		ICP2-HE_121004A	46	R83458
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	10/11/12 22:27 / dck	10/04/12 08:57	ICPMS204-B_121010C	405	18257
Cadmium	ND	mg/L		0.00008		E200.8	10/11/12 22:27 / dck	10/04/12 08:57	ICPMS204-B_121010C	405	18257
Copper	ND	mg/L		0.001		E200.8	10/11/12 22:27 / dck	10/04/12 08:57	ICPMS204-B_121010C	405	18257
Iron	ND	mg/L		0.03		E200.8	10/11/12 22:27 / dck	10/04/12 08:57	ICPMS204-B_121010C	405	18257
Lead	ND	mg/L		0.0005		E200.8	10/15/12 18:19 / dck	10/04/12 08:57	ICPMS204-B_121015A	46	18257
Manganese	ND	mg/L		0.005		E200.8	10/11/12 22:27 / dck	10/04/12 08:57	ICPMS204-B_121010C	405	18257
Zinc	ND	mg/L		0.01		E200.8	10/11/12 22:27 / dck	10/04/12 08:57	ICPMS204-B_121010C	405	18257

JAH
2-19-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSD-38
Lab ID: H12100099-012
Matrix: Sediment

Project: UBMC Surface Water/Sediment
Collection Date: 10/02/12 10:19 **DateReceived:** 10/03/12
Report Date: 10/25/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	4020	mg/kg		5		SW6010B	10/16/12 19:54 / sld	10/10/12 14:57	ICP2-HE_121016D	78	18328
Arsenic	36	mg/kg	J-	5		SW6010B	10/16/12 19:54 / sld	10/10/12 14:57	ICP2-HE_121016D	78	18328
Cadmium	11	mg/kg		1		SW6010B	10/16/12 19:54 / sld	10/10/12 14:57	ICP2-HE_121016D	78	18328
Copper	248	mg/kg		5		SW6010B	10/16/12 19:54 / sld	10/10/12 14:57	ICP2-HE_121016D	78	18328
Iron	18000	mg/kg		5		SW6010B	10/16/12 19:54 / sld	10/10/12 14:57	ICP2-HE_121016D	78	18328
Lead	758	mg/kg	J-	5		SW6010B	10/17/12 15:03 / sld	10/10/12 14:57	ICP2-HE_121017B	28	18328
Manganese	2820	mg/kg	J-	5		SW6010B	10/16/12 19:54 / sld	10/10/12 14:57	ICP2-HE_121016D	78	18328
Zinc	1960	mg/kg	J-	5		SW6010B	10/16/12 19:54 / sld	10/10/12 14:57	ICP2-HE_121016D	78	18328

JAN
2-19-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSD-48
Lab ID: H12100099-013
Matrix: Sediment

Project: UBMC Surface Water/Sediment
Collection Date: 10/02/12 12:12 **DateReceived:** 10/03/12
Report Date: 10/25/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	4620	mg/kg		5		SW6010B	10/16/12 19:58 / sld	10/10/12 14:57	ICP2-HE_121016D	79	18328
Arsenic	40	mg/kg	J-	5		SW6010B	10/16/12 19:58 / sld	10/10/12 14:57	ICP2-HE_121016D	79	18328
Cadmium	17	mg/kg		1		SW6010B	10/16/12 19:58 / sld	10/10/12 14:57	ICP2-HE_121016D	79	18328
Copper	352	mg/kg		5		SW6010B	10/16/12 19:58 / sld	10/10/12 14:57	ICP2-HE_121016D	79	18328
Iron	23900	mg/kg		5		SW6010B	10/16/12 19:58 / sld	10/10/12 14:57	ICP2-HE_121016D	79	18328
Lead	1610	mg/kg	J-	5		SW6010B	10/17/12 15:07 / sld	10/10/12 14:57	ICP2-HE_121017B	29	18328
Manganese	2270	mg/kg	J-	5		SW6010B	10/16/12 19:58 / sld	10/10/12 14:57	ICP2-HE_121016D	79	18328
Zinc	3090	mg/kg	J-	5		SW6010B	10/16/12 19:58 / sld	10/10/12 14:57	ICP2-HE_121016D	79	18328

JAN
2-19-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSD-23
Lab ID: H12100099-014
Matrix: Sediment

Project: UBMC Surface Water/Sediment
Collection Date: 10/02/12 12:45 **DateReceived:** 10/03/12
Report Date: 10/25/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	3160	mg/kg		5		SW6010B	10/16/12 20:01 / sld	10/10/12 14:57	ICP2-HE_121016D	80	18328
Arsenic	83	mg/kg	J -	5		SW6010B	10/16/12 20:01 / sld	10/10/12 14:57	ICP2-HE_121016D	80	18328
Cadmium	11	mg/kg		1		SW6010B	10/16/12 20:01 / sld	10/10/12 14:57	ICP2-HE_121016D	80	18328
Copper	333	mg/kg		5		SW6010B	10/16/12 20:01 / sld	10/10/12 14:57	ICP2-HE_121016D	80	18328
Iron	35600	mg/kg		5		SW6010B	10/17/12 15:54 / sld	10/10/12 14:57	ICP2-HE_121017B	42	18328
Lead	923	mg/kg	J -	5		SW6010B	10/17/12 15:10 / sld	10/10/12 14:57	ICP2-HE_121017B	30	18328
Manganese	5690	mg/kg	J -	5		SW6010B	10/16/12 20:01 / sld	10/10/12 14:57	ICP2-HE_121016D	80	18328
Zinc	2050	mg/kg	J -	5		SW6010B	10/16/12 20:01 / sld	10/10/12 14:57	ICP2-HE_121016D	80	18328

JAN
2-19-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSD-3A
Lab ID: H12100099-015
Matrix: Sediment

Project: UBMC Surface Water/Sediment
Collection Date: 10/02/12 13:18 **DateReceived:** 10/03/12
Report Date: 10/25/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	4030	mg/kg		5		SW6010B	10/16/12 20:05 / sld	10/10/12 14:57	ICP2-HE_121016D	81	18328
Arsenic	68	mg/kg	J-	5		SW6010B	10/16/12 20:05 / sld	10/10/12 14:57	ICP2-HE_121016D	81	18328
Cadmium	17	mg/kg		1		SW6010B	10/16/12 20:05 / sld	10/10/12 14:57	ICP2-HE_121016D	81	18328
Copper	386	mg/kg		5		SW6010B	10/16/12 20:05 / sld	10/10/12 14:57	ICP2-HE_121016D	81	18328
Iron	25800	mg/kg		5		SW6010B	10/16/12 20:05 / sld	10/10/12 14:57	ICP2-HE_121016D	81	18328
Lead	609	mg/kg	J-	5		SW6010B	10/17/12 15:14 / sld	10/10/12 14:57	ICP2-HE_121017B	31	18328
Manganese	9160	mg/kg	J-	5		SW6010B	10/16/12 20:05 / sld	10/10/12 14:57	ICP2-HE_121016D	81	18328
Zinc	3500	mg/kg	J-	5		SW6010B	10/16/12 20:05 / sld	10/10/12 14:57	ICP2-HE_121016D	81	18328

JAN
2-19-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSD-3B
Lab ID: H12100099-016
Matrix: Sediment

Project: UBMC Surface Water/Sediment
Collection Date: 10/02/12 13:49 **DateReceived:** 10/03/12
Report Date: 10/25/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	4400	mg/kg		5		SW6010B	10/16/12 20:43 / sld	10/10/12 14:57	ICP2-HE_121016D : 91		18328
Arsenic	6	mg/kg	J -	5		SW6010B	10/16/12 20:43 / sld	10/10/12 14:57	ICP2-HE_121016D : 91		18328
Cadmium	1	mg/kg		1		SW6010B	10/16/12 20:43 / sld	10/10/12 14:57	ICP2-HE_121016D : 91		18328
Copper	117	mg/kg		5		SW6010B	10/16/12 20:43 / sld	10/10/12 14:57	ICP2-HE_121016D : 91		18328
Iron	31000	mg/kg		5		SW6010B	10/17/12 15:58 / sld	10/10/12 14:57	ICP2-HE_121017B : 43		18328
Lead	82	mg/kg	J-	5		SW6010B	10/17/12 15:25 / sld	10/10/12 14:57	ICP2-HE_121017B : 34		18328
Manganese	1680	mg/kg	J-	5		SW6010B	10/16/12 20:43 / sld	10/10/12 14:57	ICP2-HE_121016D : 91		18328
Zinc	275	mg/kg	J-	5		SW6010B	10/16/12 20:43 / sld	10/10/12 14:57	ICP2-HE_121016D : 91		18328

JAN
2-19-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSD-22
Lab ID: H12100099-017
Matrix: Sediment

Project: UBMC Surface Water/Sediment
Collection Date: 10/02/12 15:28 **DateReceived:** 10/03/12
Report Date: 10/25/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	8690	mg/kg		5		SW6010B	10/16/12 20:46 / sld	10/10/12 14:57	ICP2-HE_121016D	92	18328
Arsenic	47	mg/kg	J-	5		SW6010B	10/16/12 20:46 / sld	10/10/12 14:57	ICP2-HE_121016D	92	18328
Cadmium	20	mg/kg		1		SW6010B	10/16/12 20:46 / sld	10/10/12 14:57	ICP2-HE_121016D	92	18328
Copper	1600	mg/kg		5		SW6010B	10/16/12 20:46 / sld	10/10/12 14:57	ICP2-HE_121016D	92	18328
Iron	22400	mg/kg		5		SW6010B	10/16/12 20:46 / sld	10/10/12 14:57	ICP2-HE_121016D	92	18328
Lead	1680	mg/kg	J-	5		SW6010B	10/17/12 15:29 / sld	10/10/12 14:57	ICP2-HE_121017B	35	18328
Manganese	6860	mg/kg	J-	5		SW6010B	10/16/12 20:46 / sld	10/10/12 14:57	ICP2-HE_121016D	92	18328
Zinc	3050	mg/kg	J-	5		SW6010B	10/16/12 20:46 / sld	10/10/12 14:57	ICP2-HE_121016D	92	18328

JAN
2-19-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSD-24
Lab ID: H12100099-018
Matrix: Sediment

Project: UBMC Surface Water/Sediment
Collection Date: 10/02/12 15:47 **DateReceived:** 10/03/12
Report Date: 10/25/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	8220	mg/kg		5		SW6010B	10/16/12 20:50 / sld	10/10/12 14:57	ICP2-HE_121016D : 93		18328
Arsenic	36	mg/kg	J-	5		SW6010B	10/16/12 20:50 / sld	10/10/12 14:57	ICP2-HE_121016D : 93		18328
Cadmium	14	mg/kg		1		SW6010B	10/16/12 20:50 / sld	10/10/12 14:57	ICP2-HE_121016D : 93		18328
Copper	1120	mg/kg		5		SW6010B	10/16/12 20:50 / sld	10/10/12 14:57	ICP2-HE_121016D : 93		18328
Iron	23100	mg/kg		5		SW6010B	10/16/12 20:50 / sld	10/10/12 14:57	ICP2-HE_121016D : 93		18328
Lead	1040	mg/kg	J-	5		SW6010B	10/17/12 15:32 / sld	10/10/12 14:57	ICP2-HE_121017B : 36		18328
Manganese	4270	mg/kg	J-	5		SW6010B	10/16/12 20:50 / sld	10/10/12 14:57	ICP2-HE_121016D : 93		18328
Zinc	2250	mg/kg	J-	5		SW6010B	10/16/12 20:50 / sld	10/10/12 14:57	ICP2-HE_121016D : 93		18328

JAN
2-19-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID BRSD-1
Lab ID: H12100099-019
Matrix: Sediment

Project: UBMC Surface Water/Sediment
Collection Date: 10/02/12 16:20 **DateReceived:** 10/03/12
Report Date: 10/25/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	6120	mg/kg		5		SW6010B	10/16/12 20:53 / sld	10/10/12 14:57	ICP2-HE_121016D : 94		18328
Arsenic	16	mg/kg	J -	5		SW6010B	10/16/12 20:53 / sld	10/10/12 14:57	ICP2-HE_121016D : 94		18328
Cadmium	ND	mg/kg		1		SW6010B	10/16/12 20:53 / sld	10/10/12 14:57	ICP2-HE_121016D : 94		18328
Copper	15	mg/kg		5		SW6010B	10/16/12 20:53 / sld	10/10/12 14:57	ICP2-HE_121016D : 94		18328
Iron	12800	mg/kg		5		SW6010B	10/16/12 20:53 / sld	10/10/12 14:57	ICP2-HE_121016D : 94		18328
Lead	29	mg/kg	J-	5		SW6010B	10/17/12 15:36 / sld	10/10/12 14:57	ICP2-HE_121017B : 37		18328
Manganese	309	mg/kg	J-	5		SW6010B	10/16/12 20:53 / sld	10/10/12 14:57	ICP2-HE_121016D : 94		18328
Zinc	97	mg/kg	J -	5		SW6010B	10/16/12 20:53 / sld	10/10/12 14:57	ICP2-HE_121016D : 94		18328

JAN
2-19-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

Attachment B: Chain of Custody Forms and Sample Receipt Checklist

Standard Reporting Procedures

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Workorder Receipt Checklist

MT DEQ-Site Response H12100097

Login completed by: Wanda Johnson
Date Received: 10/3/2012

Reviewed by: BL2000\sdull
Received by: TLL

Reviewed Date: 10/12/2012
Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	2.4°C On Ice - From Field		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Contact and Corrective Action Comments:

None

Chain of Custody and Analytical Request Record

PLEASE PRINT (Provide as much information as possible.)

Company Name: MDEQ	Project Name, PWS, Permit, Etc.: Section 35 Surface Water Sediment	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: See Quote H-645	Contact Name: Phone/Fax: Shallie Haaland, 841-5033, shaaland@mt.gov	Email:	Sampler: (Please Print) A. Dreesbach M. Towle
Invoice Address:	Invoice Contact & Phone:	Purchase Order:	Quote/Bottle Order: 10761

Special Report/Formats:

- ☐ DW
- ☐ POTW/WWTP
- ☐ State: _____
- ☐ Other: _____
- ☐ EDD/EDT (Electronic Data) Format: _____
- ☐ LEVEL IV
- ☐ NELAC

ANALYSIS REQUESTED

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids Vegetation Bioassay Other DW - Drinking Water

SEE ATTACHED

Standard Turnaround (TAT)

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

Shipped by: Hand
Cooler ID(s): Y
Receipt Temp: 2.4 °C
On Ice: (Y) N
Custody Seal On Bottle Y N / On Cooler Y N
Intact Y N
Signature Match Y N

LABORATORY USE ONLY #12100097

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX
1	S35-SW-07	10/3/12	0745	W
2	S35-SW-04		0821	
3	S35-SW-03		0903	
4	S35-SW-01		1002	
5	S35-SW-02		1120	
6	S35-SW-05		1235	W
7	S35-SD-04		0821	S
8	S35-SD-03		0903	
9	S35-SD-01		1002	
10	S35-SD-02	10/3/12	1120	S

Custody Record MUST be Signed

Relinquished by (print): Alan Dreesbach Date/Time: 10/3/12 0613 Signature:

Relinquished by (print): Date/Time: Signature:

Received by (print): Date/Time: Signature:

Received by (print): Date/Time: Signature:

Received by Laboratory: Tracy Lewis Date/Time: 10/3/12 16:13 Signature:

Sample Disposal: Return to Client: _____ Lab Disposal: _____

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.
This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

ENERGY LABORATORIES

Chain of Custody and Analytical Request Record

PLEASE PRINT (Provide as much information as possible.)

Company Name: MDEQ	Project Name, PWS, Permit, Etc.: Section 35 Surface Water/Sediment	Sample Origin State: Mt	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: See Quote H-645	Contact Name: Shellie Haaland, Phone/Fax: 841-5033, Email: shaaland@mt.gov		Sampler: (Please Print) A. Dreesbach M. Towler
Invoice Address:	Invoice Contact & Phone:	Purchase Order:	Quote/Bottle Order: 10761

Special Report/Formats:

☐ DW
☐ POTW/WWTP
☐ State: _____
☐ Other: _____
☐ EDD/EDT (Electronic Data) Format: _____
☐ LEVEL IV
☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids
Vegetation Bioassay Other
DW - Drinking Water

ANALYSIS REQUESTED

Standard Turnaround (TAT)

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

Shipped by: Hand
Cooler ID(s): Y
Receipt Temp: 2.4 °C
On Ice: Y N
Custody Seal: On Bottle Y N; On Cooler Y N
Intact Y N
Signature Match Y N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	SEE ATTACHED	LABORATORY USE ONLY
1	S35-SD-05	10/3/12	1235	S	X	H12100097
2	S35-SW-06	10/3/12	1018	W	X	
3	S35-SD-06	10/3/12	1018	S	X	
4						
5						
6						
7						
8						
9						
10						

10/3/12 AD.

Custody Record MUST be Signed

Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
Alan Dreesbach	10/3/12 @ 1613	[signature]			
			Received by Laboratory: Tracy Lerad	10/3/12 16:13	[signature]

Sample Disposal: Return to Client: _____ Lab Disposal: _____

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.
This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

UBMC Ground Water

SDG#:	**H12100143**
Number of Samples:	**(9)**
Sample Matrix:	**(9) Ground water**
Applicable Analytes:	**pH, Conductivity, TSS, TDS, Alkalinity (Total, Bicarbonate, and Carbonate), Anions: (Chloride and Sulfate), Hardness, Dissolved Metals (Al, As, Cd, Ca, Cu, Fe, Pb, Mg, Mn, K, Na, and Zn)**
Reporting Tier:	**3**
Applicable TOS#:	**N/A**
Laboratory:	**Energy Laboratories**
Validation Level:	**EPA Level III**
Validator Affiliation:	**Portage, Inc.**
Project#:	**UBMC**
Project SAP/QUAPP:	**Final Sampling and Analysis Plan for Environmental Monitoring Upper Blackfoot Mining Complex, Lewis and Clark County, Montana; Portage Inc., 2012**



Validator **Date Completed:02/15/13;05/09/13**



Portage Review: **Date Completed:02/15/13;05/09/13**

REPORT ORGANIZATION:

Limitations & Validation (L&V) Report UBMC Ground Water is organized into the following five sections:

- Glossary of Terms & Method References
- Data Quality Statement
- L&V Report
- Attachment A: Laboratory Report Forms Corrected for Qualification
- Attachment B: Chain of Custody Forms & Sample Receipt Checklist

GLOSSARY OF VALIDATION TERMS & METHOD VALIDATION REFERENCES

Terms:

CRDL	Contract Required Detection Limit
IDL	Instrument Detection Limit
SOW	Statement of Work
SOP	Standard Operating Procedure
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ICV	Initial Calibration Verification
CCV	Continuing Calibration Verification
ICB	Initial Calibration Blank
CCB	Continuing Calibration Blank
PB	Preparation Blank
LCS	Laboratory Control Sample
SDS	Serial Dilution Sample
SDG	Sample Delivery Group

Qualifiers:

U - The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.
Note: This detection limit may be elevated to a level greater than the IDL due to a detection of a target compound in the method blank, and as a result, the sample value, which was less than ten times the blank result, has been qualified 'U' as a non-detect.

J - The analyte was positively identified in the sample, but the associated numerical value may not be an accurate representation of the amount actually present in the environmental sample. The data should be seriously considered for decision-making and are usable for many purposes.

R - The data are unusable (may or may not be present). Resampling and reanalysis are necessary for verification.

UJ - The material was analyzed for but was not detected. The sample quantitation limit is an estimated quantity.

Reference:

The validation of this data was performed according to:

1. *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, EPA540-R-04-004,October 2004.*
2. *USEPA Contract Laboratory Program Statement of Work For Inorganic Analysis, Multi-Media, Multi-Concentration, Document Number ILM04.0, January 2000.*

LIMITATIONS AND VALIDATION REPORT

INTRODUCTION:

The UBMC Ground Water sample results were received by Portage, Inc. in October 2012. The laboratory analytical request provided for a summary data package attached for the pH, conductivity, alkalinity, TSS, TDS, chloride, sulfate, hardness, and dissolved metals (Al, As, Cd, Ca, Cu, Fe, Pb, Mg, Mn, K, Na, and Zn). The samples were analyzed in accordance with Standard Methods 4500 H-B, 2320B, 2510B, 2540D, 2540C, and 2340B, and USEPA Methods 300.0, 200.7, and 200.8. Data validation was performed utilizing the USEPA Functional Guidelines for Inorganic Data Review. The following cross-reference has been provided to assist data users in comparing field identifications to the corresponding laboratory numbers.

Cross-Reference for UBMC Ground Water Samples					
Field Id#:	**Lab Id#:**	**Matrix:**	**Analysis Request:**	**Date of Collection:**	**Date of Laboratory Receipt:**
TDMW-7	H12100143-001	Groundwater	Dissolved Metals, Alkalinity, Conductivity, Hardness, Anions, pH, TSS, TDS	10/04/12	10/08/12
TDMW-8	H12100143-002	Groundwater	Dissolved Metals, Alkalinity, Conductivity, Hardness, Anions, pH, TSS, TDS	10/04/12	10/08/12
TDMW-5	H12100143-003	Groundwater	Dissolved Metals, Alkalinity, Conductivity, Hardness, Anions, pH, TSS, TDS	10/04/12	10/08/12
TDMW-4D	H12100143-004	Groundwater	Dissolved Metals, Alkalinity, Conductivity, Hardness, Anions, pH, TSS, TDS	10/04/12	10/08/12
TDMW-6	H12100143-005	Groundwater	Dissolved Metals, Alkalinity, Conductivity, Hardness, Anions, pH, TSS, TDS	10/04/12	10/08/12
TDMW-3D	H12100143-006	Groundwater	Dissolved Metals, Alkalinity, Conductivity, Hardness, Anions, pH, TSS, TDS	10/04/12	10/08/12
TDMW-1	H12100143-007	Groundwater	Dissolved Metals, Alkalinity, Conductivity, Hardness, Anions, pH, TSS, TDS	10/04/12	10/08/12
TDMW-2D	H12100143-008	Groundwater	Dissolved Metals, Alkalinity, Conductivity, Hardness, Anions, pH, TSS, TDS	10/04/12	10/08/12

Cross-Reference for UBMC Ground Water Samples					
Field Id#:	**Lab Id#:**	**Matrix:**	**Analysis Request:**	**Date of Collection:**	**Date of Laboratory Receipt:**
TDMW-2S	H12100143-009	Groundwater	Dissolved Metals, Alkalinity, Conductivity, Hardness, Anions, pH, TSS, TDS	10/04/12	10/08/12

LABORATORY CASE NARRATIVE:

The laboratory case narrative did not note any non conformance issues with the analytical data.

ANALYTICAL HOLDING TIMES:

The water samples associated with this SDG were collected on 10/04/12. The conductivity, TSS, and TDS results were analyzed on 10/08/12 and 10/09/12 within the 28-day holding time for conductivity, and the 7-day holding time for TSS and TDS. The chloride and sulfate results were analyzed on 10/11/12 within the 28-day holding time. The alkalinity results were analyzed on 10/09/12 within the 14-day holding time. The hardness results were analyzed on 10/16/12 within the 180-day holding time. The dissolved metals were analyzed 10/09/12 and 10/12/12 within the 180-day holding time for the ICP Metals.

The pH samples were collected on 10/04/12, received on 10/08/12, and analyzed on 10/08/12. In the professional judgment of the validator, all pH results have been qualified with a "J-" validation flag as prescribed by the USEPA Functional Guidelines and as the samples were analyzed outside the 24-hour holding time.

INITIAL AND CONTINUING CALIBRATION (ICV and CCV):

All ICV and CCV results were within the acceptance criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

PREPRATION BLANKS (PB):

For all analyses, blank results were analyzed at a proper frequency of 1 blank per 20 samples in the analytical batch.

The PB results were non-detect at level less than their respective MDLs and no qualification is warranted.

Field blank, trip blank, and equipment rinsate results were not included in this data deliverable.

INTERFERENCE CHECK SAMPLE (ICS):

All ICS results were within the acceptance criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

MATRIX SPIKE (MS)/MATRIX SPIKE DUPLICATE (MSD):

The chloride (111% and 111%) MS and MSD results were outside the 90-110% recovery criteria outlined in USEPA Method 300.0. However, no qualification is warranted as all chloride results were non-detect.

The remaining MS/MSD recovery and all RPD results were within the acceptance criteria and analyzed at the proper frequency (1 in 20) as prescribed by the USEPA Functional Guidelines and the analytical methods. MS/MSD sample were obtained from project field samples.

LABORATORY DUPLICATE SAMPLE (LDS) RPD:

The aluminum (28.57%) field duplicate RPD was outside the +/-20% RPD criteria for duplicate results. The aluminum results for samples TDMW-4D and TDMW-6 have been qualified with a "J" validation flag due to sample results greater than the RL. The remaining aluminum sample results have been qualified with a "UJ" validation flag due to sample results less than the RL.

All LDS and remaining field duplicate results were within the RPD criteria and ran at the proper frequency (1 in 20) prescribed by the USEPA Functional Guidelines and the analytical methods.

DUPLICATE SUMMARY TABLE:

Analyte	Matrix Spike Duplicate RPD	Laboratory Duplicate RPD	Field Duplicate RPD
pH	N/A	0	-2.5974
Conductivity	N/A	0.3	0.60241
TSS	N/A	5.4	9.287926
TDS	N/A	0.4	0.58651
Alkalinity	N/A	0.4	0
Bicarbonate	N/A	0	0
Carbonate	N/A	2.9	0
Chloride	0.9	N/A	0
Sulfate	0.1	N/A	0
Hardness	N/A	N/A	-0.70671
Al	0.7	N/A	**-28.5714**
Ca	1.9	N/A	0
Mg	2.6	N/A	0
K	4.1	N/A	-3.92157
Na	4.5	N/A	0
As	1.2	N/A	0
Cd	1.7	N/A	0
Cu	0.2	N/A	0
Fe	1.7	N/A	0
Pb	0.6	N/A	0
Mn	2.5	N/A	0
Zn	4.8	N/A	0

*RPD greater than 20%, however, CRDL criteria not met, Dup ok

LABORATORY CONTROL SAMPLE (LCS):

The LCS results were of matrix types similar to the field samples and properly prepared with the field samples.

All analytes exhibited recoveries within the guidelines and analyzed at the proper frequency (1 in 20) as prescribed by the USEPA Functional Guidelines and analytical methods.

Surrogate analyses are not applicable to metals and miscellaneous wet chemistry analysis types and methods.

CHAIN OF CUSTODY:

The laboratory chain of custody (COC) forms are complete and accurate.

One cooler was received by Energy Labs on 10/08/12 at 0.4°C. Custody was maintained as documents by the field and laboratory personnel signatures, dates, and time of receipt.

REPORTING LIMTS:

The reporting limits presented by the laboratory were acceptable and met the screening level requirements set forth by the project QAPjP and SAP.

OVERALL ASSESSMENT OF DATA:

There were nine (9) ground water samples in SDG# H12100143. Nine (9) field samples were analyzed for pH, conductivity, alkalinity, TSS, TDS, chloride, sulfate, hardness, and dissolved metals as outlined in the project QAPP.

All pH results have been qualified with a "J-" validation flag to denote the reported results are estimates with a low bias due to exceeded holding times.

The aluminum results for samples TDMW-4D and TDMW-6 have been qualified with a "J" validation flag to denote the reported results are estimates due to poor field duplicate precision. The remaining aluminum results have been qualified with a "UJ" validation flag to denote the data is non-detect at the reported level, but the reported level is an estimate due to poor field duplicate precision.

The remaining field sample data points have been assessed and remain unqualified.

All field sample data points presented in this SDG are valid and complete.

All samples were received by the lab in good condition. Detection limits, analytical methods, detection limits, and reporting were all within the project requirements.

Attachment A: Laboratory Report Forms

Attachment A: Laboratory Report Forms

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID TDMW-7
Lab ID: H12100143-001
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 10/04/12 10:14 **DateReceived:** 10/08/12
Report Date: 10/24/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.3	s.u. J-	H	0.1		A4500-H B	10/08/12 14:17 / cmm		PHSC_101-H_121008A	45	R83496
Conductivity @ 25 C	2	umhos/cm		1		A2510 B	10/08/12 14:17 / cmm		PHSC_101-H_121008A	46	R83496
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/08/12 14:38 / cmm	10/08/12 14:26	-124 (14410200)_121008A	18	18299
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	10/08/12 14:45 / cmm		-124 (14410200)_121008B	13	TDS121008A
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	10/09/12 15:57 / cmm		MAN-TECH_121009B	36	R83569
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	10/09/12 15:57 / cmm		MAN-TECH_121009B	36	R83569
Carbonate as CO3	ND	mg/L		4		A2320 B	10/09/12 15:57 / cmm		MAN-TECH_121009B	36	R83569
Chloride	ND	mg/L		1		E300.0	10/11/12 23:32 / cmm		IC102-H_121011B	53	R83652
Sulfate	ND	mg/L		1		E300.0	10/11/12 23:32 / cmm		IC102-H_121011B	53	R83652
Hardness as CaCO3	ND	mg/L		1		A2340 B	10/16/12 12:42 / sld		WATERCALC_121016B	3	R83713
METALS, DISSOLVED											
Aluminum	ND	mg/L UJ		0.03		E200.7	10/09/12 17:32 / sld		ICP2-HE_121009B	38	R83570
Arsenic	ND	mg/L		0.003		E200.8	10/12/12 06:15 / dck		ICPMS204-B_121010C	509	R83638
Cadmium	ND	mg/L		0.00008		E200.8	10/12/12 06:15 / dck		ICPMS204-B_121010C	509	R83638
Calcium	ND	mg/L		1		E200.7	10/09/12 17:32 / sld		ICP2-HE_121009B	38	R83570
Copper	ND	mg/L		0.001		E200.8	10/12/12 06:15 / dck		ICPMS204-B_121010C	509	R83638
Iron	ND	mg/L		0.05		E200.8	10/12/12 06:15 / dck		ICPMS204-B_121010C	509	R83638
Lead	ND	mg/L		0.0005		E200.8	10/12/12 06:15 / dck		ICPMS204-B_121010C	509	R83638
Magnesium	ND	mg/L		1		E200.7	10/09/12 17:32 / sld		ICP2-HE_121009B	38	R83570
Manganese	ND	mg/L		0.005		E200.8	10/12/12 06:15 / dck		ICPMS204-B_121010C	509	R83638
Potassium	ND	mg/L		1		E200.7	10/09/12 17:32 / sld		ICP2-HE_121009B	38	R83570
Sodium	ND	mg/L		1		E200.7	10/09/12 17:32 / sld		ICP2-HE_121009B	38	R83570
Zinc	ND	mg/L		0.01		E200.8	10/12/12 06:15 / dck		ICPMS204-B_121010C	509	R83638

JAN
2-13-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID TDMW-8
Lab ID: H12100143-002
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 10/04/12 10:23 **DateReceived:** 10/08/12
Report Date: 10/24/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.4	s.u. J-	H	0.1		A4500-H B	10/08/12 14:19 / cmm		PHSC_101-H_121008A	47	R83496
Conductivity @ 25 C	1	umhos/cm		1		A2510 B	10/08/12 14:19 / cmm		PHSC_101-H_121008A	48	R83496
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/08/12 14:38 / cmm	10/08/12 14:26	-124 (14410200)_121008A	19	18299
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	10/08/12 14:45 / cmm		-124 (14410200)_121008B	14	TDS121008A
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	10/09/12 16:06 / cmm		MAN-TECH_121009B	39	R83569
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	10/09/12 16:06 / cmm		MAN-TECH_121009B	39	R83569
Carbonate as CO3	ND	mg/L		4		A2320 B	10/09/12 16:06 / cmm		MAN-TECH_121009B	39	R83569
Chloride	ND	mg/L		1		E300.0	10/11/12 23:44 / cmm		IC102-H_121011B	54	R83652
Sulfate	ND	mg/L		1		E300.0	10/11/12 23:44 / cmm		IC102-H_121011B	54	R83652
Hardness as CaCO3	ND	mg/L		1		A2340 B	10/16/12 12:42 / sld		WATERCALC_121016B	4	R83713
METALS, DISSOLVED											
Aluminum	ND	mg/L UJ		0.03		E200.7	10/09/12 17:35 / sld		ICP2-HE_121009B	39	R83570
Arsenic	ND	mg/L		0.003		E200.8	10/12/12 06:19 / dck		ICPMS204-B_121010C	510	R83638
Cadmium	ND	mg/L		0.00008		E200.8	10/12/12 06:19 / dck		ICPMS204-B_121010C	510	R83638
Calcium	ND	mg/L		1		E200.7	10/09/12 17:35 / sld		ICP2-HE_121009B	39	R83570
Copper	ND	mg/L		0.001		E200.8	10/12/12 06:19 / dck		ICPMS204-B_121010C	510	R83638
Iron	ND	mg/L		0.05		E200.8	10/12/12 06:19 / dck		ICPMS204-B_121010C	510	R83638
Lead	ND	mg/L		0.0005		E200.8	10/12/12 06:19 / dck		ICPMS204-B_121010C	510	R83638
Magnesium	ND	mg/L		1		E200.7	10/09/12 17:35 / sld		ICP2-HE_121009B	39	R83570
Manganese	ND	mg/L		0.005		E200.8	10/12/12 06:19 / dck		ICPMS204-B_121010C	510	R83638
Potassium	ND	mg/L		1		E200.7	10/09/12 17:35 / sld		ICP2-HE_121009B	39	R83570
Sodium	ND	mg/L		1		E200.7	10/09/12 17:35 / sld		ICP2-HE_121009B	39	R83570
Zinc	ND	mg/L		0.01		E200.8	10/12/12 06:19 / dck		ICPMS204-B_121010C	510	R83638

JAH
2-13-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID TDMW-5
Lab ID: H12100143-003
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 10/04/12 10:55 **DateReceived:** 10/08/12
Report Date: 10/24/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.7	s.u. J-	H	0.1		A4500-H B	10/08/12 14:23 / cmm		PHSC_101-H_121008A	49	R83496
Conductivity @ 25 C	307	umhos/cm		1		A2510 B	10/08/12 14:23 / cmm		PHSC_101-H_121008A	50	R83496
Solids, Total Suspended TSS @ 105 C	18	mg/L		10		A2540 D	10/08/12 14:38 / cmm	10/08/12 14:26	-124 (14410200)_121008A	20	18299
Solids, Total Dissolved TDS @ 180 C	168	mg/L		10		A2540 C	10/08/12 14:46 / cmm		-124 (14410200)_121008B	15	TDS121008A
INORGANICS											
Alkalinity, Total as CaCO3	130	mg/L		4		A2320 B	10/09/12 16:20 / cmm		MAN-TECH_121009B	42	R83569
Bicarbonate as HCO3	150	mg/L		4		A2320 B	10/09/12 16:20 / cmm		MAN-TECH_121009B	42	R83569
Carbonate as CO3	ND	mg/L		4		A2320 B	10/09/12 16:20 / cmm		MAN-TECH_121009B	42	R83569
Chloride	ND	mg/L		1		E300.0	10/11/12 23:57 / cmm		IC102-H_121011B	55	R83652
Sulfate	44	mg/L		1		E300.0	10/11/12 23:57 / cmm		IC102-H_121011B	55	R83652
Hardness as CaCO3	154	mg/L		1		A2340 B	10/09/12 17:39 / abb		CALC_121013A	159	R83661
METALS, DISSOLVED											
Aluminum	ND	mg/L UJ		0.03		E200.7	10/09/12 17:39 / sld		ICP2-HE_121009B	40	R83570
Arsenic	ND	mg/L		0.003		E200.8	10/12/12 06:24 / dck		ICPMS204-B_121010C	511	R83638
Cadmium	0.00014	mg/L		0.00008		E200.8	10/12/12 06:24 / dck		ICPMS204-B_121010C	511	R83638
Calcium	35	mg/L		1		E200.7	10/09/12 17:39 / sld		ICP2-HE_121009B	40	R83570
Copper	ND	mg/L		0.001		E200.8	10/12/12 06:24 / dck		ICPMS204-B_121010C	511	R83638
Iron	ND	mg/L		0.05		E200.8	10/12/12 06:24 / dck		ICPMS204-B_121010C	511	R83638
Lead	ND	mg/L		0.0005		E200.8	10/12/12 06:24 / dck		ICPMS204-B_121010C	511	R83638
Magnesium	16	mg/L		1		E200.7	10/09/12 17:39 / sld		ICP2-HE_121009B	40	R83570
Manganese	ND	mg/L		0.005		E200.8	10/12/12 06:24 / dck		ICPMS204-B_121010C	511	R83638
Potassium	ND	mg/L		1		E200.7	10/09/12 17:39 / sld		ICP2-HE_121009B	40	R83570
Sodium	2	mg/L		1		E200.7	10/09/12 17:39 / sld		ICP2-HE_121009B	40	R83570
Zinc	0.02	mg/L		0.01		E200.8	10/12/12 06:24 / dck		ICPMS204-B_121010C	511	R83638

JAN
2-13-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID TDMW-4D
Lab ID: H12100143-004
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 10/04/12 13:40 **DateReceived:** 10/08/12
Report Date: 10/24/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.6	s.u. J-	H	0.1		A4500-H B	10/08/12 14:36 / cmm		PHSC_101-H_121008A	56	R83496
Conductivity @ 25 C	333	umhos/cm		1		A2510 B	10/08/12 14:36 / cmm		PHSC_101-H_121008A	57	R83496
Solids, Total Suspended TSS @ 105 C	169	mg/L		10		A2540 D	10/08/12 14:39 / cmm	10/08/12 14:26	-124 (14410200)_121008A	22	18299
Solids, Total Dissolved TDS @ 180 C	171	mg/L		10		A2540 C	10/08/12 14:46 / cmm		-124 (14410200)_121008B	17	TDS121008A
INORGANICS											
Alkalinity, Total as CaCO3	150	mg/L		4		A2320 B	10/09/12 16:28 / cmm		MAN-TECH_121009B	43	R83569
Bicarbonate as HCO3	180	mg/L		4		A2320 B	10/09/12 16:28 / cmm		MAN-TECH_121009B	43	R83569
Carbonate as CO3	ND	mg/L		4		A2320 B	10/09/12 16:28 / cmm		MAN-TECH_121009B	43	R83569
Chloride	ND	mg/L		1		E300.0	10/12/12 00:09 / cmm		IC102-H_121011B	56	R83652
Sulfate	27	mg/L		1		E300.0	10/12/12 00:09 / cmm		IC102-H_121011B	56	R83652
Hardness as CaCO3	141	mg/L		1		A2340 B	10/09/12 18:01 / abb		CALC_121013A	171	R83661
METALS, DISSOLVED											
Aluminum	0.03	mg/L J		0.03		E200.7	10/09/12 18:01 / sld		ICP2-HE_121009B	46	R83570
Arsenic	ND	mg/L		0.003		E200.8	10/12/12 06:29 / dck		ICPMS204-B_121010C	512	R83638
Cadmium	0.00013	mg/L		0.00008		E200.8	10/12/12 06:29 / dck		ICPMS204-B_121010C	512	R83638
Calcium	25	mg/L		1		E200.7	10/09/12 18:01 / sld		ICP2-HE_121009B	46	R83570
Copper	ND	mg/L		0.001		E200.8	10/12/12 06:29 / dck		ICPMS204-B_121010C	512	R83638
Iron	ND	mg/L		0.05		E200.8	10/12/12 06:29 / dck		ICPMS204-B_121010C	512	R83638
Lead	ND	mg/L		0.0005		E200.8	10/12/12 06:29 / dck		ICPMS204-B_121010C	512	R83638
Magnesium	19	mg/L		1		E200.7	10/09/12 18:01 / sld		ICP2-HE_121009B	46	R83570
Manganese	0.045	mg/L		0.005		E200.8	10/12/12 06:29 / dck		ICPMS204-B_121010C	512	R83638
Potassium	ND	mg/L		1		E200.7	10/09/12 18:01 / sld		ICP2-HE_121009B	46	R83570
Sodium	15	mg/L		1		E200.7	10/09/12 18:01 / sld		ICP2-HE_121009B	46	R83570
Zinc	ND	mg/L		0.01		E200.8	10/12/12 06:29 / dck		ICPMS204-B_121010C	512	R83638

JAN
2-13-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID TDMW-6
Lab ID: H12100143-005
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 10/04/12 13:55 **DateReceived:** 10/08/12
Report Date: 10/24/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.8	s.u. J-	H	0.1		A4500-H B	10/08/12 14:38 / cmm		PHSC_101-H_121008A	58	R83496
Conductivity @ 25 C	331	umhos/cm		1		A2510 B	10/08/12 14:38 / cmm		PHSC_101-H_121008A	59	R83496
Solids, Total Suspended TSS @ 105 C	154	mg/L		10		A2540 D	10/08/12 14:39 / cmm	10/08/12 14:26	-124 (14410200)_121008A	23	18299
Solids, Total Dissolved TDS @ 180 C	170	mg/L		10		A2540 C	10/08/12 14:46 / cmm		-124 (14410200)_121008B	18	TDS121008A
INORGANICS											
Alkalinity, Total as CaCO3	150	mg/L		4		A2320 B	10/09/12 16:35 / cmm		MAN-TECH_121009B	44	R83569
Bicarbonate as HCO3	180	mg/L		4		A2320 B	10/09/12 16:35 / cmm		MAN-TECH_121009B	44	R83569
Carbonate as CO3	ND	mg/L		4		A2320 B	10/09/12 16:35 / cmm		MAN-TECH_121009B	44	R83569
Chloride	ND	mg/L		1		E300.0	10/12/12 00:22 / cmm		IC102-H_121011B	57	R83652
Sulfate	27	mg/L		1		E300.0	10/12/12 00:22 / cmm		IC102-H_121011B	57	R83652
Hardness as CaCO3	142	mg/L		1		A2340 B	10/09/12 18:05 / abb		CALC_121013A	183	R83661
METALS, DISSOLVED											
Aluminum	0.04	mg/L J		0.03		E200.7	10/09/12 18:05 / sld		ICP2-HE_121009B	47	R83570
Arsenic	ND	mg/L		0.003		E200.8	10/12/12 06:33 / dck		ICPMS204-B_121010C	513	R83638
Cadmium	0.00013	mg/L		0.00008		E200.8	10/12/12 06:33 / dck		ICPMS204-B_121010C	513	R83638
Calcium	26	mg/L		1		E200.7	10/09/12 18:05 / sld		ICP2-HE_121009B	47	R83570
Copper	ND	mg/L		0.001		E200.8	10/12/12 06:33 / dck		ICPMS204-B_121010C	513	R83638
Iron	ND	mg/L		0.05		E200.8	10/12/12 06:33 / dck		ICPMS204-B_121010C	513	R83638
Lead	ND	mg/L		0.0005		E200.8	10/12/12 06:33 / dck		ICPMS204-B_121010C	513	R83638
Magnesium	19	mg/L		1		E200.7	10/09/12 18:05 / sld		ICP2-HE_121009B	47	R83570
Manganese	0.045	mg/L		0.005		E200.8	10/12/12 06:33 / dck		ICPMS204-B_121010C	513	R83638
Potassium	ND	mg/L		1		E200.7	10/09/12 18:05 / sld		ICP2-HE_121009B	47	R83570
Sodium	15	mg/L		1		E200.7	10/09/12 18:05 / sld		ICP2-HE_121009B	47	R83570
Zinc	ND	mg/L		0.01		E200.8	10/12/12 06:33 / dck		ICPMS204-B_121010C	513	R83638

JAN
2-13-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID TDMW-3D
Lab ID: H12100143-006
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 10/04/12 15:39 **DateReceived:** 10/08/12
Report Date: 10/24/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.2	s.u.	J- H	0.1		A4500-H B	10/08/12 14:41 / cmm		PHSC_101-H_121008A	60	R83496
Conductivity @ 25 C	586	umhos/cm		1		A2510 B	10/08/12 14:41 / cmm		PHSC_101-H_121008A	61	R83496
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/08/12 14:40 / cmm	10/08/12 14:26	-124 (14410200)_121008A	24	18299
Solids, Total Dissolved TDS @ 180 C	403	mg/L		10		A2540 C	10/08/12 14:46 / cmm		-124 (14410200)_121008B	19	TDS121008A
INORGANICS											
Alkalinity, Total as CaCO3	61	mg/L		4		A2320 B	10/09/12 16:42 / cmm		MAN-TECH_121009B	45	R83569
Bicarbonate as HCO3	74	mg/L		4		A2320 B	10/09/12 16:42 / cmm		MAN-TECH_121009B	45	R83569
Carbonate as CO3	ND	mg/L		4		A2320 B	10/09/12 16:42 / cmm		MAN-TECH_121009B	45	R83569
Chloride	ND	mg/L		1		E300.0	10/12/12 00:35 / cmm		IC102-H_121011B	58	R83652
Sulfate	250	mg/L		1		E300.0	10/12/12 00:35 / cmm		IC102-H_121011B	58	R83652
Hardness as CaCO3	294	mg/L		1		A2340 B	10/09/12 18:09 / abb		CALC_121013A	195	R83661
METALS, DISSOLVED											
Aluminum	ND	mg/L	UT	0.03		E200.7	10/09/12 18:09 / sld		ICP2-HE_121009B	48	R83570
Arsenic	ND	mg/L		0.003		E200.8	10/16/12 17:00 / dck		ICPMS204-B_121016A	74	R83744
Cadmium	0.00016	mg/L		0.00008		E200.8	10/12/12 06:56 / dck		ICPMS204-B_121010C	518	R83638
Calcium	69	mg/L		1		E200.7	10/09/12 18:09 / sld		ICP2-HE_121009B	48	R83570
Copper	ND	mg/L		0.001		E200.8	10/12/12 06:56 / dck		ICPMS204-B_121010C	518	R83638
Iron	ND	mg/L		0.05		E200.8	10/12/12 06:56 / dck		ICPMS204-B_121010C	518	R83638
Lead	ND	mg/L		0.0005		E200.8	10/12/12 06:56 / dck		ICPMS204-B_121010C	518	R83638
Magnesium	30	mg/L		1		E200.7	10/09/12 18:09 / sld		ICP2-HE_121009B	48	R83570
Manganese	ND	mg/L		0.005		E200.8	10/12/12 06:56 / dck		ICPMS204-B_121010C	518	R83638
Potassium	ND	mg/L		1		E200.7	10/09/12 18:09 / sld		ICP2-HE_121009B	48	R83570
Sodium	2	mg/L		1		E200.7	10/09/12 18:09 / sld		ICP2-HE_121009B	48	R83570
Zinc	0.03	mg/L		0.01		E200.8	10/12/12 06:56 / dck		ICPMS204-B_121010C	518	R83638

JAN
2-13-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID TDMW-1
Lab ID: H12100143-007
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 10/04/12 17:21 **DateReceived:** 10/08/12
Report Date: 10/24/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.5	s.u.	J- H	0.1		A4500-H B	10/08/12 14:43 / cmm		PHSC_101-H_121008A	62	R83496
Conductivity @ 25 C	550	umhos/cm		1		A2510 B	10/08/12 14:43 / cmm		PHSC_101-H_121008A	63	R83496
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/08/12 14:41 / cmm	10/08/12 14:27	-124 (14410200)_121008A	27	18300
Solids, Total Dissolved TDS @ 180 C	352	mg/L		10		A2540 C	10/08/12 14:47 / cmm		-124 (14410200)_121008B	20	TDS121008A
INORGANICS											
Alkalinity, Total as CaCO3	70	mg/L		4		A2320 B	10/09/12 16:48 / cmm		MAN-TECH_121009B	46	R83569
Bicarbonate as HCO3	86	mg/L		4		A2320 B	10/09/12 16:48 / cmm		MAN-TECH_121009B	46	R83569
Carbonate as CO3	ND	mg/L		4		A2320 B	10/09/12 16:48 / cmm		MAN-TECH_121009B	46	R83569
Chloride	ND	mg/L		1		E300.0	10/15/12 13:45 / cmm		IC102-H_121015A	20	R83701
Sulfate	220	mg/L		1		E300.0	10/15/12 13:45 / cmm		IC102-H_121015A	20	R83701
Hardness as CaCO3	276	mg/L		1		A2340 B	10/17/12 13:11 / sld		WATERCALC_121017A	12	R83752
METALS, DISSOLVED											
Aluminum	ND	mg/L	UJ	0.03		E200.7	10/09/12 18:13 / sld		ICP2-HE_121009B	49	R83570
Arsenic	ND	mg/L		0.003		E200.8	10/16/12 17:35 / dck		ICPMS204-B_121016A	82	R83744
Cadmium	0.00313	mg/L		0.00008		E200.8	10/12/12 07:14 / dck		ICPMS204-B_121010C	522	R83638
Calcium	53	mg/L		1		E200.7	10/09/12 18:13 / sld		ICP2-HE_121009B	49	R83570
Copper	0.001	mg/L		0.001		E200.8	10/12/12 07:14 / dck		ICPMS204-B_121010C	522	R83638
Iron	ND	mg/L		0.05		E200.8	10/12/12 07:14 / dck		ICPMS204-B_121010C	522	R83638
Lead	ND	mg/L		0.0005		E200.8	10/12/12 07:14 / dck		ICPMS204-B_121010C	522	R83638
Magnesium	35	mg/L		1		E200.7	10/09/12 18:13 / sld		ICP2-HE_121009B	49	R83570
Manganese	ND	mg/L		0.005		E200.8	10/12/12 07:14 / dck		ICPMS204-B_121010C	522	R83638
Potassium	1	mg/L		1		E200.7	10/09/12 18:13 / sld		ICP2-HE_121009B	49	R83570
Sodium	2	mg/L		1		E200.7	10/09/12 18:13 / sld		ICP2-HE_121009B	49	R83570
Zinc	1.31	mg/L		0.01		E200.7	10/09/12 18:13 / sld		ICP2-HE_121009B	49	R83570

JAN
2-13-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID TDMW-2D
Lab ID: H12100143-008
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 10/04/12 18:01 **DateReceived:** 10/08/12
Report Date: 10/24/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.0	s.u.	J- H	0.1		A4500-H B	10/08/12 14:45 / cmm		PHSC_101-H_121008A	64	R83496
Conductivity @ 25 C	255	umhos/cm		1		A2510 B	10/08/12 14:45 / cmm		PHSC_101-H_121008A	65	R83496
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/08/12 14:41 / cmm	10/08/12 14:27	-124 (14410200)_121008A	29	18300
Solids, Total Dissolved TDS @ 180 C	130	mg/L		10		A2540 C	10/08/12 14:47 / cmm		-124 (14410200)_121008B	21	TDS121008A
INORGANICS											
Alkalinity, Total as CaCO3	85	mg/L		4		A2320 B	10/09/12 16:55 / cmm		MAN-TECH_121009B	47	R83569
Bicarbonate as HCO3	100	mg/L		4		A2320 B	10/09/12 16:55 / cmm		MAN-TECH_121009B	47	R83569
Carbonate as CO3	ND	mg/L		4		A2320 B	10/09/12 16:55 / cmm		MAN-TECH_121009B	47	R83569
Chloride	ND	mg/L		1		E300.0	10/15/12 13:58 / cmm		IC102-H_121015A	21	R83701
Sulfate	39	mg/L		1		E300.0	10/15/12 13:58 / cmm		IC102-H_121015A	21	R83701
Hardness as CaCO3	125	mg/L		1		A2340 B	10/17/12 13:11 / sld		WATERCALC_121017A	13	R83752
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	10/09/12 18:17 / sld		ICP2-HE_121009B	50	R83570
Arsenic	ND	mg/L		0.003		E200.8	10/16/12 17:40 / dck		ICPMS204-B_121016A	83	R83744
Cadmium	ND	mg/L		0.00008		E200.8	10/12/12 07:19 / dck		ICPMS204-B_121010C	523	R83638
Calcium	26	mg/L		1		E200.7	10/09/12 18:17 / sld		ICP2-HE_121009B	50	R83570
Copper	0.001	mg/L		0.001		E200.8	10/12/12 07:19 / dck		ICPMS204-B_121010C	523	R83638
Iron	ND	mg/L		0.05		E200.8	10/12/12 07:19 / dck		ICPMS204-B_121010C	523	R83638
Lead	ND	mg/L		0.0005		E200.8	10/12/12 07:19 / dck		ICPMS204-B_121010C	523	R83638
Magnesium	15	mg/L		1		E200.7	10/09/12 18:17 / sld		ICP2-HE_121009B	50	R83570
Manganese	ND	mg/L		0.005		E200.8	10/12/12 07:19 / dck		ICPMS204-B_121010C	523	R83638
Potassium	ND	mg/L		1		E200.7	10/09/12 18:17 / sld		ICP2-HE_121009B	50	R83570
Sodium	1	mg/L		1		E200.7	10/09/12 18:17 / sld		ICP2-HE_121009B	50	R83570
Zinc	ND	mg/L		0.01		E200.8	10/12/12 07:19 / dck		ICPMS204-B_121010C	523	R83638

JAN
2-13-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID TDMW-2S
Lab ID: H12100143-009
Matrix: Aqueous

Project: UBMC Groundwater
Collection Date: 10/04/12 18:45 **DateReceived:** 10/08/12
Report Date: 10/24/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.2	s.u. J-	H	0.1		A4500-H B	10/08/12 14:48 / cmm		PHSC_101-H_121008A	66	R83496
Conductivity @ 25 C	1400	umhos/cm		1		A2510 B	10/08/12 14:48 / cmm		PHSC_101-H_121008A	67	R83496
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/08/12 14:41 / cmm	10/08/12 14:27	-124 (14410200)_121008A	30	18300
Solids, Total Dissolved TDS @ 180 C	1120	mg/L		10		A2540 C	10/08/12 14:47 / cmm		-124 (14410200)_121008B	22	TDS121008A
INORGANICS											
Alkalinity, Total as CaCO3	120	mg/L		4		A2320 B	10/09/12 17:02 / cmm		MAN-TECH_121009B	48	R83569
Bicarbonate as HCO3	150	mg/L		4		A2320 B	10/09/12 17:02 / cmm		MAN-TECH_121009B	48	R83569
Carbonate as CO3	ND	mg/L		4		A2320 B	10/09/12 17:02 / cmm		MAN-TECH_121009B	48	R83569
Chloride	ND	mg/L		1		E300.0	10/15/12 14:10 / cmm		IC102-H_121015A	22	R83701
Sulfate	790	mg/L		1		E300.0	10/15/12 14:10 / cmm		IC102-H_121015A	22	R83701
Hardness as CaCO3	752	mg/L		1		A2340 B	10/17/12 13:11 / sld		WATERCALC_121017A	14	R83752
METALS, DISSOLVED											
Aluminum	ND	mg/L UJ		0.03		E200.7	10/09/12 18:20 / sld		ICP2-HE_121009B	51	R83570
Arsenic	ND	mg/L		0.003		E200.8	10/16/12 17:44 / dck		ICPMS204-B_121016A	84	R83744
Cadmium	0.0234	mg/L		0.00008		E200.8	10/12/12 07:23 / dck		ICPMS204-B_121010C	524	R83638
Calcium	133	mg/L		1		E200.7	10/09/12 18:20 / sld		ICP2-HE_121009B	51	R83570
Copper	0.002	mg/L		0.001		E200.8	10/12/12 07:23 / dck		ICPMS204-B_121010C	524	R83638
Iron	0.05	mg/L		0.05		E200.8	10/12/12 07:23 / dck		ICPMS204-B_121010C	524	R83638
Lead	ND	mg/L		0.0005		E200.8	10/12/12 07:23 / dck		ICPMS204-B_121010C	524	R83638
Magnesium	102	mg/L		1		E200.7	10/09/12 18:20 / sld		ICP2-HE_121009B	51	R83570
Manganese	42.9	mg/L		0.005		E200.7	10/09/12 18:20 / sld		ICP2-HE_121009B	51	R83570
Potassium	3	mg/L		1		E200.7	10/09/12 18:20 / sld		ICP2-HE_121009B	51	R83570
Sodium	2	mg/L		1		E200.7	10/09/12 18:20 / sld		ICP2-HE_121009B	51	R83570
Zinc	10.6	mg/L		0.01		E200.7	10/09/12 18:20 / sld		ICP2-HE_121009B	51	R83570

JAN
2-13-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

Attachment B: Chain of Custody Forms and Sample Receipt Checklist

Standard Reporting Procedures

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Workorder Receipt Checklist

MT DEQ-Site Response H12100143

Login completed by: Wanda Johnson
Date Received: 10/8/2012
Reviewed by: BL2000\sdull
Received by: wjj
Reviewed Date: 10/17/2012
Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	0.4°C On Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Contact and Corrective Action Comments:

Collection time for sample TDMW-2D is 18:01 on COC, bottle states 18:07. Used sample time on the COC. Wj 10/08/12

Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT (Provide as much information as possible.)

Company Name: MDEQ	Project Name, PWS, Permit, Etc.: VMBC Groundwater	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: See Quote H-645	Contact Name: Shellie Hatland 841-5037 Shatland@mt.gov Phone/Fax: Email:		Sampler: (Please Print) A. Dreesbach M. Towle
Invoice Address:	Invoice Contact & Phone:	Purchase Order:	Quote/Bottle Order: 10761

Special Report/Formats:

☐ DW ☐ POTW/WWTP ☐ State: _____ ☐ Other: _____

☐ EDD/EDT (Electronic Data) Format: _____ ☐ LEVEL IV ☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids Vegetation Bioassay Other DW - Drinking Water

ANALYSIS REQUESTED

Standard Turnaround (TAT) → RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

Shipped by: handdel

Cooler ID(s): Y

Receipt Temp: 0.4 °C TB

On Ice: Y N

Custody Seal: On Bottle Y N; On Cooler Y N

Intact: Y N

Signature Match: Y N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	SEE ATTACHED
1	TDMW-7	10/4/12	1017	W	X
2	TDMW-8		1023		
3	TDMW-5		1055		
4	TDMW-4D		1340		
5	TDMW-6		1355		
6	TDMW-3D		1539		
7	TDMW-1		1721		
8	TDMW-2D		1801		
9	TDMW-25	10/4/12	1845	W	X
10					

LABORATORY USE ONLY: H12100143

Custody Record MUST be Signed

Relinquished by (print): Alan Dreesbach	Date/Time: 10/5/12 1034	Signature:	
Relinquished by (print):	Date/Time:	Signature:	
Sample Disposal: Return to Client: _____	Lab Disposal: _____		

Received by (print):	Date/Time:	Signature:
Received by (print):	Date/Time:	Signature:
Received by Laboratory: Wanda Dow	Date/Time: 10-8-12 10:54	Signature:

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.
This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

UBMC Sediment

SDG#:	**H12120184**
Number of Samples:	**6**
Sample Matrix:	**(8) Sediment**
Applicable Analytes:	**Total Extractable Metals: (Al, As, Cd, Cu, Fe, Pb, Mn, and Zn)**
Reporting Tier:	**3**
Applicable TOS#:	**N/A**
Laboratory:	**Energy Laboratories**
Validation Level:	**EPA Level III**
Validator Affiliation:	**Portage, Inc.**
Project#:	**UBMC**
Project SAP/QUAPP:	**Final Sampling and Analysis Plan for Environmental Monitoring of Upper Blackfoot Mining Complex Lewis and Clark County, Montana; Portage Inc., 2012**



Validator **Date Completed:02/19/13;05/09/13**



Portage Review: **Date Completed:02/19/13;05/09/13**

REPORT ORGANIZATION:

Limitations & Validation (L&V) Report UBMC Sediment is organized into the following five sections:

- Glossary of Terms & Method References
- Data Quality Statement
- L&V Report
- Attachment A: Laboratory Report Forms Corrected for Qualification
- Attachment B: Chain of Custody Forms & Sample Receipt Checklist

GLOSSARY OF VALIDATION TERMS & METHOD VALIDATION REFERENCES

Terms:

CRDL	Contract Required Detection Limit
IDL	Instrument Detection Limit
SOW	Statement of Work
SOP	Standard Operating Procedure
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ICV	Initial Calibration Verification
CCV	Continuing Calibration Verification
ICB	Initial Calibration Blank
CCB	Continuing Calibration Blank
PB	Preparation Blank
LCS	Laboratory Control Sample
SDS	Serial Dilution Sample
SDG	Sample Delivery Group

Qualifiers:

U - The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.
Note: This detection limit may be elevated to a level greater than the IDL due to a detection of a target compound in the method blank, and as a result, the sample value, which was less than ten times the blank result, has been qualified 'U' as a non-detect.

J - The analyte was positively identified in the sample, but the associated numerical value may not be an accurate representation of the amount actually present in the environmental sample. The data should be seriously considered for decision-making and are usable for many purposes.

R - The data are unusable (may or may not be present). Resampling and reanalysis are necessary for verification.

UJ - The material was analyzed for but was not detected. The sample quantitation limit is an estimated quantity.

Reference:

The validation of this data was performed according to:

1. *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, EPA540-R-04-004,October 2004.*
2. *USEPA Contract Laboratory Program Statement of Work For Inorganic Analysis, Multi-Media, Multi-Concentration, Document Number ILM04.0, January 2000.*

LIMITATIONS AND VALIDATION REPORT

INTRODUCTION:

The UBMC sediment sample results were received by Portage, Inc. in December 2012. The laboratory analytical request provided for a summary data package attached for the total recoverable metals: (Al, As, Cd, Cu, Fe, Pb, Mn, and Zn). The samples were analyzed in accordance USEPA SW-846 Methods 3050B and 6010B. Data validation was performed utilizing the USEPA Functional Guidelines for Inorganic Data Review. The following cross-reference has been provided to assist data users in comparing field identifications to the corresponding laboratory numbers.

Cross-Reference for UBMC Sediment Samples					
Field Id#:	**Lab Id#:**	**Matrix:**	**Analysis Request:**	**Date of Collection:**	**Date of Laboratory Receipt:**
BRSD-38	H12120184-001	Sediment	Total Extractable Metals	12/10/12	12/11/12
BRSD-48	H12120184-002	Sediment	Total Extractable Metals	12/10/12	12/11/12
BRSD-23	H12120184-003	Sediment	Total Extractable Metals	12/10/12	12/11/12
BRSD-3A	H12120184-004	Sediment	Total Extractable Metals	12/10/12	12/11/12
BRSD-3B	H12120184-005	Sediment	Total Extractable Metals	12/10/12	12/11/12
BRSD-22	H12120184-006	Sediment	Total Extractable Metals	12/10/12	12/11/12
BRSD-24	H12120184-007	Sediment	Total Extractable Metals	12/10/12	12/11/12
BRSD-1	H12120184-008	Sediment	Total Extractable Metals	12/10/12	12/11/12

LABORATORY CASE NARRATIVE:

The laboratory case narrative did not note any non conformance issues with the analytical data.

ANALYTICAL HOLDING TIMES:

The sediment samples associated with this SDG were collected on 12/10/12. The total extractable metals were analyzed 12/17/12 and 12/18/12 within the 180-day holding time for the ICP Metals.

INITIAL AND CONTINUING CALIBRATION (ICV and CCV):

All ICV and CCV results were within the acceptance criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

PREPRATION BLANKS (PB):

For all analyses, blank results were analyzed at a proper frequency of 1 blank per 20 samples in the analytical batch.

The PB results were non-detect at level less than their respective MDLs and no qualification is warranted.

Field blank, trip blank, and equipment rinsate results were not included in this data deliverable.

INTERFERENCE CHECK SAMPLE (ICS):

All ICS results were within the acceptance criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

MATRIX SPIKE (MS)/MATRIX SPIKE DUPLICATE (MSD):

The arsenic (44% and 52%) sediment MS/MSD results and the manganese (173%) MS results were outside the 75-125% recovery criteria. Qualification is as follows:

- The arsenic sample results were qualified with a "J-" validation flag due to low MS/MSD recovery and sample results greater than the MDL.

- The manganese samples results were qualified with a "J+" validation flag due to high MS recovery and sample results greater than the MDL.

The remaining MS/MSD recovery and all RPD results were within the acceptance criteria and analyzed at the proper frequency (1 in 20) as prescribed by the USEPA Functional Guidelines and the analytical methods. MS/MSD sample were obtained from project field samples.

LABORATORY DUPLICATE SAMPLE (LDS) RPD:

All LDS and field duplicate results were within the RPD criteria and ran at the proper frequency (1 in 20) prescribed by the USEPA Functional Guidelines and the analytical methods.

DUPLICATE SUMMARY TABLE:

Analyte	Matrix Spike Duplicate RPD	Laboratory Duplicate RPD	Field Duplicate RPD
Al	1	N/A	12.84916
As	1.1	N/A	-27.957
Cd	3.0	N/A	33.33333
Cu	14	N/A	9.701127
Fe	13	N/A	0.854701
Pb	2.0	N/A	29.17585
Mn	15	N/A	8.321377
Zn	0.5	N/A	19.04762

LABORATORY CONTROL SAMPLE (LCS):

The LCS results were of matrix types similar to the field samples and properly prepared with the field samples.

All analytes exhibited recoveries within the guidelines and analyzed at the proper frequency (1 in 20) as prescribed by the USEPA Functional Guidelines and analytical methods.

Surrogate analyses are not applicable to metals and miscellaneous wet chemistry analysis types and methods.

CHAIN OF CUSTODY:

The laboratory chain of custody (COC) forms are complete and accurate.

One cooler was received by Energy Labs on 12/11/12 at 0.4°C. Custody was maintained as documents by the field and laboratory personnel signatures, dates, and time of receipt.

REPORTING LIMTS:

The reporting limits presented by the laboratory were acceptable and met the screening level requirements set forth by the project QAPjP and SAP.

OVERALL ASSESSMENT OF DATA:

There were eight (8) sediment field samples included in SDG# H12120184. Eight (8) field samples were analyzed for total extractable metals as outlined in the project QAPP.

The arsenic sample results have been qualified with a "J-" validation flag to denote the reported results are estimates with a low bias due to low MS/MSD recovery.

The manganese sample results have been qualified with a "J+" validation flag to denote the reported results are estimates with a high bias due to high MS recovery.

The remaining field sample data points have been assessed and remain unqualified.

All field sample data points presented in this SDG are valid and complete.

Attachment A: Laboratory Report Forms

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: BRSD-38
Lab ID: H12120184-001
Matrix: Sediment

Project: UBMC Sediment
Collection Date: 12/10/12 11:06
DateReceived: 12/11/12
Report Date: 12/21/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	4420	mg/kg		5		SW6010B	12/17/12 21:02 / sld	12/12/12 14:26	ICP2-HE_121217C	84	18996
Arsenic	29	mg/kg	J-	5		SW6010B	12/18/12 19:22 / sld	12/12/12 14:26	ICP2-HE_121218B	83	18996
Cadmium	17	mg/kg		1		SW6010B	12/18/12 19:22 / sld	12/12/12 14:26	ICP2-HE_121218B	83	18996
Copper	242	mg/kg		5		SW6010B	12/17/12 21:02 / sld	12/12/12 14:26	ICP2-HE_121217C	84	18996
Iron	16800	mg/kg		5		SW6010B	12/18/12 19:22 / sld	12/12/12 14:26	ICP2-HE_121218B	83	18996
Lead	593	mg/kg		5		SW6010B	12/18/12 19:22 / sld	12/12/12 14:26	ICP2-HE_121218B	83	18996
Manganese	3820	mg/kg	J+	5		SW6010B	12/18/12 19:22 / sld	12/12/12 14:26	ICP2-HE_121218B	83	18996
Zinc	2780	mg/kg		5		SW6010B	12/17/12 21:02 / sld	12/12/12 14:26	ICP2-HE_121217C	84	18996

JAN
2-20-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: BRSD-48
Lab ID: H12120184-002
Matrix: Sediment

Project: UBMC Sediment
Collection Date: 12/10/12 12:25
DateReceived: 12/11/12
Report Date: 12/21/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	5810	mg/kg		5		SW6010B	12/18/12 19:26 / sld	12/12/12 14:26	ICP2-HE_121218B : 84		18996
Arsenic	48	mg/kg	J -	5		SW6010B	12/18/12 19:26 / sld	12/12/12 14:26	ICP2-HE_121218B : 84		18996
Cadmium	34	mg/kg		1		SW6010B	12/18/12 19:26 / sld	12/12/12 14:26	ICP2-HE_121218B : 84		18996
Copper	612	mg/kg		5		SW6010B	12/18/12 19:26 / sld	12/12/12 14:26	ICP2-HE_121218B : 84		18996
Iron	28800	mg/kg		5		SW6010B	12/19/12 14:17 / sld	12/12/12 14:26	ICP2-HE_121219A : 33		18996
Lead	4490	mg/kg		5		SW6010B	12/18/12 19:26 / sld	12/12/12 14:26	ICP2-HE_121218B : 84		18996
Manganese	5110	mg/kg	J+	5		SW6010B	12/18/12 19:26 / sld	12/12/12 14:26	ICP2-HE_121218B : 84		18996
Zinc	5500	mg/kg		5		SW6010B	12/18/12 19:26 / sld	12/12/12 14:26	ICP2-HE_121218B : 84		18996

JAH
2-20-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: BRSD-23
Lab ID: H12120184-003
Matrix: Sediment

Project: UBMC Sediment
Collection Date: 12/10/12 13:08
DateReceived: 12/11/12
Report Date: 12/21/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	4840	mg/kg		5		SW6010B	12/18/12 19:29 / sld	12/12/12 14:26	ICP2-HE_121218B	85	18996
Arsenic	48	mg/kg	J-	5		SW6010B	12/18/12 19:29 / sld	12/12/12 14:26	ICP2-HE_121218B	85	18996
Cadmium	16	mg/kg		1		SW6010B	12/18/12 19:29 / sld	12/12/12 14:26	ICP2-HE_121218B	85	18996
Copper	297	mg/kg		5		SW6010B	12/18/12 19:29 / sld	12/12/12 14:26	ICP2-HE_121218B	85	18996
Iron	25000	mg/kg		5		SW6010B	12/18/12 19:29 / sld	12/12/12 14:26	ICP2-HE_121218B	85	18996
Lead	1970	mg/kg		5		SW6010B	12/18/12 19:29 / sld	12/12/12 14:26	ICP2-HE_121218B	85	18996
Manganese	4460	mg/kg	J+	5		SW6010B	12/18/12 19:29 / sld	12/12/12 14:26	ICP2-HE_121218B	85	18996
Zinc	3180	mg/kg		5		SW6010B	12/18/12 19:29 / sld	12/12/12 14:26	ICP2-HE_121218B	85	18996

JAN
2-20-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: BRSD-3A
Lab ID: H12120184-004
Matrix: Sediment

Project: UBMC Sediment
Collection Date: 12/10/12 13:36
DateReceived: 12/11/12
Report Date: 12/21/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	4110	mg/kg		5		SW6010B	12/18/12 19:33 / sld	12/12/12 14:26	ICP2-HE_121218B : 86		18996
Arsenic	59	mg/kg	J-	5		SW6010B	12/18/12 19:33 / sld	12/12/12 14:26	ICP2-HE_121218B : 86		18996
Cadmium	21	mg/kg		1		SW6010B	12/18/12 19:33 / sld	12/12/12 14:26	ICP2-HE_121218B : 86		18996
Copper	442	mg/kg		5		SW6010B	12/18/12 19:33 / sld	12/12/12 14:26	ICP2-HE_121218B : 86		18996
Iron	23700	mg/kg		5		SW6010B	12/18/12 19:33 / sld	12/12/12 14:26	ICP2-HE_121218B : 86		18996
Lead	532	mg/kg		5		SW6010B	12/18/12 19:33 / sld	12/12/12 14:26	ICP2-HE_121218B : 86		18996
Manganese	10300	mg/kg	J+	5		SW6010B	12/18/12 19:33 / sld	12/12/12 14:26	ICP2-HE_121218B : 86		18996
Zinc	4420	mg/kg		5		SW6010B	12/18/12 19:33 / sld	12/12/12 14:26	ICP2-HE_121218B : 86		18996

JAN
2-20-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: BRSD-3B
Lab ID: H12120184-005
Matrix: Sediment

Project: UBMC Sediment
Collection Date: 12/10/12 14:02
DateReceived: 12/11/12
Report Date: 12/21/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	2940	mg/kg		5		SW6010B	12/17/12 21:17 / sld	12/12/12 14:26	ICP2-HE_121217C	88	18996
Arsenic	5	mg/kg	J-	5		SW6010B	12/19/12 14:21 / sld	12/12/12 14:26	ICP2-HE_121219A	34	18996
Cadmium	ND	mg/kg		1		SW6010B	12/18/12 19:37 / sld	12/12/12 14:26	ICP2-HE_121218B	87	18996
Copper	50	mg/kg		5		SW6010B	12/17/12 21:17 / sld	12/12/12 14:26	ICP2-HE_121217C	88	18996
Iron	19000	mg/kg		5		SW6010B	12/18/12 19:37 / sld	12/12/12 14:26	ICP2-HE_121218B	87	18996
Lead	34	mg/kg		5		SW6010B	12/19/12 14:21 / sld	12/12/12 14:26	ICP2-HE_121219A	34	18996
Manganese	371	mg/kg	J+	5		SW6010B	12/18/12 19:37 / sld	12/12/12 14:26	ICP2-HE_121218B	87	18996
Zinc	114	mg/kg		5		SW6010B	12/17/12 21:17 / sld	12/12/12 14:26	ICP2-HE_121217C	88	18996

JAN
2-20-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: BRSD-22
Lab ID: H12120184-006
Matrix: Sediment

Project: UBMC Sediment
Collection Date: 12/10/12 15:10
DateReceived: 12/11/12
Report Date: 12/21/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	7620	mg/kg		5		SW6010B	12/17/12 21:21 / sld	12/12/12 14:26	ICP2-HE_121217C	89	18996
Arsenic	40	mg/kg	J-	5		SW6010B	12/18/12 19:40 / sld	12/12/12 14:26	ICP2-HE_121218B	88	18996
Cadmium	14	mg/kg		1		SW6010B	12/18/12 19:40 / sld	12/12/12 14:26	ICP2-HE_121218B	88	18996
Copper	1070	mg/kg		5		SW6010B	12/17/12 21:21 / sld	12/12/12 14:26	ICP2-HE_121217C	89	18996
Iron	23500	mg/kg		5		SW6010B	12/18/12 19:40 / sld	12/12/12 14:26	ICP2-HE_121218B	88	18996
Lead	1300	mg/kg		5		SW6010B	12/18/12 19:40 / sld	12/12/12 14:26	ICP2-HE_121218B	88	18996
Manganese	3630	mg/kg	J+	5		SW6010B	12/18/12 19:40 / sld	12/12/12 14:26	ICP2-HE_121218B	88	18996
Zinc	2070	mg/kg		5		SW6010B	12/17/12 21:21 / sld	12/12/12 14:26	ICP2-HE_121217C	89	18996

JAN
2-20-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: BRSD-24
Lab ID: H12120184-007
Matrix: Sediment

Project: UBMC Sediment
Collection Date: 12/10/12 15:20
DateReceived: 12/11/12
Report Date: 12/21/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	6700	mg/kg		5		SW6010B	12/17/12 21:24 / sld	12/12/12 14:26	ICP2-HE_121217C	90	18996
Arsenic	53	mg/kg	J-	5		SW6010B	12/18/12 19:44 / sld	12/12/12 14:26	ICP2-HE_121218B	89	18996
Cadmium	10	mg/kg		1		SW6010B	12/18/12 19:44 / sld	12/12/12 14:26	ICP2-HE_121218B	89	18996
Copper	971	mg/kg		5		SW6010B	12/17/12 21:24 / sld	12/12/12 14:26	ICP2-HE_121217C	90	18996
Iron	23300	mg/kg		5		SW6010B	12/18/12 19:44 / sld	12/12/12 14:26	ICP2-HE_121218B	89	18996
Lead	969	mg/kg		5		SW6010B	12/18/12 19:44 / sld	12/12/12 14:26	ICP2-HE_121218B	89	18996
Manganese	3340	mg/kg	J+	5		SW6010B	12/18/12 19:44 / sld	12/12/12 14:26	ICP2-HE_121218B	89	18996
Zinc	1710	mg/kg		5		SW6010B	12/17/12 21:24 / sld	12/12/12 14:26	ICP2-HE_121217C	90	18996

JAN
2-20-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: BRSD-1
Lab ID: H12120184-008
Matrix: Sediment

Project: UBMC Sediment
Collection Date: 12/10/12 16:08
Report Date: 12/21/12
DateReceived: 12/11/12

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
3050 EXTRACTABLE METALS											
Aluminum	4990	mg/kg		5		SW6010B	12/17/12 21:28 / sld	12/12/12 14:26	ICP2-HE_121217C	91	18996
Arsenic	20	mg/kg	J-	5		SW6010B	12/18/12 19:48 / sld	12/12/12 14:26	ICP2-HE_121218B	90	18996
Cadmium	ND	mg/kg		1		SW6010B	12/18/12 19:48 / sld	12/12/12 14:26	ICP2-HE_121218B	90	18996
Copper	14	mg/kg		5		SW6010B	12/17/12 21:28 / sld	12/12/12 14:26	ICP2-HE_121217C	91	18996
Iron	11200	mg/kg		5		SW6010B	12/18/12 19:48 / sld	12/12/12 14:26	ICP2-HE_121218B	90	18996
Lead	21	mg/kg		5		SW6010B	12/18/12 19:48 / sld	12/12/12 14:26	ICP2-HE_121218B	90	18996
Manganese	254	mg/kg	J+	5		SW6010B	12/18/12 19:48 / sld	12/12/12 14:26	ICP2-HE_121218B	90	18996
Zinc	75	mg/kg		5		SW6010B	12/17/12 21:28 / sld	12/12/12 14:26	ICP2-HE_121217C	91	18996

JAN
220-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

Attachment B: Chain of Custody Forms and Sample Receipt Checklist

Standard Reporting Procedures

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Workorder Receipt Checklist

MT DEQ-Site Response H12120184

Login completed by: Wanda Johnson
Date Received: 12/11/2012
Reviewed by: BL2000\jweidemoyer
Received by: elm
Reviewed Date: 12/14/2012
Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	0.4°C On Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Contact and Corrective Action Comments:

None

ENERGY

Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT (Provide as much information as possible.)

Company Name: MDEQ	Project Name, PWS, Permit, Etc.: UBMC Sediment	Sample Origin State: Mt	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: See Quote H-645	Contact Name: Phone/Fax: Shollie Haaland, 841-5033, shaaland@Mt.gov	Email:	Sampler: (Please Print) A. Dreesbach M. Towles
Invoice Address:	Invoice Contact & Phone:	Purchase Order:	Quote/Bottle Order: 11146

Special Report/Formats:

☐ DW
☐ POTW/WWTP
☐ State: _____
☐ Other: _____
☐ EDD/EDT (Electronic Data) Format: _____
☐ LEVEL IV
☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids
Vegetation Bioassay Other
DW - Drinking Water

ANALYSIS REQUESTED

Standard Turnaround (TAT)

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

Shipped by: Hand
Cooler ID(s): Y
Receipt Temp: 0.4 °C
On Ice: Y N
Custody Seal: On Bottle Y N; On Cooler Y N
Intact Y N
Signature Match Y N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	SEE ATTACHED	Standard Turnaround (TAT)	RUSH	Comments
1	BRSD-38	12/10/12	1106	S	X			
2	BRSD-48	12/10/12	1225					
3	BRSD-23		1308					
4	BRSD-3A		1336					
5	BRSD-3B		1402					
6	BRSD-22		1510					
7	BRSD-24		1520					
8	BRSD-1	12/10/12	1608	S	X			
9								
10								

12/10/12

LABORATORY USE ONLY H12120184

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Alan Dreesbach	12/11/12 @ 1708	[signature]			
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory: Esther Merritt	Date/Time: 12/11/12 17:08	Signature: [signature]

Sample Disposal: Return to Client: _____ Lab Disposal: _____

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.
This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

Attachment B: Chain of Custody Forms and Sample Receipt Checklist

UBMC Surface Water

SDG#:	**H12120185**
Number of Samples:	**10**
Sample Matrix:	**(10) Surface water**
Applicable Analytes:	**pH, Conductivity, TSS, TDS, Alkalinity (Total, Bicarbonate, and Carbonate), Anions: (Chloride and Sulfate), Hardness, Dissolved Metals (Al, Ca, Mg, K, and Na), and Total Recoverable Metals: (As, Cd, Cu, Fe, Pb, Mn, and Zn)**
Reporting Tier:	**3**
Applicable TOS#:	**N/A**
Laboratory:	**Energy Laboratories**
Validation Level:	**EPA Level III**
Validator Affiliation:	**Portage, Inc.**
Project#:	**UBMC**
Project SAP/QUAPP:	**Final Sampling and Analysis Plan for Environmental Monitoring of Upper Blackfoot Mining Complex Lewis and Clark County, Montana; Portage Inc., 2012**



Validator **Date Completed:02/20/13;05/09/13**



Portage Review: **Date Completed:02/20/13;05/09/13**

REPORT ORGANIZATION:

Limitations & Validation (L&V) Report UBMC Surface Water is organized into the following five sections:

- Glossary of Terms & Method References
- Data Quality Statement
- L&V Report
- Attachment A: Laboratory Report Forms Corrected for Qualification
- Attachment B: Chain of Custody Forms & Sample Receipt Checklist

GLOSSARY OF VALIDATION TERMS & METHOD VALIDATION REFERENCES

Terms:

CRDL	Contract Required Detection Limit
IDL	Instrument Detection Limit
SOW	Statement of Work
SOP	Standard Operating Procedure
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ICV	Initial Calibration Verification
CCV	Continuing Calibration Verification
ICB	Initial Calibration Blank
CCB	Continuing Calibration Blank
PB	Preparation Blank
LCS	Laboratory Control Sample
SDS	Serial Dilution Sample
SDG	Sample Delivery Group

Qualifiers:

U - The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.
Note: This detection limit may be elevated to a level greater than the IDL due to a detection of a target compound in the method blank, and as a result, the sample value, which was less than ten times the blank result, has been qualified 'U' as a non-detect.

J - The analyte was positively identified in the sample, but the associated numerical value may not be an accurate representation of the amount actually present in the environmental sample. The data should be seriously considered for decision-making and are usable for many purposes.

R - The data are unusable (may or may not be present). Resampling and reanalysis are necessary for verification.

UJ - The material was analyzed for but was not detected. The sample quantitation limit is an estimated quantity.

Reference:

The validation of this data was performed according to:

1. *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, EPA540-R-04-004,October 2004.*
2. *USEPA Contract Laboratory Program Statement of Work For Inorganic Analysis, Multi-Media, Multi-Concentration, Document Number ILM04.0, January 2000.*

LIMITATIONS AND VALIDATION REPORT

INTRODUCTION:

The UBMC Surface Water sample results were received by Portage, Inc. in December 2012. The laboratory analytical request provided for a summary data package attached for the pH, conductivity, alkalinity, TSS, TDS, chloride, sulfate, hardness, total recoverable metals (As, Cd, Cu, Fe, Pb, Mg, and Zn), and dissolved metals (Al, Ca, Mg, K, and Na). The samples were analyzed in accordance with Standard Methods 4500 H-B, 2320B, 2510B, 2540D, 2540C, and 2340B, and USEPA Methods 300.0, 200.7, and 200.8. Data validation was performed utilizing the USEPA Functional Guidelines for Inorganic Data Review. The following cross-reference has been provided to assist data users in comparing field identifications to the corresponding laboratory numbers.

Cross-Reference for UBMC Surface Water Samples					
Field Id#:	**Lab Id#:**	**Matrix:**	**Analysis Request:**	**Date of Collection:**	**Date of Laboratory Receipt:**
BRSW-25	H12120185-001	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Total Metals, Dissolved Metals	12/10/12	12/11/12
BRSW-26	H12120185-002	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Total Metals, Dissolved Metals	12/10/12	12/11/12
BRSW-38	H12120185-003	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Total Metals, Dissolved Metals	12/10/12	12/11/12
BRSW-48	H12120185-004	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Total Metals, Dissolved Metals	12/10/12	12/11/12
BRSW-23	H12120185-005	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Total Metals, Dissolved Metals	12/10/12	12/11/12
BRSW-3A	H12120185-006	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Total Metals, Dissolved Metals	12/10/12	12/11/12

Cross-Reference for UBMC Surface Water Samples					
Field Id#:	**Lab Id#:**	**Matrix:**	**Analysis Request:**	**Date of Collection:**	**Date of Laboratory Receipt:**
BRSW-3B	H12120185-007	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Total Metals, Dissolved Metals	12/10/12	12/11/12
BRSW-22	H12120185-008	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Total Metals, Dissolved Metals	12/10/12	12/11/12
BRSW-24	H12120185-009	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Total Metals, Dissolved Metals	12/10/12	12/11/12
BRSW-1	H12120185-010	Surface Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Total Metals, Dissolved Metals	12/10/12	12/11/12

LABORATORY CASE NARRATIVE:

The laboratory case narrative did not note any non conformance issues with the analytical data.

ANALYTICAL HOLDING TIMES:

The water samples associated with this SDG were collected on 12/10/12. The conductivity, TSS, and TDS results were analyzed on 12/12/12 and 12/13/12 within the 28-day holding time for conductivity, and the 7-day holding time for TSS and TDS. The chloride and sulfate results were analyzed on 12/13/12 within the 28-day holding time. The alkalinity results were analyzed on 12/13/12 within the 14-day holding time. The hardness results were analyzed on 12/13/12 within the 180-day holding time. The total recoverable and dissolved metals were analyzed 12/13/12 and 12/14/12 within the 180-day holding time for the ICP Metals.

The pH samples were collected on 12/10/12, received on 12/11/12, and analyzed on 12/12/12. In the professional judgment of the validator, all remaining pH results have been qualified with a "J-" validation flag as prescribed by the USEPA Functional Guidelines and as the samples were analyzed outside the 24-hour holding time.

INITIAL AND CONTINUING CALIBRATION (ICV and CCV):

All ICV and CCV results were within the acceptance criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

PREPRATION BLANKS (PB):

For all analyses, blank results were analyzed at a proper frequency of 1 blank per 20 samples in the analytical batch.

The PB results were non-detect at level less than their respective MDLs and no qualification is warranted.

Field blank, trip blank, and equipment rinsate results were not included in this data deliverable.

INTERFERENCE CHECK SAMPLE (ICS):

All ICS results were within the acceptance criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

MATRIX SPIKE (MS)/MATRIX SPIKE DUPLICATE (MSD):

The chloride (89%) MS results were outside the 90-110% recovery criteria. All chloride sample results have been qualified with a "UJ" validation flag due to low MS recovery and sample results less than the RL.

The remaining MS/MSD recovery and all RPD results were within the acceptance criteria and analyzed at the proper frequency (1 in 20) as prescribed by the USEPA Functional Guidelines and the analytical methods. MS/MSD sample were obtained from project field samples.

LABORATORY DUPLICATE SAMPLE (LDS) RPD:

All LDS and field duplicate results were within the RPD criteria and ran at the proper frequency (1 in 20) prescribed by the USEPA Functional Guidelines and the analytical methods.

DUPLICATE SUMMARY TABLE:

Analyte	Matrix Spike Duplicate RPD	Laboratory Duplicate RPD	Field Duplicate RPD
pH	N/A	4.6	1.30719
Conductivity	N/A	0.0	0
TSS	N/A	0.0	0
TDS	N/A	0.0	1.005025
Alkalinity	N/A	0.1	2.222222
Bicarbonate	N/A	0.0	0
Carbonate	N/A	1.1	0
Chloride	1.3	N/A	0
Sulfate	0.8	N/A	0
Hardness	N/A	N/A	-1.16959
Al	0.1		0
Ca	0.4	N/A	0
Mg	0.6	N/A	0
K	0.7	N/A	0
Na	0.7	N/A	0
As	0.7	N/A	0
Cd	0	N/A	0
Cu	1.0	N/A	0
Fe	1.4	N/A	0
Pb	0.2	N/A	0
Mn	0.2	N/A	0
Zn	1.1	N/A	0

LABORATORY CONTROL SAMPLE (LCS):

The LCS results were of matrix types similar to the field samples and properly prepared with the field samples.

All analytes exhibited recoveries within the guidelines and analyzed at the proper frequency (1 in 20) as prescribed by the USEPA Functional Guidelines and analytical methods.

Surrogate analyses are not applicable to metals and miscellaneous wet chemistry analysis types and methods.

CHAIN OF CUSTODY:

The laboratory chain of custody (COC) forms are complete and accurate.

One cooler was received by Energy Labs on 10/03/12 at 2.4°C. Custody was maintained as documents by the field and laboratory personnel signatures, dates, and time of receipt.

REPORTING LIMTS:

The reporting limits presented by the laboratory were acceptable and met the screening level requirements set forth by the project QAPjP and SAP.

OVERALL ASSESSMENT OF DATA:

There were ten (10) surface water field samples included in SDG# H12120185. Ten (10) field samples were analyzed for pH, conductivity, alkalinity, TSS, TDS, chloride, sulfate, hardness, total recoverable metals, and dissolved metals as outlined in the project QAPP.

All pH results have been qualified with a "J-" validation flag to denote the reported results are estimates with a low bias due to exceeded holding times.

All chloride sample results have been qualified with a "J-" validation flag to denote the reported results are estimates with a low bias due to low MS recovery.

The remaining field sample data points have been assessed and remain unqualified.

All field sample data points presented in this SDG are valid and complete.

Attachment A: Laboratory Report Forms

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: BRSW-25
Lab ID: H12120185-001
Matrix: Surface Water

Project: UBMC Surface Water
Collection Date: 12/10/12 10:19 **DateReceived:** 12/11/12
Report Date: 01/11/13

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.4	s.u.	H J -	0.1		A4500-H B	12/12/12 11:33 / cm		PHSC_101-H_121212A : 12		R85072
Conductivity @ 25 C	1	umhos/cm		1		A2510 B	12/12/12 11:33 / cm		PHSC_101-H_121212A : 13		R85072
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/13/12 13:05 / cm	12/13/12 11:01	-124 (14410200)_121213A : 3		19013
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	12/13/12 13:24 / cm		-124 (14410200)_121213B : 3		TDS121213A
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	12/13/12 18:28 / cm		MAN-TECH_121213A : 135		R85122
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	12/13/12 18:28 / cm		MAN-TECH_121213A : 135		R85122
Carbonate as CO3	ND	mg/L		4		A2320 B	12/13/12 18:28 / cm		MAN-TECH_121213A : 135		R85122
Chloride	ND	mg/L UJ		1		E300.0	12/13/12 15:10 / cm		IC102-H_121213A : 23		R85125
Sulfate	ND	mg/L		1		E300.0	12/13/12 15:10 / cm		IC102-H_121213A : 23		R85125
Hardness as CaCO3	ND	mg/L		1		A2340 B	12/13/12 15:17 / sld		WATERCALC_121213B : 1		R85117
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	12/13/12 10:57 / sld		ICP2-HE_121213A : 15		R85116
Calcium	ND	mg/L		1		E200.7	12/13/12 10:57 / sld		ICP2-HE_121213A : 15		R85116
Magnesium	ND	mg/L		1		E200.7	12/13/12 10:57 / sld		ICP2-HE_121213A : 15		R85116
Potassium	ND	mg/L		1		E200.7	12/13/12 10:57 / sld		ICP2-HE_121213A : 15		R85116
Sodium	ND	mg/L		1		E200.7	12/13/12 10:57 / sld		ICP2-HE_121213A : 15		R85116
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	12/14/12 15:05 / dck	12/13/12 08:50	ICPMS204-B_121210B : 633		19011
Cadmium	ND	mg/L		0.00008		E200.8	12/14/12 15:05 / dck	12/13/12 08:50	ICPMS204-B_121210B : 633		19011
Copper	0.005	mg/L		0.001		E200.8	12/14/12 15:05 / dck	12/13/12 08:50	ICPMS204-B_121210B : 633		19011
Iron	ND	mg/L		0.03		E200.8	12/14/12 15:05 / dck	12/13/12 08:50	ICPMS204-B_121210B : 633		19011
Lead	ND	mg/L		0.0005		E200.8	12/14/12 15:05 / dck	12/13/12 08:50	ICPMS204-B_121210B : 633		19011
Manganese	ND	mg/L		0.005		E200.8	12/14/12 15:05 / dck	12/13/12 08:50	ICPMS204-B_121210B : 633		19011
Zinc	ND	mg/L		0.01		E200.8	12/14/12 15:05 / dck	12/13/12 08:50	ICPMS204-B_121210B : 633		19011

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

JAN 2-20-13

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: BRSW-26
Lab ID: H12120185-002
Matrix: Surface Water

Project: UBMC Surface Water
Collection Date: 12/10/12 10:34 **DateReceived:** 12/11/12
Report Date: 01/11/13

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.6	s.u.	H J-	0.1		A4500-H B	12/13/12 18:37 / cm		MAN-TECH_121213A : 140		R85122
Conductivity @ 25 C	1.0	umhos/cm		1.0		A2510 B	12/31/12 10:08 / cm		PHSC_101-H_121231A : 8		R85412
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/13/12 13:05 / cm	12/13/12 11:01	-124 (14410200)_121213A : 5		19013
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	12/13/12 13:24 / cm		-124 (14410200)_121213B : 5		TDS121213A
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	12/13/12 18:37 / cm		MAN-TECH_121213A : 139		R85122
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	12/13/12 18:37 / cm		MAN-TECH_121213A : 139		R85122
Carbonate as CO3	ND	mg/L		4		A2320 B	12/13/12 18:37 / cm		MAN-TECH_121213A : 139		R85122
Chloride	ND	mg/L	UJ	1		E300.0	12/13/12 15:22 / cm		IC102-H_121213A : 24		R85125
Sulfate	ND	mg/L		1		E300.0	12/13/12 15:22 / cm		IC102-H_121213A : 24		R85125
Hardness as CaCO3	ND	mg/L		1		A2340 B	12/13/12 15:17 / sld		WATERCALC_121213B : 2		R85117
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	12/13/12 11:19 / sld		ICP2-HE_121213A : 21		R85116
Calcium	ND	mg/L		1		E200.7	12/13/12 11:19 / sld		ICP2-HE_121213A : 21		R85116
Magnesium	ND	mg/L		1		E200.7	12/13/12 11:19 / sld		ICP2-HE_121213A : 21		R85116
Potassium	ND	mg/L		1		E200.7	12/13/12 11:19 / sld		ICP2-HE_121213A : 21		R85116
Sodium	ND	mg/L		1		E200.7	12/13/12 11:19 / sld		ICP2-HE_121213A : 21		R85116
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	12/14/12 15:27 / dck	12/13/12 08:50	ICPMS204-B_121210B : 638		19011
Cadmium	ND	mg/L		0.00008		E200.8	12/14/12 15:27 / dck	12/13/12 08:50	ICPMS204-B_121210B : 638		19011
Copper	0.004	mg/L		0.001		E200.8	12/14/12 15:27 / dck	12/13/12 08:50	ICPMS204-B_121210B : 638		19011
Iron	ND	mg/L		0.03		E200.8	12/14/12 15:27 / dck	12/13/12 08:50	ICPMS204-B_121210B : 638		19011
Lead	ND	mg/L		0.0005		E200.8	12/14/12 15:27 / dck	12/13/12 08:50	ICPMS204-B_121210B : 638		19011
Manganese	ND	mg/L		0.005		E200.8	12/14/12 15:27 / dck	12/13/12 08:50	ICPMS204-B_121210B : 638		19011
Zinc	ND	mg/L		0.01		E200.8	12/14/12 15:27 / dck	12/13/12 08:50	ICPMS204-B_121210B : 638		19011

JAH
2-20-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: BRSW-38
Lab ID: H12120185-003
Matrix: Surface Water

Project: UBMC Surface Water
Collection Date: 12/10/12 11:06
DateReceived: 12/11/12
Report Date: 01/11/13

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.1	s.u.	H J-	0.1		A4500-H B	12/12/12 11:38 / cm		PHSC_101-H_121212A	16	R85072
Conductivity @ 25 C	396	umhos/cm		1		A2510 B	12/12/12 11:38 / cm		PHSC_101-H_121212A	17	R85072
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/13/12 13:06 / cm	12/13/12 11:01	-124 (14410200)_121213A	6	19013
Solids, Total Dissolved TDS @ 180 C	264	mg/L		10		A2540 C	12/13/12 13:24 / cm		-124 (14410200)_121213B	7	TDS121213A
INORGANICS											
Alkalinity, Total as CaCO3	80	mg/L		4		A2320 B	12/13/12 18:59 / cm		MAN-TECH_121213A	146	R85122
Bicarbonate as HCO3	97	mg/L		4		A2320 B	12/13/12 18:59 / cm		MAN-TECH_121213A	146	R85122
Carbonate as CO3	ND	mg/L		4		A2320 B	12/13/12 18:59 / cm		MAN-TECH_121213A	146	R85122
Chloride	ND	mg/L	MT	1		E300.0	12/13/12 15:35 / cm		IC102-H_121213A	25	R85125
Sulfate	110	mg/L		1		E300.0	12/13/12 15:35 / cm		IC102-H_121213A	25	R85125
Hardness as CaCO3	191	mg/L		1		A2340 B	12/13/12 15:17 / sld		WATERCALC_121213B	3	R85117
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	12/13/12 11:23 / sld		ICP2-HE_121213A	22	R85116
Calcium	39	mg/L		1		E200.7	12/13/12 11:23 / sld		ICP2-HE_121213A	22	R85116
Magnesium	23	mg/L		1		E200.7	12/13/12 11:23 / sld		ICP2-HE_121213A	22	R85116
Potassium	ND	mg/L		1		E200.7	12/13/12 11:23 / sld		ICP2-HE_121213A	22	R85116
Sodium	2	mg/L		1		E200.7	12/13/12 11:23 / sld		ICP2-HE_121213A	22	R85116
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	12/14/12 15:32 / dck	12/13/12 08:50	ICPMS204-B_121210B	639	19011
Cadmium	0.00838	mg/L		0.00008		E200.8	12/14/12 15:32 / dck	12/13/12 08:50	ICPMS204-B_121210B	639	19011
Copper	0.027	mg/L		0.001		E200.8	12/14/12 15:32 / dck	12/13/12 08:50	ICPMS204-B_121210B	639	19011
Iron	1.63	mg/L		0.03		E200.8	12/14/12 15:32 / dck	12/13/12 08:50	ICPMS204-B_121210B	639	19011
Lead	0.0252	mg/L		0.0005		E200.8	12/14/12 15:32 / dck	12/13/12 08:50	ICPMS204-B_121210B	639	19011
Manganese	2.48	mg/L		0.005		E200.8	12/14/12 15:32 / dck	12/13/12 08:50	ICPMS204-B_121210B	639	19011
Zinc	2.04	mg/L		0.01		E200.8	12/14/12 15:32 / dck	12/13/12 08:50	ICPMS204-B_121210B	639	19011

JAN
2-20-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: BRSW-48
Lab ID: H12120185-004
Matrix: Surface Water

Project: UBMC Surface Water
Collection Date: 12/10/12 12:25 **DateReceived:** 12/11/12
Report Date: 01/11/13

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.0	s.u.	J - H	0.1		A4500-H B	12/12/12 11:41 / cm		PHSC_101-H_121212A : 18		R85072
Conductivity @ 25 C	358	umhos/cm		1		A2510 B	12/12/12 11:41 / cm		PHSC_101-H_121212A : 19		R85072
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/13/12 13:06 / cm	12/13/12 11:01	-124 (14410200)_121213A : 7		19013
Solids, Total Dissolved TDS @ 180 C	224	mg/L		10		A2540 C	12/13/12 13:24 / cm		-124 (14410200)_121213B : 8		TDS121213A
INORGANICS											
Alkalinity, Total as CaCO3	92	mg/L		4		A2320 B	12/13/12 19:06 / cm		MAN-TECH_121213A : 148		R85122
Bicarbonate as HCO3	110	mg/L		4		A2320 B	12/13/12 19:06 / cm		MAN-TECH_121213A : 148		R85122
Carbonate as CO3	ND	mg/L		4		A2320 B	12/13/12 19:06 / cm		MAN-TECH_121213A : 148		R85122
Chloride	ND	mg/L	UJ	1		E300.0	12/13/12 15:48 / cm		IC102-H_121213A : 26		R85125
Sulfate	82	mg/L		1		E300.0	12/13/12 15:48 / cm		IC102-H_121213A : 26		R85125
Hardness as CaCO3	173	mg/L		1		A2340 B	12/13/12 15:17 / sld		WATERCALC_121213B : 4		R85117
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	12/13/12 11:27 / sld		ICP2-HE_121213A : 23		R85116
Calcium	35	mg/L		1		E200.7	12/13/12 11:27 / sld		ICP2-HE_121213A : 23		R85116
Magnesium	21	mg/L		1		E200.7	12/13/12 11:27 / sld		ICP2-HE_121213A : 23		R85116
Potassium	ND	mg/L		1		E200.7	12/13/12 11:27 / sld		ICP2-HE_121213A : 23		R85116
Sodium	1	mg/L		1		E200.7	12/13/12 11:27 / sld		ICP2-HE_121213A : 23		R85116
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	12/14/12 15:37 / dck	12/13/12 08:50	ICPMS204-B_121210B : 640		19011
Cadmium	0.00627	mg/L		0.00008		E200.8	12/14/12 15:37 / dck	12/13/12 08:50	ICPMS204-B_121210B : 640		19011
Copper	0.044	mg/L		0.001		E200.8	12/14/12 15:37 / dck	12/13/12 08:50	ICPMS204-B_121210B : 640		19011
Iron	3.35	mg/L		0.03		E200.8	12/14/12 15:37 / dck	12/13/12 08:50	ICPMS204-B_121210B : 640		19011
Lead	0.0371	mg/L		0.0005		E200.8	12/14/12 15:37 / dck	12/13/12 08:50	ICPMS204-B_121210B : 640		19011
Manganese	2.96	mg/L		0.005		E200.8	12/14/12 15:37 / dck	12/13/12 08:50	ICPMS204-B_121210B : 640		19011
Zinc	1.50	mg/L		0.01		E200.8	12/14/12 15:37 / dck	12/13/12 08:50	ICPMS204-B_121210B : 640		19011

JAN
2-20-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: BRSW-23
Lab ID: H12120185-005
Matrix: Surface Water

Project: UBMC Surface Water
Collection Date: 12/10/12 13:08 **DateReceived:** 12/11/12
Report Date: 01/11/13

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.5	s.u.	H J-	0.1		A4500-H B	12/12/12 11:43 / cm		PHSC_101-H_121212A : 20		R85072
Conductivity @ 25 C	295	umhos/cm		1		A2510 B	12/12/12 11:43 / cm		PHSC_101-H_121212A : 21		R85072
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/13/12 13:06 / cm	12/13/12 11:01	-124 (14410200)_121213A : 8		19013
Solids, Total Dissolved TDS @ 180 C	165	mg/L		10		A2540 C	12/13/12 13:25 / cm		-124 (14410200)_121213B : 9		TDS121213A
INORGANICS											
Alkalinity, Total as CaCO3	100	mg/L		4		A2320 B	12/13/12 19:14 / cm		MAN-TECH_121213A : 150		R85122
Bicarbonate as HCO3	120	mg/L		4		A2320 B	12/13/12 19:14 / cm		MAN-TECH_121213A : 150		R85122
Carbonate as CO3	5	mg/L		4		A2320 B	12/13/12 19:14 / cm		MAN-TECH_121213A : 150		R85122
Chloride	ND	mg/L	UJ	1		E300.0	12/13/12 16:00 / cm		IC102-H_121213A : 27		R85125
Sulfate	43	mg/L		1		E300.0	12/13/12 16:00 / cm		IC102-H_121213A : 27		R85125
Hardness as CaCO3	148	mg/L		1		A2340 B	12/13/12 15:17 / sld		WATERCALC_121213B : 5		R85117
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	12/13/12 11:30 / sld		ICP2-HE_121213A : 24		R85116
Calcium	30	mg/L		1		E200.7	12/13/12 11:30 / sld		ICP2-HE_121213A : 24		R85116
Magnesium	18	mg/L		1		E200.7	12/13/12 11:30 / sld		ICP2-HE_121213A : 24		R85116
Potassium	ND	mg/L		1		E200.7	12/13/12 11:30 / sld		ICP2-HE_121213A : 24		R85116
Sodium	1	mg/L		1		E200.7	12/13/12 11:30 / sld		ICP2-HE_121213A : 24		R85116
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	12/14/12 15:41 / dck	12/13/12 08:50	ICPMS204-B_121210B : 641		19011
Cadmium	0.00234	mg/L		0.00008		E200.8	12/14/12 15:41 / dck	12/13/12 08:50	ICPMS204-B_121210B : 641		19011
Copper	0.007	mg/L		0.001		E200.8	12/14/12 15:41 / dck	12/13/12 08:50	ICPMS204-B_121210B : 641		19011
Iron	0.13	mg/L		0.03		E200.8	12/14/12 15:41 / dck	12/13/12 08:50	ICPMS204-B_121210B : 641		19011
Lead	0.0054	mg/L		0.0005		E200.8	12/14/12 15:41 / dck	12/13/12 08:50	ICPMS204-B_121210B : 641		19011
Manganese	0.889	mg/L		0.005		E200.8	12/14/12 15:41 / dck	12/13/12 08:50	ICPMS204-B_121210B : 641		19011
Zinc	0.73	mg/L		0.01		E200.8	12/14/12 15:41 / dck	12/13/12 08:50	ICPMS204-B_121210B : 641		19011

JAN
2-20-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: BRSW-3A
Lab ID: H12120185-006
Matrix: Surface Water

Project: UBMC Surface Water
Collection Date: 12/10/12 13:36 **DateReceived:** 12/11/12
Report Date: 01/11/13

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.4	s.u.	J - H	0.1		A4500-H B	12/12/12 11:46 / cm		PHSC_101-H_121212A	22	R85072
Conductivity @ 25 C	310	umhos/cm		1		A2510 B	12/12/12 11:46 / cm		PHSC_101-H_121212A	23	R85072
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/13/12 13:06 / cm	12/13/12 11:01	-124 (14410200)_121213A	9	19013
Solids, Total Dissolved TDS @ 180 C	177	mg/L		10		A2540 C	12/13/12 13:25 / cm		124 (14410200)_121213B	10	TDS121213A
INORGANICS											
Alkalinity, Total as CaCO3	110	mg/L		4		A2320 B	12/13/12 19:21 / cm		MAN-TECH_121213A	152	R85122
Bicarbonate as HCO3	120	mg/L		4		A2320 B	12/13/12 19:21 / cm		MAN-TECH_121213A	152	R85122
Carbonate as CO3	5	mg/L		4		A2320 B	12/13/12 19:21 / cm		MAN-TECH_121213A	152	R85122
Chloride	ND	mg/L	UJ	1		E300.0	12/13/12 16:13 / cm		IC102-H_121213A	28	R85125
Sulfate	47	mg/L		1		E300.0	12/13/12 16:13 / cm		IC102-H_121213A	28	R85125
Hardness as CaCO3	154	mg/L		1		A2340 B	12/13/12 15:17 / sld		WATERCALC_121213B	6	R85117
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	12/13/12 11:34 / sld		ICP2-HE_121213A	25	R85116
Calcium	32	mg/L		1		E200.7	12/13/12 11:34 / sld		ICP2-HE_121213A	25	R85116
Magnesium	18	mg/L		1		E200.7	12/13/12 11:34 / sld		ICP2-HE_121213A	25	R85116
Potassium	ND	mg/L		1		E200.7	12/13/12 11:34 / sld		ICP2-HE_121213A	25	R85116
Sodium	1	mg/L		1		E200.7	12/13/12 11:34 / sld		ICP2-HE_121213A	25	R85116
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	12/14/12 16:04 / dck	12/13/12 08:50	ICPMS204-B_121210B	646	19011
Cadmium	0.00164	mg/L		0.00008		E200.8	12/14/12 16:04 / dck	12/13/12 08:50	ICPMS204-B_121210B	646	19011
Copper	0.004	mg/L		0.001		E200.8	12/14/12 16:04 / dck	12/13/12 08:50	ICPMS204-B_121210B	646	19011
Iron	0.08	mg/L		0.03		E200.8	12/14/12 16:04 / dck	12/13/12 08:50	ICPMS204-B_121210B	646	19011
Lead	0.0007	mg/L		0.0005		E200.8	12/14/12 16:04 / dck	12/13/12 08:50	ICPMS204-B_121210B	646	19011
Manganese	0.958	mg/L		0.005		E200.8	12/14/12 16:04 / dck	12/13/12 08:50	ICPMS204-B_121210B	646	19011
Zinc	0.82	mg/L		0.01		E200.8	12/14/12 16:04 / dck	12/13/12 08:50	ICPMS204-B_121210B	646	19011

JAN
2-20-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: BRSW-3B
Lab ID: H12120185-007
Matrix: Surface Water

Project: UBMC Surface Water
Collection Date: 12/10/12 14:02 **DateReceived:** 12/11/12
Report Date: 01/11/13

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.9	s.u.	J- H	0.1		A4500-H B	12/12/12 11:48 / cm		PHSC_101-H_121212A	24	R85072
Conductivity @ 25 C	212	umhos/cm		1		A2510 B	12/12/12 11:48 / cm		PHSC_101-H_121212A	25	R85072
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/13/12 13:07 / cm	12/13/12 11:01	124 (14410200)_121213A	10	19013
Solids, Total Dissolved TDS @ 180 C	109	mg/L		10		A2540 C	12/13/12 13:25 / cm		124 (14410200)_121213B	11	TDS121213A
INORGANICS											
Alkalinity, Total as CaCO3	100	mg/L		4		A2320 B	12/13/12 19:28 / cm		MAN-TECH_121213A	154	R85122
Bicarbonate as HCO3	120	mg/L		4		A2320 B	12/13/12 19:28 / cm		MAN-TECH_121213A	154	R85122
Carbonate as CO3	5	mg/L		4		A2320 B	12/13/12 19:28 / cm		MAN-TECH_121213A	154	R85122
Chloride	ND	mg/L	UJ	1		E300.0	12/13/12 16:25 / cm		IC102-H_121213A	29	R85125
Sulfate	10	mg/L		1		E300.0	12/13/12 16:25 / cm		IC102-H_121213A	29	R85125
Hardness as CaCO3	109	mg/L		1		A2340 B	12/13/12 15:17 / sld		WATERCALC_121213B	7	R85117
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	12/13/12 11:38 / sld		ICP2-HE_121213A	26	R85116
Calcium	23	mg/L		1		E200.7	12/13/12 11:38 / sld		ICP2-HE_121213A	26	R85116
Magnesium	13	mg/L		1		E200.7	12/13/12 11:38 / sld		ICP2-HE_121213A	26	R85116
Potassium	ND	mg/L		1		E200.7	12/13/12 11:38 / sld		ICP2-HE_121213A	26	R85116
Sodium	1	mg/L		1		E200.7	12/13/12 11:38 / sld		ICP2-HE_121213A	26	R85116
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	12/14/12 16:09 / dck	12/13/12 08:50	ICPMS204-B_121210B	647	19011
Cadmium	0.00009	mg/L		0.00008		E200.8	12/14/12 16:09 / dck	12/13/12 08:50	ICPMS204-B_121210B	647	19011
Copper	ND	mg/L		0.001		E200.8	12/14/12 16:09 / dck	12/13/12 08:50	ICPMS204-B_121210B	647	19011
Iron	ND	mg/L		0.03		E200.8	12/14/12 16:09 / dck	12/13/12 08:50	ICPMS204-B_121210B	647	19011
Lead	ND	mg/L		0.0005		E200.8	12/14/12 16:09 / dck	12/13/12 08:50	ICPMS204-B_121210B	647	19011
Manganese	0.084	mg/L		0.005		E200.8	12/14/12 16:09 / dck	12/13/12 08:50	ICPMS204-B_121210B	647	19011
Zinc	0.21	mg/L		0.01		E200.8	12/14/12 16:09 / dck	12/13/12 08:50	ICPMS204-B_121210B	647	19011

JAN
2-20-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: BRSW-22
Lab ID: H12120185-008
Matrix: Surface Water

Project: UBMC Surface Water
Collection Date: 12/10/12 15:10
DateReceived: 12/11/12
Report Date: 01/11/13

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.3	s.u.	J - H	0.1		A4500-H B	12/12/12 11:51 / cm		PHSC_101-H_121212A	26	R85072
Conductivity @ 25 C	475	umhos/cm		1		A2510 B	12/12/12 11:51 / cm		PHSC_101-H_121212A	27	R85072
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/13/12 13:07 / cm	12/13/12 11:01	124 (14410200)_121213A	11	19013
Solids, Total Dissolved TDS @ 180 C	309	mg/L		10		A2540 C	12/13/12 13:25 / cm		124 (14410200)_121213B	12	TDS121213A
INORGANICS											
Alkalinity, Total as CaCO3	100	mg/L		4		A2320 B	12/13/12 19:36 / cm		MAN-TECH_121213A	156	R85122
Bicarbonate as HCO3	120	mg/L		4		A2320 B	12/13/12 19:36 / cm		MAN-TECH_121213A	156	R85122
Carbonate as CO3	5	mg/L		4		A2320 B	12/13/12 19:36 / cm		MAN-TECH_121213A	156	R85122
Chloride	ND	mg/L	UJ	1		E300.0	12/13/12 16:38 / cm		IC102-H_121213A	30	R85125
Sulfate	130	mg/L		1		E300.0	12/13/12 16:38 / cm		IC102-H_121213A	30	R85125
Hardness as CaCO3	241	mg/L		1		A2340 B	12/13/12 15:17 / sld		WATERCALC_121213B	8	R85117
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	12/13/12 11:41 / sld		ICP2-HE_121213A	27	R85116
Calcium	64	mg/L		1		E200.7	12/13/12 11:41 / sld		ICP2-HE_121213A	27	R85116
Magnesium	20	mg/L		1		E200.7	12/13/12 11:41 / sld		ICP2-HE_121213A	27	R85116
Potassium	1	mg/L		1		E200.7	12/13/12 11:41 / sld		ICP2-HE_121213A	27	R85116
Sodium	1	mg/L		1		E200.7	12/13/12 11:41 / sld		ICP2-HE_121213A	27	R85116
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	12/14/12 16:13 / dck	12/13/12 08:50	ICPMS204-B_121210B	648	19011
Cadmium	0.00904	mg/L		0.00008		E200.8	12/14/12 16:13 / dck	12/13/12 08:50	ICPMS204-B_121210B	648	19011
Copper	0.016	mg/L		0.001		E200.8	12/14/12 16:13 / dck	12/13/12 08:50	ICPMS204-B_121210B	648	19011
Iron	ND	mg/L		0.03		E200.8	12/14/12 16:13 / dck	12/13/12 08:50	ICPMS204-B_121210B	648	19011
Lead	0.0049	mg/L		0.0005		E200.8	12/14/12 16:13 / dck	12/13/12 08:50	ICPMS204-B_121210B	648	19011
Manganese	ND	mg/L		0.005		E200.8	12/14/12 16:13 / dck	12/13/12 08:50	ICPMS204-B_121210B	648	19011
Zinc	2.03	mg/L		0.01		E200.8	12/14/12 16:13 / dck	12/13/12 08:50	ICPMS204-B_121210B	648	19011

JAN
2-20-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: BRSW-24
Lab ID: H12120185-009
Matrix: Surface Water

Project: UBMC Surface Water
Collection Date: 12/10/12 15:20 **DateReceived:** 12/11/12
Report Date: 01/11/13

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.3	s.u.	J- H	0.1		A4500-H B	12/12/12 11:53 / cm		PHSC_101-H_121212A	28	R85072
Conductivity @ 25 C	474	umhos/cm		1		A2510 B	12/12/12 11:53 / cm		PHSC_101-H_121212A	29	R85072
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/13/12 13:07 / cm	12/13/12 11:01	I24 (14410200)_121213A	12	19013
Solids, Total Dissolved TDS @ 180 C	300	mg/L		10		A2540 C	12/13/12 13:25 / cm		I24 (14410200)_121213B	13	TDS121213A
INORGANICS											
Alkalinity, Total as CaCO3	100	mg/L		4		A2320 B	12/13/12 19:43 / cm		MAN-TECH_121213A	158	R85122
Bicarbonate as HCO3	120	mg/L		4		A2320 B	12/13/12 19:43 / cm		MAN-TECH_121213A	158	R85122
Carbonate as CO3	5	mg/L		4		A2320 B	12/13/12 19:43 / cm		MAN-TECH_121213A	158	R85122
Chloride	ND	mg/L	UJ	1		E300.0	12/13/12 17:41 / cm		IC102-H_121213A	35	R85125
Sulfate	130	mg/L		1		E300.0	12/13/12 17:41 / cm		IC102-H_121213A	35	R85125
Hardness as CaCO3	241	mg/L		1		A2340 B	12/13/12 15:17 / sld		WATERCALC_121213B	9	R85117
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	12/13/12 11:45 / sld		ICP2-HE_121213A	28	R85116
Calcium	64	mg/L		1		E200.7	12/13/12 11:45 / sld		ICP2-HE_121213A	28	R85116
Magnesium	20	mg/L		1		E200.7	12/13/12 11:45 / sld		ICP2-HE_121213A	28	R85116
Potassium	ND	mg/L		1		E200.7	12/13/12 11:45 / sld		ICP2-HE_121213A	28	R85116
Sodium	1	mg/L		1		E200.7	12/13/12 11:45 / sld		ICP2-HE_121213A	28	R85116
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	12/14/12 16:18 / dck	12/13/12 08:50	ICPMS204-B_121210B	649	19011
Cadmium	0.00909	mg/L		0.00008		E200.8	12/14/12 16:18 / dck	12/13/12 08:50	ICPMS204-B_121210B	649	19011
Copper	0.016	mg/L		0.001		E200.8	12/14/12 16:18 / dck	12/13/12 08:50	ICPMS204-B_121210B	649	19011
Iron	ND	mg/L		0.03		E200.8	12/14/12 16:18 / dck	12/13/12 08:50	ICPMS204-B_121210B	649	19011
Lead	0.0049	mg/L		0.0005		E200.8	12/14/12 16:18 / dck	12/13/12 08:50	ICPMS204-B_121210B	649	19011
Manganese	ND	mg/L		0.005		E200.8	12/14/12 16:18 / dck	12/13/12 08:50	ICPMS204-B_121210B	649	19011
Zinc	2.06	mg/L		0.01		E200.8	12/14/12 16:18 / dck	12/13/12 08:50	ICPMS204-B_121210B	649	19011

JAN
2-20-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: BRSW-1
Lab ID: H12120185-010
Matrix: Surface Water

Project: UBMC Surface Water
Collection Date: 12/10/12 16:08 **DateReceived:** 12/11/12
Report Date: 01/11/13

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.8	s.u.	J - H	0.1		A4500-H B	12/12/12 11:56 / cm		PHSC_101-H_121212A	30	R85072
Conductivity @ 25 C	204	umhos/cm		1		A2510 B	12/12/12 11:56 / cm		PHSC_101-H_121212A	31	R85072
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/13/12 13:14 / cm	12/13/12 11:01	124 (14410200)_121213A	13	19013
Solids, Total Dissolved TDS @ 180 C	101	mg/L		10		A2540 C	12/13/12 13:25 / cm		124 (14410200)_121213B	14	TDS121213A
INORGANICS											
Alkalinity, Total as CaCO3	110	mg/L		4		A2320 B	12/13/12 19:58 / cm		MAN-TECH_121213A	162	R85122
Bicarbonate as HCO3	120	mg/L		4		A2320 B	12/13/12 19:58 / cm		MAN-TECH_121213A	162	R85122
Carbonate as CO3	5	mg/L		4		A2320 B	12/13/12 19:58 / cm		MAN-TECH_121213A	162	R85122
Chloride	ND	mg/L	UJ	1		E300.0	12/13/12 17:54 / cm		IC102-H_121213A	36	R85125
Sulfate	5	mg/L		1		E300.0	12/13/12 17:54 / cm		IC102-H_121213A	36	R85125
Hardness as CaCO3	105	mg/L		1		A2340 B	12/13/12 15:17 / sld		WATERCALC_121213B	10	R85117
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	12/13/12 11:49 / sld		ICP2-HE_121213A	29	R85116
Calcium	21	mg/L		1		E200.7	12/13/12 11:49 / sld		ICP2-HE_121213A	29	R85116
Magnesium	13	mg/L		1		E200.7	12/13/12 11:49 / sld		ICP2-HE_121213A	29	R85116
Potassium	ND	mg/L		1		E200.7	12/13/12 11:49 / sld		ICP2-HE_121213A	29	R85116
Sodium	1	mg/L		1		E200.7	12/13/12 11:49 / sld		ICP2-HE_121213A	29	R85116
METALS, TOTAL RECOVERABLE											
Arsenic	ND	mg/L		0.003		E200.8	12/14/12 16:23 / dck	12/13/12 08:50	ICPMS204-B_121210B	650	19011
Cadmium	ND	mg/L		0.00008		E200.8	12/14/12 16:23 / dck	12/13/12 08:50	ICPMS204-B_121210B	650	19011
Copper	ND	mg/L		0.001		E200.8	12/14/12 16:23 / dck	12/13/12 08:50	ICPMS204-B_121210B	650	19011
Iron	ND	mg/L		0.03		E200.8	12/14/12 16:23 / dck	12/13/12 08:50	ICPMS204-B_121210B	650	19011
Lead	ND	mg/L		0.0005		E200.8	12/14/12 16:23 / dck	12/13/12 08:50	ICPMS204-B_121210B	650	19011
Manganese	ND	mg/L		0.005		E200.8	12/14/12 16:23 / dck	12/13/12 08:50	ICPMS204-B_121210B	650	19011
Zinc	ND	mg/L		0.01		E200.8	12/14/12 16:23 / dck	12/13/12 08:50	ICPMS204-B_121210B	650	19011

JAN
2-20-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

Attachment B: Chain of Custody Forms and Sample Receipt Checklist

Standard Reporting Procedures

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Workorder Receipt Checklist

MT DEQ-Site Response H12120185

Login completed by: Tracy L. Lorash
Date Received: 12/11/2012
Reviewed by: BL2000\jweidemoyer
Received by: elm
Reviewed Date: 12/14/2012
Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	0.6°C On Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Contact and Corrective Action Comments:

BRSW-3A has a collection date of 12/10/12 on the COC and metals bottles - 1 liter bottle has date of 12/11/12.
BRSW-3B has a collection date of 12/10/12 on the COC - bottles have date of 12/11/12.
BRSW-1 has a collection date of 12/10/12 on the COC - bottles have 12/11/12. Per Alan, All BRSW-3A, 3B and 1 were collected on 12/10/12.
Sample ID on COC is BRSW-1 - ID on filtered metals bottle is BRSD-1. Logged in with ID from COC. TI

Workorder Receipt Checklist - Continued

MT DEQ-Site Response H12120185

12/12/12.

Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT (Provide as much information as possible.)

Company Name: MDEQ	Project Name, PWS, Permit, Etc.: UBMC Surface Water	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: Sw Quote H-645	Contact Name: Phone/Fax: Shellie Haaland 841-5033 shaaland@mt.gov	Email:	Sampler: (Please Print) A. Brashaw Mike Fowler
Invoice Address:	Invoice Contact & Phone:	Purchase Order:	Quote/Bottle Order: 11144

Special Report/Formats:

☐ DW ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: _____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids Vegetation Bioassay Other DW - Drinking Water

ANALYSIS REQUESTED

SEE ATTACHED

Standard Turnaround (TAT)

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

Shipped by: Hand
Cooler ID(s): Y
Receipt Temp 0.6 °C TB
On Ice: (Y) N
Custody Seal On Bottle Y (N) On Cooler Y (N)
Intact Y N
Signature Match Y N

LABORATORY USE ONLY H12120185

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	SEE ATTACHED
1	BRSW-25	12/10/12	1019	W	X
2	BRSW-26		1034		
3	BRSW-38		1106		
4	BRSW-48		1225		
5	BRSW-23		1308		
6	BRSW-3A		1336		
7	BRSW-3B		1402		
8	BRSW-22		1510		
9	BRSW-24		1520		
10	BRSW-1	12/10/12	1608	W	XX

12/10/12 10

Custody Record MUST be Signed

Relinquished by (print): Alan Brashaw	Date/Time: 12/11/12 1210	Signature:	Received by (print): / Date/Time: / Signature:
Relinquished by (print):	Date/Time:	Signature:	Received by (print): / Date/Time: / Signature:
Sample Disposal: Return to Client: _____ Lab Disposal: _____			Received by Laboratory: Esther Merrick 12/11/12 17:08

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.
This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.

Attachment B: Chain of Custody Forms and Sample Receipt Checklist

UBMC Ground Water

SDG#:	**H12120241**
Number of Samples:	**9**
Sample Matrix:	**(9) Ground water**
Applicable Analytes:	**pH, Conductivity, TSS, TDS, Alkalinity (Total, Bicarbonate, and Carbonate), Anions: (Chloride and Sulfate), Hardness, and Dissolved Metals (Al, As, Cd, Ca, Cu, Fe, Pb, Mg, Mn, K, Na, and Zn)**
Reporting Tier:	**3**
Applicable TOS#:	**N/A**
Laboratory:	**Energy Laboratories**
Validation Level:	**EPA Level III**
Validator Affiliation:	**Portage, Inc.**
Project#:	**UBMC**
Project SAP/QUAPP:	**Final Sampling and Analysis Plan for Environmental Monitoring of Upper Blackfoot Mining Complex Lewis and Clark County, Montana; Portage Inc., 2012**



Validator **Date Completed:02/20/13;05/09/13**



Portage Review: **Date Completed:02/20/13;05/09/13**

REPORT ORGANIZATION:

Limitations & Validation (L&V) Report UBMC Ground Water is organized into the following five sections:

- Glossary of Terms & Method References
- Data Quality Statement
- L&V Report
- Attachment A: Laboratory Report Forms Corrected for Qualification
- Attachment B: Chain of Custody Forms & Sample Receipt Checklist

GLOSSARY OF VALIDATION TERMS & METHOD VALIDATION REFERENCES

Terms:

CRDL	Contract Required Detection Limit
IDL	Instrument Detection Limit
SOW	Statement of Work
SOP	Standard Operating Procedure
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ICV	Initial Calibration Verification
CCV	Continuing Calibration Verification
ICB	Initial Calibration Blank
CCB	Continuing Calibration Blank
PB	Preparation Blank
LCS	Laboratory Control Sample
SDS	Serial Dilution Sample
SDG	Sample Delivery Group

Qualifiers:

U - The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.
Note: This detection limit may be elevated to a level greater than the IDL due to a detection of a target compound in the method blank, and as a result, the sample value, which was less than ten times the blank result, has been qualified 'U' as a non-detect.

J - The analyte was positively identified in the sample, but the associated numerical value may not be an accurate representation of the amount actually present in the environmental sample. The data should be seriously considered for decision-making and are usable for many purposes.

R - The data are unusable (may or may not be present). Resampling and reanalysis are necessary for verification.

UJ - The material was analyzed for but was not detected. The sample quantitation limit is an estimated quantity.

Reference:

The validation of this data was performed according to:

1. *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, EPA540-R-04-004,October 2004.*
2. *USEPA Contract Laboratory Program Statement of Work For Inorganic Analysis, Multi-Media, Multi-Concentration, Document Number ILM04.0, January 2000.*

LIMITATIONS AND VALIDATION REPORT

INTRODUCTION:

The UBMC Ground Water sample results were received by Portage, Inc. in December 2012. The laboratory analytical request provided for a summary data package attached for the pH, conductivity, alkalinity, TSS, TDS, chloride, sulfate, hardness, and dissolved metals (Al, As, Cd, Ca, Cu, Fe, Pb, Mg, Mn, K, Na, and Zn). The samples were analyzed in accordance with Standard Methods 4500 H-B, 2320B, 2510B, 2540D, 2540C, and 2340B, and USEPA Methods 300.0, 200.7, and 200.8. Data validation was performed utilizing the USEPA Functional Guidelines for Inorganic Data Review. The following cross-reference has been provided to assist data users in comparing field identifications to the corresponding laboratory numbers.

Cross-Reference for UBMC Ground Water Samples					
Field Id#:	**Lab Id#:**	**Matrix:**	**Analysis Request:**	**Date of Collection:**	**Date of Laboratory Receipt:**
TDMW-7	H12120241-001	Ground Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Dissolved Metals	12/12/12	12/14/12
TDMW-8	H12120241-002	Ground Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Dissolved Metals	12/12/12	12/14/12
TDMW-5	H12120241-003	Ground Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Dissolved Metals	12/12/12	12/14/12
TDMW-4D	H12120241-004	Ground Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Dissolved Metals	12/12/12	12/14/12
TDMW-6	H12120241-005	Ground Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Dissolved Metals	12/12/12	12/14/12
TDMW-3D	H12120241-006	Ground Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Dissolved Metals	12/12/12	12/14/12
TDMW-1	H12120241-007	Ground Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Dissolved Metals	12/13/12	12/14/12
TDMW-2D	H12120241-008	Ground Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Dissolved Metals	12/13/12	12/14/12

Cross-Reference for UBMC Ground Water Samples					
Field Id#:	**Lab Id#:**	**Matrix:**	**Analysis Request:**	**Date of Collection:**	**Date of Laboratory Receipt:**
TDMW-2S	H12120241-009	Ground Water	pH, Conductivity, TSS, TDS, Alkalinity, Chloride, Sulfate, Hardness, Dissolved Metals	12/13/12	12/14/12

LABORATORY CASE NARRATIVE:

The laboratory case narrative did not note any non conformance issues with the analytical data.

ANALYTICAL HOLDING TIMES:

The water samples associated with this SDG were collected on 12/12/12 and 12/13/12. The conductivity, TSS, and TDS results were analyzed on 12/17/12 within the 28-day holding time for conductivity, and the 7-day holding time for TSS and TDS. The chloride and sulfate results were analyzed on 12/19/12 within the 28-day holding time. The alkalinity results were analyzed on 12/17/12 within the 14-day holding time. The hardness results were analyzed on 12/17/12 within the 180-day holding time. The dissolved metals were 12/17/12 within the 180-day holding time for the ICP Metals.

The pH samples were collected on 12/12/12 and 12/13/12, received on 12/14/12, and analyzed on 12/17/12. In the professional judgment of the validator, all pH results have been qualified with a "J-" validation flag as prescribed by the USEPA Functional Guidelines and as the samples were analyzed outside the 24-hour holding time.

INITIAL AND CONTINUING CALIBRATION (ICV and CCV):

All ICV and CCV results were within the acceptance criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

PREPRATION BLANKS (PB):

For all analyses, blank results were analyzed at a proper frequency of 1 blank per 20 samples in the analytical batch.

The PB results were non-detect at level less than their respective MDLs and no qualification is warranted.

Field blank, trip blank, and equipment rinsate results were not included in this data deliverable.

INTERFERENCE CHECK SAMPLE (ICS):

All ICS results were within the acceptance criteria prescribed by the USEPA Functional Guidelines and the analytical methods.

MATRIX SPIKE (MS)/MATRIX SPIKE DUPLICATE (MSD):

The MS/MSD recovery and all RPD results were within the acceptance criteria and analyzed at the proper frequency (1 in 20) as prescribed by the USEPA Functional Guidelines and the analytical methods. MS/MSD sample were obtained from project field samples.

LABORATORY DUPLICATE SAMPLE (LDS) RPD:

All LDS and field duplicate results were within the RPD criteria and ran at the proper frequency (1 in 20) prescribed by the USEPA Functional Guidelines and the analytical methods.

DUPLICATE SUMMARY TABLE: (*RPD criteria not met, but results less than five times CRDL)

Analyte	Matrix Spike Duplicate RPD	Laboratory Duplicate RPD	Field Duplicate RPD
pH	N/A	0	-1.29032
Conductivity	N/A	0	0
TSS	N/A	0	-2.00669
TDS	N/A	2.4	-1.14286
Alkalinity	N/A	1.3	6.451613
Bicarbonate	N/A	1.3	0
Carbonate	N/A	0	0
Chloride	0.9	N/A	0
Sulfate	0.4	N/A	0
Hardness	N/A	N/A	-2.75862
Al	1.8	N/A	0
Ca	0.5	N/A	0
Mg	2.2	N/A	0
K	0.1	N/A	0
Na	0.5	N/A	171.4286*
As	0.9	N/A	0
Cd	1.2	N/A	0
Cu	1.7	N/A	-5.12821
Fe	2.4	N/A	0
Pb	0.7	N/A	0
Mn	0.1	N/A	-7.40741
Zn	1.2	N/A	0

LABORATORY CONTROL SAMPLE (LCS):

The LCS results were of matrix types similar to the field samples and properly prepared with the field samples.

All analytes exhibited recoveries within the guidelines and analyzed at the proper frequency (1 in 20) as prescribed by the USEPA Functional Guidelines and analytical methods.

Surrogate analyses are not applicable to metals and miscellaneous wet chemistry analysis types and methods.

CHAIN OF CUSTODY:

The laboratory chain of custody (COC) forms are complete and accurate.

One cooler was received by Energy Labs on 12/14/12 at 0.2°C. Custody was maintained as documents by the field and laboratory personnel signatures, dates, and time of receipt.

REPORTING LIMTS:

The reporting limits presented by the laboratory were acceptable and met the screening level requirements set forth by the project QAPjP and SAP.

OVERALL ASSESSMENT OF DATA:

There were nine (9) ground water field samples included in SDG# H12120241. Nine (9) field samples were analyzed for pH, conductivity, alkalinity, TSS, TDS, chloride, sulfate, hardness, and dissolved metals as outlined in the project QAPP.

All pH results have been qualified with a "J-" validation flag to denote the reported results are estimates with a low bias due to exceeded holding times.

The remaining field sample data points have been assessed and remain unqualified.

All field sample data points presented in this SDG are valid and complete.

All samples were received by the lab in good condition. Detection limits, analytical methods, detection limits, and reporting were all within the project requirements.

Attachment A: Laboratory Report Forms

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: TDMW-7
Lab ID: H12120241-001
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 12/12/12 10:28
DateReceived: 12/14/12
Report Date: 01/02/13

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.2	s.u. J-	H	0.1		A4500-H B	12/17/12 10:11 / cm		PHSC_101-H_121217A	23	R85156
Conductivity @ 25 C	1	umhos/cm		1		A2510 B	12/17/12 10:11 / cm		PHSC_101-H_121217A	24	R85156
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/17/12 16:08 / cm	12/17/12 13:34	124 (14410200)_121217A	18	19046
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	12/17/12 16:18 / cm		124 (14410200)_121217B	17	TDS121217A
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	12/17/12 19:53 / cm		MAN-TECH_121217A	62	R85169
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	12/17/12 19:53 / cm		MAN-TECH_121217A	62	R85169
Carbonate as CO3	ND	mg/L		4		A2320 B	12/17/12 19:53 / cm		MAN-TECH_121217A	62	R85169
Chloride	ND	mg/L		1		E300.0	12/19/12 18:47 / cm		IC102-H_121219A	48	R85253
Sulfate	ND	mg/L		1		E300.0	12/19/12 18:47 / cm		IC102-H_121219A	48	R85253
Hardness as CaCO3	ND	mg/L		1		A2340 B	12/19/12 14:03 / sld		WATERCALC_121219B	6	R85238
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	12/17/12 22:18 / dck		ICPMS204-B_121217A	132	R85189
Arsenic	ND	mg/L		0.003		E200.8	12/17/12 22:18 / dck		ICPMS204-B_121217A	132	R85189
Cadmium	ND	mg/L		0.00008		E200.8	12/17/12 22:18 / dck		ICPMS204-B_121217A	132	R85189
Calcium	ND	mg/L		1		E200.7	12/17/12 15:50 / sld		ICP2-HE_121217B	30	R85182
Copper	0.003	mg/L		0.001		E200.8	12/17/12 22:18 / dck		ICPMS204-B_121217A	132	R85189
Iron	ND	mg/L		0.05		E200.7	12/17/12 15:50 / sld		ICP2-HE_121217B	30	R85182
Lead	ND	mg/L		0.0005		E200.8	12/17/12 22:18 / dck		ICPMS204-B_121217A	132	R85189
Magnesium	ND	mg/L		1		E200.7	12/17/12 15:50 / sld		ICP2-HE_121217B	30	R85182
Manganese	ND	mg/L		0.005		E200.8	12/17/12 22:18 / dck		ICPMS204-B_121217A	132	R85189
Potassium	ND	mg/L		1		E200.7	12/17/12 15:50 / sld		ICP2-HE_121217B	30	R85182
Sodium	ND	mg/L		1		E200.7	12/17/12 15:50 / sld		ICP2-HE_121217B	30	R85182
Zinc	ND	mg/L		0.01		E200.8	12/17/12 22:18 / dck		ICPMS204-B_121217A	132	R85189

JAN
2-22-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: TDMW-8
Lab ID: H12120241-002
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 12/12/12 10:39
DateReceived: 12/14/12
Report Date: 01/02/13

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.0	s.u.	J- H	0.1		A4500-H B	12/17/12 10:14 / cm		PHSC_101-H_121217A	25	R85156
Conductivity @ 25 C	1	umhos/cm		1		A2510 B	12/17/12 10:14 / cm		PHSC_101-H_121217A	26	R85156
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/17/12 16:08 / cm	12/17/12 13:34	124 (14410200)_121217A	19	19046
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	12/17/12 16:18 / cm		124 (14410200)_121217B	18	TDS121217A
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	12/17/12 19:58 / cm		MAN-TECH_121217A	64	R85169
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	12/17/12 19:58 / cm		MAN-TECH_121217A	64	R85169
Carbonate as CO3	ND	mg/L		4		A2320 B	12/17/12 19:58 / cm		MAN-TECH_121217A	64	R85169
Chloride	ND	mg/L		1		E300.0	12/19/12 18:59 / cm		IC102-H_121219A	49	R85253
Sulfate	ND	mg/L		1		E300.0	12/19/12 18:59 / cm		IC102-H_121219A	49	R85253
Hardness as CaCO3	ND	mg/L		1		A2340 B	12/19/12 14:03 / sld		WATERCALC_121219B	7	R85238
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	12/17/12 22:22 / dck		ICPMS204-B_121217A	133	R85189
Arsenic	ND	mg/L		0.003		E200.8	12/17/12 22:22 / dck		ICPMS204-B_121217A	133	R85189
Cadmium	ND	mg/L		0.00008		E200.8	12/17/12 22:22 / dck		ICPMS204-B_121217A	133	R85189
Calcium	ND	mg/L		1		E200.7	12/17/12 16:12 / sld		ICP2-HE_121217B	36	R85182
Copper	0.004	mg/L		0.001		E200.8	12/17/12 22:22 / dck		ICPMS204-B_121217A	133	R85189
Iron	ND	mg/L		0.05		E200.7	12/17/12 16:12 / sld		ICP2-HE_121217B	36	R85182
Lead	ND	mg/L		0.0005		E200.8	12/17/12 22:22 / dck		ICPMS204-B_121217A	133	R85189
Magnesium	ND	mg/L		1		E200.7	12/17/12 16:12 / sld		ICP2-HE_121217B	36	R85182
Manganese	ND	mg/L		0.005		E200.8	12/17/12 22:22 / dck		ICPMS204-B_121217A	133	R85189
Potassium	ND	mg/L		1		E200.7	12/17/12 16:12 / sld		ICP2-HE_121217B	36	R85182
Sodium	ND	mg/L		1		E200.7	12/17/12 16:12 / sld		ICP2-HE_121217B	36	R85182
Zinc	ND	mg/L		0.01		E200.8	12/17/12 22:22 / dck		ICPMS204-B_121217A	133	R85189

JAH
2-22-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: TDMW-5
Lab ID: H12120241-003
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 12/12/12 11:51
DateReceived: 12/14/12
Report Date: 01/02/13

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.8	s.u. J-	H	0.1		A4500-H B	12/17/12 10:17 / cm		PHSC_101-H_121217A	27	R85156
Conductivity @ 25 C	273	umhos/cm		1		A2510 B	12/17/12 10:17 / cm		PHSC_101-H_121217A	28	R85156
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/17/12 16:08 / cm	12/17/12 13:34	I24 (14410200)_121217A	20	19046
Solids, Total Dissolved TDS @ 180 C	144	mg/L		10		A2540 C	12/17/12 16:18 / cm		I24 (14410200)_121217B	19	TDS121217A
INORGANICS											
Alkalinity, Total as CaCO3	97	mg/L		4		A2320 B	12/17/12 20:05 / cm		MAN-TECH_121217A	66	R85169
Bicarbonate as HCO3	110	mg/L		4		A2320 B	12/17/12 20:05 / cm		MAN-TECH_121217A	66	R85169
Carbonate as CO3	ND	mg/L		4		A2320 B	12/17/12 20:05 / cm		MAN-TECH_121217A	66	R85169
Chloride	ND	mg/L		1		E300.0	12/19/12 19:12 / cm		IC102-H_121219A	50	R85253
Sulfate	48	mg/L		1		E300.0	12/19/12 19:12 / cm		IC102-H_121219A	50	R85253
Hardness as CaCO3	131	mg/L		1		A2340 B	12/17/12 16:16 / abb		CALC_121218A	231	R85207
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	12/17/12 22:27 / dck		ICPMS204-B_121217A	134	R85189
Arsenic	ND	mg/L		0.003		E200.8	12/17/12 22:27 / dck		ICPMS204-B_121217A	134	R85189
Cadmium	ND	mg/L		0.00008		E200.8	12/17/12 22:27 / dck		ICPMS204-B_121217A	134	R85189
Calcium	29	mg/L		1		E200.7	12/17/12 16:16 / sld		ICP2-HE_121217B	37	R85182
Copper	ND	mg/L		0.001		E200.8	12/17/12 22:27 / dck		ICPMS204-B_121217A	134	R85189
Iron	ND	mg/L		0.05		E200.7	12/17/12 16:16 / sld		ICP2-HE_121217B	37	R85182
Lead	ND	mg/L		0.0005		E200.8	12/17/12 22:27 / dck		ICPMS204-B_121217A	134	R85189
Magnesium	14	mg/L		1		E200.7	12/17/12 16:16 / sld		ICP2-HE_121217B	37	R85182
Manganese	ND	mg/L		0.005		E200.8	12/17/12 22:27 / dck		ICPMS204-B_121217A	134	R85189
Potassium	ND	mg/L		1		E200.7	12/17/12 16:16 / sld		ICP2-HE_121217B	37	R85182
Sodium	2	mg/L		1		E200.7	12/17/12 16:16 / sld		ICP2-HE_121217B	37	R85182
Zinc	0.01	mg/L		0.01		E200.8	12/17/12 22:27 / dck		ICPMS204-B_121217A	134	R85189

JAN
2-22-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: TDMW-4D
Lab ID: H12120241-004
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 12/12/12 14:04
DateReceived: 12/14/12
Report Date: 01/02/13

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.7	s.u. J-	H	0.1		A4500-H B	12/17/12 10:20 / cm		PHSC_101-H_121217A	29	R85156
Conductivity @ 25 C	336	umhos/cm		1		A2510 B	12/17/12 10:20 / cm		PHSC_101-H_121217A	30	R85156
Solids, Total Suspended TSS @ 105 C	148	mg/L		10		A2540 D	12/17/12 16:09 / cm	12/17/12 13:34	I24 (14410200)_121217A	21	19046
Solids, Total Dissolved TDS @ 180 C	174	mg/L		10		A2540 C	12/17/12 16:19 / cm		I24 (14410200)_121217B	20	TDS121217A
INORGANICS											
Alkalinity, Total as CaCO3	160	mg/L		4		A2320 B	12/17/12 20:12 / cm		MAN-TECH_121217A	68	R85169
Bicarbonate as HCO3	180	mg/L		4		A2320 B	12/17/12 20:12 / cm		MAN-TECH_121217A	68	R85169
Carbonate as CO3	5	mg/L		4		A2320 B	12/17/12 20:12 / cm		MAN-TECH_121217A	68	R85169
Chloride	ND	mg/L		1		E300.0	12/19/12 19:25 / cm		IC102-H_121219A	51	R85253
Sulfate	33	mg/L		1		E300.0	12/19/12 19:25 / cm		IC102-H_121219A	51	R85253
Hardness as CaCO3	143	mg/L		1		A2340 B	12/17/12 16:20 / abb		CALC_121218A	243	R85207
METALS, DISSOLVED											
Aluminum	0.03	mg/L		0.03		E200.8	12/17/12 22:32 / dck		ICPMS204-B_121217A	135	R85189
Arsenic	ND	mg/L		0.003		E200.8	12/17/12 22:32 / dck		ICPMS204-B_121217A	135	R85189
Cadmium	ND	mg/L		0.00008		E200.8	12/17/12 22:32 / dck		ICPMS204-B_121217A	135	R85189
Calcium	26	mg/L		1		E200.7	12/17/12 16:20 / sld		ICP2-HE_121217B	38	R85182
Copper	0.013	mg/L		0.001		E200.8	12/17/12 22:32 / dck		ICPMS204-B_121217A	135	R85189
Iron	ND	mg/L		0.05		E200.7	12/17/12 16:20 / sld		ICP2-HE_121217B	38	R85182
Lead	ND	mg/L		0.0005		E200.8	12/17/12 22:32 / dck		ICPMS204-B_121217A	135	R85189
Magnesium	19	mg/L		1		E200.7	12/17/12 16:20 / sld		ICP2-HE_121217B	38	R85182
Manganese	ND	mg/L		0.005		E200.8	12/17/12 22:32 / dck		ICPMS204-B_121217A	135	R85189
Potassium	ND	mg/L		1		E200.7	12/17/12 16:20 / sld		ICP2-HE_121217B	38	R85182
Sodium	13	mg/L		1		E200.7	12/17/12 16:20 / sld		ICP2-HE_121217B	38	R85182
Zinc	ND	mg/L		0.01		E200.8	12/17/12 22:32 / dck		ICPMS204-B_121217A	135	R85189

JAN
2-22-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: TDMW-6
Lab ID: H12120241-005
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 12/12/12 14:14
DateReceived: 12/14/12
Report Date: 01/02/13

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.8	s.u.	J- H	0.1		A4500-H B	12/17/12 10:25 / cm		PHSC_101-H_121217A	33	R85156
Conductivity @ 25 C	336	umhos/cm		1		A2510 B	12/17/12 10:25 / cm		PHSC_101-H_121217A	34	R85156
Solids, Total Suspended TSS @ 105 C	151	mg/L		10		A2540 D	12/17/12 16:10 / cm	12/17/12 13:34	124 (14410200)_121217A	22	19046
Solids, Total Dissolved TDS @ 180 C	179	mg/L		10		A2540 C	12/17/12 16:19 / cm		124 (14410200)_121217B	21	TDS121217A
INORGANICS											
Alkalinity, Total as CaCO3	150	mg/L		4		A2320 B	12/17/12 20:20 / cm		MAN-TECH_121217A	70	R85169
Bicarbonate as HCO3	180	mg/L		4		A2320 B	12/17/12 20:20 / cm		MAN-TECH_121217A	70	R85169
Carbonate as CO3	5	mg/L		4		A2320 B	12/17/12 20:20 / cm		MAN-TECH_121217A	70	R85169
Chloride	ND	mg/L		1		E300.0	12/19/12 19:37 / cm		IC102-H_121219A	52	R85253
Sulfate	33	mg/L		1		E300.0	12/19/12 19:37 / cm		IC102-H_121219A	52	R85253
Hardness as CaCO3	147	mg/L		1		A2340 B	12/17/12 16:24 / abb		CALC_121218A	255	R85207
METALS, DISSOLVED											
Aluminum	0.03	mg/L		0.03		E200.8	12/17/12 22:36 / dck		ICPMS204-B_121217A	136	R85189
Arsenic	ND	mg/L		0.003		E200.8	12/17/12 22:36 / dck		ICPMS204-B_121217A	136	R85189
Cadmium	ND	mg/L		0.00008		E200.8	12/17/12 22:36 / dck		ICPMS204-B_121217A	136	R85189
Calcium	26	mg/L		1		E200.7	12/17/12 16:24 / sld		ICP2-HE_121217B	39	R85182
Copper	ND	mg/L		0.001		E200.8	12/17/12 22:36 / dck		ICPMS204-B_121217A	136	R85189
Iron	ND	mg/L		0.05		E200.7	12/17/12 16:24 / sld		ICP2-HE_121217B	39	R85182
Lead	ND	mg/L		0.0005		E200.8	12/17/12 22:36 / dck		ICPMS204-B_121217A	136	R85189
Magnesium	20	mg/L		1		E200.7	12/17/12 16:24 / sld		ICP2-HE_121217B	39	R85182
Manganese	ND	mg/L		0.005		E200.8	12/17/12 22:36 / dck		ICPMS204-B_121217A	136	R85189
Potassium	ND	mg/L		1		E200.7	12/17/12 16:24 / sld		ICP2-HE_121217B	39	R85182
Sodium	14	mg/L		1		E200.7	12/17/12 16:24 / sld		ICP2-HE_121217B	39	R85182
Zinc	ND	mg/L		0.01		E200.8	12/17/12 22:36 / dck		ICPMS204-B_121217A	136	R85189

JAN
2-22-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: TDMW-3D
Lab ID: H12120241-006
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 12/12/12 15:42
DateReceived: 12/14/12
Report Date: 01/02/13

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.1	s.u. J-	H	0.1		A4500-H B	12/17/12 10:27 / cm		PHSC_101-H_121217A	35	R85156
Conductivity @ 25 C	717	umhos/cm		1		A2510 B	12/17/12 10:27 / cm		PHSC_101-H_121217A	36	R85156
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/17/12 16:10 / cm	12/17/12 13:34	124 (14410200)_121217A	23	19046
Solids, Total Dissolved TDS @ 180 C	494	mg/L		10		A2540 C	12/17/12 16:19 / cm		124 (14410200)_121217B	22	TDS121217A
INORGANICS											
Alkalinity, Total as CaCO3	51	mg/L		4		A2320 B	12/17/12 20:27 / cm		MAN-TECH_121217A	72	R85169
Bicarbonate as HCO3	62	mg/L		4		A2320 B	12/17/12 20:27 / cm		MAN-TECH_121217A	72	R85169
Carbonate as CO3	ND	mg/L		4		A2320 B	12/17/12 20:27 / cm		MAN-TECH_121217A	72	R85169
Chloride	ND	mg/L		1		E300.0	12/19/12 19:50 / cm		IC102-H_121219A	53	R85253
Sulfate	310	mg/L		1		E300.0	12/19/12 19:50 / cm		IC102-H_121219A	53	R85253
Hardness as CaCO3	360	mg/L		1		A2340 B	12/19/12 14:03 / sld		WATERCALC_121219B	8	R85238
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	12/17/12 22:41 / dck		ICPMS204-B_121217A	137	R85189
Arsenic	ND	mg/L		0.003		E200.8	12/17/12 22:41 / dck		ICPMS204-B_121217A	137	R85189
Cadmium	0.00020	mg/L		0.00008		E200.8	12/17/12 22:41 / dck		ICPMS204-B_121217A	137	R85189
Calcium	84	mg/L		1		E200.7	12/17/12 16:28 / sld		ICP2-HE_121217B	40	R85182
Copper	ND	mg/L		0.001		E200.8	12/17/12 22:41 / dck		ICPMS204-B_121217A	137	R85189
Iron	ND	mg/L		0.05		E200.7	12/17/12 16:28 / sld		ICP2-HE_121217B	40	R85182
Lead	ND	mg/L		0.0005		E200.8	12/17/12 22:41 / dck		ICPMS204-B_121217A	137	R85189
Magnesium	36	mg/L		1		E200.7	12/17/12 16:28 / sld		ICP2-HE_121217B	40	R85182
Manganese	ND	mg/L		0.005		E200.8	12/17/12 22:41 / dck		ICPMS204-B_121217A	137	R85189
Potassium	ND	mg/L		1		E200.7	12/17/12 16:28 / sld		ICP2-HE_121217B	40	R85182
Sodium	2	mg/L		1		E200.7	12/17/12 16:28 / sld		ICP2-HE_121217B	40	R85182
Zinc	0.03	mg/L		0.01		E200.8	12/17/12 22:41 / dck		ICPMS204-B_121217A	137	R85189

JAN
2-22-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: TDMW-1
Lab ID: H12120241-007
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 12/13/12 10:07
DateReceived: 12/14/12
Report Date: 01/02/13

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.4	s.u.	J- H	0.1		A4500-H B	12/17/12 10:30 / cm		PHSC_101-H_121217A	37	R85156
Conductivity @ 25 C	777	umhos/cm		1		A2510 B	12/17/12 10:30 / cm		PHSC_101-H_121217A	38	R85156
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/17/12 16:10 / cm	12/17/12 13:34	124 (14410200)_121217A	24	19046
Solids, Total Dissolved TDS @ 180 C	580	mg/L		10		A2540 C	12/17/12 16:19 / cm		124 (14410200)_121217B	23	TDS121217A
INORGANICS											
Alkalinity, Total as CaCO3	62	mg/L		4		A2320 B	12/17/12 20:33 / cm		MAN-TECH_121217A	74	R85169
Bicarbonate as HCO3	76	mg/L		4		A2320 B	12/17/12 20:33 / cm		MAN-TECH_121217A	74	R85169
Carbonate as CO3	ND	mg/L		4		A2320 B	12/17/12 20:33 / cm		MAN-TECH_121217A	74	R85169
Chloride	ND	mg/L		1		E300.0	12/19/12 20:02 / cm		IC102-H_121219A	54	R85253
Sulfate	350	mg/L		1		E300.0	12/19/12 20:02 / cm		IC102-H_121219A	54	R85253
Hardness as CaCO3	395	mg/L		1		A2340 B	12/19/12 14:03 / sld		WATERCALC_121219B	9	R85238
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	12/17/12 22:45 / dck		ICPMS204-B_121217A	138	R85189
Arsenic	ND	mg/L		0.003		E200.8	12/17/12 22:45 / dck		ICPMS204-B_121217A	138	R85189
Cadmium	0.0141	mg/L		0.00008		E200.8	12/17/12 22:45 / dck		ICPMS204-B_121217A	138	R85189
Calcium	74	mg/L		1		E200.7	12/17/12 16:31 / sld		ICP2-HE_121217B	41	R85182
Copper	0.001	mg/L		0.001		E200.8	12/17/12 22:45 / dck		ICPMS204-B_121217A	138	R85189
Iron	ND	mg/L		0.05		E200.7	12/17/12 16:31 / sld		ICP2-HE_121217B	41	R85182
Lead	ND	mg/L		0.0005		E200.8	12/17/12 22:45 / dck		ICPMS204-B_121217A	138	R85189
Magnesium	51	mg/L		1		E200.7	12/17/12 16:31 / sld		ICP2-HE_121217B	41	R85182
Manganese	ND	mg/L		0.005		E200.8	12/17/12 22:45 / dck		ICPMS204-B_121217A	138	R85189
Potassium	1	mg/L		1		E200.7	12/17/12 16:31 / sld		ICP2-HE_121217B	41	R85182
Sodium	2	mg/L		1		E200.7	12/17/12 16:31 / sld		ICP2-HE_121217B	41	R85182
Zinc	5.63	mg/L		0.01		E200.7	12/17/12 16:31 / sld		ICP2-HE_121217B	41	R85182

JHN
2-22-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: TDMW-2D
Lab ID: H12120241-008
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 12/13/12 10:34
DateReceived: 12/14/12
Report Date: 01/02/13

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.0	s.u.	J- H	0.1		A4500-H B	12/17/12 10:32 / cm		PHSC_101-H_121217A	39	R85156
Conductivity @ 25 C	348	umhos/cm		1		A2510 B	12/17/12 10:32 / cm		PHSC_101-H_121217A	40	R85156
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/17/12 16:11 / cm	12/17/12 13:34	124 (14410200)_121217A	27	19047
Solids, Total Dissolved TDS @ 180 C	203	mg/L		10		A2540 C	12/17/12 16:19 / cm		124 (14410200)_121217B	24	TDS121217A
INORGANICS											
Alkalinity, Total as CaCO3	110	mg/L		4		A2320 B	12/17/12 20:40 / cm		MAN-TECH_121217A	76	R85169
Bicarbonate as HCO3	130	mg/L		4		A2320 B	12/17/12 20:40 / cm		MAN-TECH_121217A	76	R85169
Carbonate as CO3	ND	mg/L		4		A2320 B	12/17/12 20:40 / cm		MAN-TECH_121217A	76	R85169
Chloride	ND	mg/L		1		E300.0	12/19/12 20:15 / cm		IC102-H_121219A	55	R85253
Sulfate	76	mg/L		1		E300.0	12/19/12 20:15 / cm		IC102-H_121219A	55	R85253
Hardness as CaCO3	167	mg/L		1		A2340 B	12/17/12 16:35 / abb		CALC_121218A	267	R85207
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.8	12/17/12 22:50 / dck		ICPMS204-B_121217A	139	R85189
Arsenic	ND	mg/L		0.003		E200.8	12/17/12 22:50 / dck		ICPMS204-B_121217A	139	R85189
Cadmium	ND	mg/L		0.00008		E200.8	12/17/12 22:50 / dck		ICPMS204-B_121217A	139	R85189
Calcium	33	mg/L		1		E200.7	12/17/12 16:35 / sld		ICP2-HE_121217B	42	R85182
Copper	ND	mg/L		0.001		E200.8	12/17/12 22:50 / dck		ICPMS204-B_121217A	139	R85189
Iron	ND	mg/L		0.05		E200.7	12/17/12 16:35 / sld		ICP2-HE_121217B	42	R85182
Lead	ND	mg/L		0.0005		E200.8	12/17/12 22:50 / dck		ICPMS204-B_121217A	139	R85189
Magnesium	20	mg/L		1		E200.7	12/17/12 16:35 / sld		ICP2-HE_121217B	42	R85182
Manganese	ND	mg/L		0.005		E200.8	12/17/12 22:50 / dck		ICPMS204-B_121217A	139	R85189
Potassium	ND	mg/L		1		E200.7	12/17/12 16:35 / sld		ICP2-HE_121217B	42	R85182
Sodium	2	mg/L		1		E200.7	12/17/12 16:35 / sld		ICP2-HE_121217B	42	R85182
Zinc	ND	mg/L		0.01		E200.8	12/17/12 22:50 / dck		ICPMS204-B_121217A	139	R85189

JAN
2-22-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: MT DEQ-Site Response
Client Sample ID: TDMW-2S
Lab ID: H12120241-009
Matrix: Groundwater

Project: UBMC Groundwater
Collection Date: 12/13/12 11:07
DateReceived: 12/14/12
Report Date: 01/02/13

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.3	s.u.	J- H	0.1		A4500-H B	12/17/12 10:34 / cm		PHSC_101-H_121217A	41	R85156
Conductivity @ 25 C	1800	umhos/cm		1		A2510 B	12/17/12 10:34 / cm		PHSC_101-H_121217A	42	R85156
Solids, Total Suspended TSS @ 105 C	14	mg/L		10		A2540 D	12/17/12 16:11 / cm	12/17/12 13:34	I24 (14410200)_121217A	29	19047
Solids, Total Dissolved TDS @ 180 C	1540	mg/L		10		A2540 C	12/17/12 16:19 / cm		I24 (14410200)_121217B	25	TDS121217A
INORGANICS											
Alkalinity, Total as CaCO3	150	mg/L		4		A2320 B	12/17/12 20:55 / cm		MAN-TECH_121217A	80	R85169
Bicarbonate as HCO3	180	mg/L		4		A2320 B	12/17/12 20:55 / cm		MAN-TECH_121217A	80	R85169
Carbonate as CO3	ND	mg/L		4		A2320 B	12/17/12 20:55 / cm		MAN-TECH_121217A	80	R85169
Chloride	ND	mg/L		1		E300.0	12/20/12 11:50 / cm		IC102-H_121220A	21	R85271
Sulfate	1000	mg/L		1		E300.0	12/20/12 11:50 / cm		IC102-H_121220A	21	R85271
Hardness as CaCO3	977	mg/L		1		A2340 B	12/19/12 10:43 / sld		WATERCALC_121219A	2	R85229
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.03		E200.7	12/17/12 16:46 / sld		ICP2-HE_121217B	45	R85182
Arsenic	ND	mg/L		0.003		E200.8	12/17/12 23:13 / dck		ICPMS204-B_121217A	144	R85189
Cadmium	0.0271	mg/L		0.00008		E200.8	12/17/12 23:13 / dck		ICPMS204-B_121217A	144	R85189
Calcium	192	mg/L		1		E200.8	12/18/12 16:25 / dck		ICPMS204-B_121218A	81	R85205
Copper	0.002	mg/L		0.001		E200.8	12/17/12 23:13 / dck		ICPMS204-B_121217A	144	R85189
Iron	0.14	mg/L		0.05		E200.8	12/18/12 16:25 / dck		ICPMS204-B_121218A	81	R85205
Lead	ND	mg/L		0.0005		E200.8	12/17/12 23:13 / dck		ICPMS204-B_121217A	144	R85189
Magnesium	143	mg/L		1		E200.8	12/18/12 16:25 / dck		ICPMS204-B_121218A	81	R85205
Manganese	60.0	mg/L		0.005		E200.8	12/18/12 16:25 / dck		ICPMS204-B_121218A	81	R85205
Potassium	3	mg/L		1		E200.7	12/17/12 16:46 / sld		ICP2-HE_121217B	45	R85182
Sodium	2	mg/L		1		E200.7	12/17/12 16:46 / sld		ICP2-HE_121217B	45	R85182
Zinc	12.7	mg/L		0.01		E200.7	12/17/12 16:46 / sld		ICP2-HE_121217B	45	R85182

JAN
2-22-13

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.
H - Analysis performed past recommended holding time.

Attachment B: Chain of Custody Forms and Sample Receipt Checklist

Standard Reporting Procedures

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Workorder Receipt Checklist

MT DEQ-Site Response H12120241

Login completed by: Tracy L. Lorash
Date Received: 12/14/2012
Reviewed by: BL2000\sdull
Received by: wjj
Reviewed Date: 12/20/2012
Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	0.2°C On Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Contact and Corrective Action Comments:

Collection time on COC for TDMW-2D is 10:34 - bottles have 10:40. Logged in with time from COC. TI 12/14/12.

Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT (Provide as much information as possible.)

Company Name:	Project Name, PWS, Permit, Etc.	Sample Origin	EPA/State Compliance:
MDEQ	UBMC Groundwater	State: MT	Yes ☐ No ☐
Report Mail Address:	**Contact Name:** Phone/Fax:	**Email:**	**Sampler: (Please Print)**
See Quote H-645	Shellie Haaland, 841-5033, shaaland@mt.gov		A Dressbach M. Towler
Invoice Address:	**Invoice Contact & Phone:**	**Purchase Order:**	**Quote/Bottle Order:** 11145

Special Report/Formats:

☐ DW ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: _____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids
Vegetation Bioassay Other
DW - Drinking Water

ANALYSIS REQUESTED

Standard Turnaround (TAT)

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

Shipped by: hand del
Cooler ID(s): Y
Receipt Temp 0.2 °C
On Ice: Y N
Custody Seal On Bottle Y N / On Cooler Y N
Intact Y N
Signature Match Y N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	SEE ATTACHED
1	TDMW-7	12/12/12	1028	W	X
2	TDMW-8		1039		
3	TDMW-5		1151		
4	TDMW-4D		1404		
5	TDMW-6		1414		
6	TDMW-3D	12/12/12	1542		
7	TDMW-1	12/13/12	1007		
8	TDMW-2D	↓	1034		
9	TDMW-25	12/13/12	~~1059~~ 1107	W	X
10					

12/13/12 AM

LABORATORY USE ONLY H2120241

Custody Record MUST be Signed

Relinquished by (print): Alan Dressbach	Date/Time: 12/14/12 1508	Signature:	Received by (print): / Date/Time: / Signature:
Relinquished by (print):	Date/Time:	Signature:	Received by (print): / Date/Time: / Signature:
Sample Disposal: Return to Client: _____	Lab Disposal: _____		Received by Laboratory: Wanda Johns 12-14-1215

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.
This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

Attachment B: Chain of Custody Forms and Sample Receipt Checklist

Appendix C

Field Forms and Logs

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Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: VBMCBRSW22
PROJECT NUMBER: TO-~~11~~ 13	SAMPLE NUMBER: VBMCBRSW22
LOCATION: UMBC	WEATHER: Cool, gust,
DATE/TIME: 3/24/12 15:30	SAMPLERS: MO, JJ

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
6.97	7.61	669	9.98	92.0	222.9

SAMPLES

	TDS, TSS, Acidity, Alkalinity, Hardness, Carbonate, Bicarbonate, Total Sulfate, Total Chloride, pH, EC	Total Metals	Dissolved Metals, Dissolved Cations
Preservative	No	HNO3	HNO3
Filtered	No	No	Yes
Container	500ml HDPE	250ml HDPE	250ml HDPE

Streambank description: Snow covers

Water flow (circle one): Laminar Stagnant Turbulent Other(describe)

Stream bed description: Rocky, gravely

Water quality description: clear

Duplicate sample is: VBMCBRSW22

Portage

Sediment Sampling Collection Summary

Site: UBMC Date: 3/26/12

Time: 1550 Sampler(s): MD, JJ

Field Sample Id#: UBMCBRSD22 Weather:

Number / Type of Containers this Sample: 1-250ML HDPE

Sampling Method Used: GRAB

Photo: Y, J

Sediment Analyses:

- Total Recoverable Metals (Y / N)

Chain of Custody & Shipping Information:

Hand delivered

Sample Location (latitude / longitude in *deg/min/sec*):

Other Observations: Duplicate sample is UBMCBRSD24

Portage

SITE: UMBC PERSONNEL: MO, JJ

DATE: 3/26/12 Gage Reading: —

TIME: 1610 Gage Time —

Other: DISCHARGE CALCULATED AT OFFICE

UMBCBKSW22

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec) n/s
1	0.1	0	0
2	0.2	0.1	0.06
3	0.3	0.1	0
4	0.4	0.1	0.05
5	0.5	0.1	0.10
6	0.6	0.1	0.31
7	0.7	0	0
8			
9			
10			
11			
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16			
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19			
20			

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: UBMC BRSW01
PROJECT NUMBER: TO-~~11~~ 13	SAMPLE NUMBER: UBMC BRSW01
LOCATION: UMBC	WEATHER: Cool, clear
DATE/TIME: 3/26/13 @ 1600	SAMPLERS: AP., JT

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.30	2.92	127	10.99	80.7	262.4

SAMPLES

	TDS, TSS, Acidity, Alkalinity, Hardness, Carbonate, Bicarbonate, Total Sulfate, Total Chloride, pH, EC	Total Metals	Dissolved Metals, Dissolved Cations
Preservative	No	HNO3	HNO3
Filtered	No	No	Yes
Container	500ml HDPE	250ml HDPE	250ml HDPE

Streambank description: Snow covered

Water flow (circle one): (Laminar) Stagnant Turbulent Other(describe)

Stream bed description: Rocky, gravely

Water quality description: clear

Portage

Sediment Sampling Collection Summary

Site: UBMC Date: 3/26/12

Time: 1650 Sampler(s): MA, TT

Field Sample Id#: UBMC SED01 Weather: clear, cool

Number / Type of Containers this Sample: 1-250ML HDPE

Sampling Method Used: GRAB

Photo: Y

Sediment Analyses:

- Total Recoverable Metals (Y / N)

Chain of Custody & Shipping Information:

Hand delivered

Sample Location (latitude / longitude in *deg/min/sec*):

Other Observations:

Portage

SITE: UMBC PERSONNEL: AO, JJ

DATE: 3/26/12 Gage Reading: —

TIME: 1200 Gage Time —

Other: DISCHARGE CALCULATED AT OFFICE

UBMC BRSW01

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1	0.6	0.1	0
2	1.0	0.1	1.07
3	1.4	0.2	1.48
4	1.8	0.2	0.08
5	2.2	0.1	0.19
6	2.6	0.2	1.21
7	3.0	0.2	1.01
8	3.4	0.2	1.52
9	3.8	0.3	1.64
10	4.2	0.3	2.01
11	4.6	0.2	1.05
12	4.8	0	0
13			
14			
15			
16			
17			
18			
19			
20			

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: UBMCBRSW02
PROJECT NUMBER: TO-~~11~~ 13	SAMPLE NUMBER: UBMCBRSW02
LOCATION: UMBC	WEATHER: clear, wet
DATE/TIME: 3/26/12 @ 1025	SAMPLERS: AP, JJ

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
6.60	0.27	466	10.4	21.9	253

SAMPLES

	TDS, TSS, Acidity, Alkalinity, Hardness, Carbonate, Bicarbonate, Total Sulfate, Total Chloride, pH, EC	Total Metals	Dissolved Metals, Dissolved Cations
Preservative	No	HNO3	HNO3
Filtered	No	No	Yes
Container	500ml HDPE	250ml HDPE	250ml HDPE

Streambank description: Snow covered

Water flow (circle one): (Laminar) Stagnant Turbulent Other(describe)

Stream bed description: Rock, gravel

Water quality description: clear

Portage

Sediment Sampling Collection Summary

Site: UBMC Date: 3/26/12

Time: 1725 Sampler(s): AP, JT

Field Sample Id#: UBMC BICSM2 Weather: Clear, cool

Number / Type of Containers this Sample: 1-250ML HDPE

Sampling Method Used: GRAB

Photo: Y

Sediment Analyses:

- Total Recoverable Metals (Y / N)

Chain of Custody & Shipping Information:

Hand delivered

Sample Location (latitude / longitude in *deg/min/sec*):

Other Observations:

Portage

Daily Contractor Quality Control Summary

Date: 3/21/12

Samples packed on ice?	(Y) / N
Chain of custody complete?	(Y) / N
Is sample custody secured?	(Y) / N
Sampling procedures used properly?	(Y) / N

Describe any deviations that occurred during field activities due to site conditions:

Were these deviations detrimental to sampling (explain)?

3/21/12 MD

Other observations:

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: UBAC BRSW38
PROJECT NUMBER: TO-~~11~~ 17	SAMPLE NUMBER: UBAC BRSW38
LOCATION: UMBC	WEATHER: Cool, calm, clear
DATE/TIME: 3/28/12 @ 0950	SAMPLERS: AD, TJ

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
6.98	0.77	258	11.37	79.7	131.9

SAMPLES

	TDS, TSS, Acidity, Alkalinity, Hardness, Carbonate, Bicarbonate, Total Sulfate, Total Chloride, pH, EC	Total Metals	Dissolved Metals, Dissolved Cations
Preservative	No	HNO3	HNO3
Filtered	No	No	Yes
Container	500ml HDPE	250ml HDPE	250ml HDPE

Streambank description: Snowcovered

Water flow (circle one): Laminar Stagnant Turbulent Other(describe)

Stream bed description: Rock/Gravel

Water quality description: Clear

Portage

Sediment Sampling Collection Summary

Site: UBMC Date: 3/21/12

Time: 0950 Sampler(s): AO, JT

Field Sample Id#: UBMCBRM13P Weather: Clear, cool, calm

Number / Type of Containers this Sample: 1-250ML HDPE

Sampling Method Used: GRAB

Photo: X, Y

Sediment Analyses:

- Total Recoverable Metals (Y) / N)

Chain of Custody & Shipping Information:

Hand delivered

Sample Location (latitude / longitude in *deg/min/sec*):

Other Observations:

Portage

SITE: UMBC PERSONNEL: AD, JJ

DATE: 3/22/17 Gage Reading: —

TIME: 0900 Gage Time —

Other: DISCHARGE CALCULATED AT OFFICE

UBMCBRS43P

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1	1.5	0.2	0.25
2	2.0	0.2	0.42
3	2.5	0.2	0.41
4	3.0	0.3	0.65
5	3.5	0.3	1.51
6	4.0	0.3	1.14
7	4.5	0.3	0.92
8	5.0	0.4	1.42
9	5.5	0.4	1.51
10	6.0	0.4	0.73
11	6.5	0.4	1.51
12	7.0	0.4	0.63
13	7.5	0.2	0.44
14	7.0	0.2	0
15	P.4	0	0
16			
17			
18			
19			
20			

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: UBMCBRSWYP
PROJECT NUMBER: TO-~~11~~ 19	SAMPLE NUMBER: UBMCBRSWYP
LOCATION: UMBC	WEATHER: clear, calm, cool
DATE/TIME: 3/27/2015	SAMPLERS: AD, JJ

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
6.65	2.16	269	11.45	93.2	97.2

SAMPLES

	TDS, TSS, Acidity, Alkalinity, Hardness, Carbonate, Bicarbonate, Total Sulfate, Total Chloride, pH, EC	Total Metals	Dissolved Metals, Dissolved Cations
Preservative	No	HNO3	HNO3
Filtered	No	No	Yes
Container	500ml HDPE	250ml HDPE	250ml HDPE

Streambank description: Snow covered

Water flow (circle one): Laminar Stagnant Turbulent Other(describe)

Stream bed description: Rock/Gravel

Water quality description: Clear

Portage

Sediment Sampling Collection Summary

Site: UBMC Date: 3/27/12

Time: 1005 Sampler(s): AD, JT

Field Sample Id#: Weather: Clear, calm, cool

Number / Type of Containers this Sample: 1-250ML HDPE

Sampling Method Used: GRAB

Photo: Yes

Sediment Analyses:

- Total Recoverable Metals (Y) / N)

Chain of Custody & Shipping Information:

Hand delivered

Sample Location (latitude / longitude in *deg/min/sec*):

Other Observations:

Portage

SITE: UMBC

PERSONNEL: NO, JJ

DATE: 3/22/12

Gage Reading: —

TIME: 1015

Gage Time —

Other: DISCHARGE CALCULATED AT OFFICE

UBMC BRSW 49

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1	3	0	0
2	3.5	0.4	0.35
3	4.0	0.2	0.39
4	4.5	0.3	0.31
5	5	0.4	1.01
6	5.5	0.4	0.24
7	6	0.4	0.33
8	6.5	0.3	0.15
9	7	0.3	0.09
10	7.5	0.2	0.27
11	8	0.2	0.44
12	8.5	0.1	0.30
13	9	0.1	0
14	9.5	0.1	0
15	10	0	0
16			
17			
18			
19			
20			

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: UBMC BRSW 23
PROJECT NUMBER: TO-~~11~~13	SAMPLE NUMBER: UBMCBRSW23
LOCATION: UMBC	WEATHER: Clear, cold, cool
DATE/TIME: 3/22/12	SAMPLERS: KO, TJ

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.32	2.48	232	11.42	84.2	104.6

SAMPLES

	TDS, TSS, Acidity, Alkalinity, Hardness, Carbonate, Bicarbonate, Total Sulfate, Total Chloride, pH, EC	Total Metals	Dissolved Metals, Dissolved Cations
Preservative	No	HNO3	HNO3
Filtered	No	No	Yes
Container	500ml HDPE	250ml HDPE	250ml HDPE

Streambank description: Snow covered

Water flow (circle one): Laminar Stagnant Turbulent Other(describe)

Stream bed description: Gravel / Rock

Water quality description: Clear

Portage

Sediment Sampling Collection Summary

Site: UBMC
Date: 3/27/12
Time:
Sampler(s): KA, JJ
Field Sample Id#:
Weather: Clear, cold
Number / Type of Containers this Sample: 1-250ML HDPE

Sampling Method Used: GRAB
Photo: Y

Sediment Analyses:

- Total Recoverable Metals (Y / N)

Chain of Custody & Shipping Information:
Hand delivered

Sample Location (latitude / longitude in *deg/min/sec*):

Other Observations:

Portage

SITE: UMBC PERSONNEL: AD, JT

DATE: 3/20/12 Gage Reading: —

TIME: 1045 Gage Time —

Other: DISCHARGE CALCULATED AT OFFICE

UBMC BRSW 23

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1	2.4	0	0
2	2.7	0.1	0
3	3.0	0.4	0
4	3.3	0.4	0.8
5	3.6	0.4	3.35
6	3.9	0.5	2.27
7	4.2	0.5	0.53
8	4.5	0.3	0.03
9	4.8	0.3	0.04
10	5.1	0.3	0.20
11	5.4	0.3	0.38
12	5.7	0.1	0
13	6.0	0	0
14			
15			
16			
17			
18			
19			
20			

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: UMBC BRSW3A
PROJECT NUMBER: TO-~~11~~ 13	SAMPLE NUMBER: UMBC BRSW3A
LOCATION: UMBC	WEATHER: Cool, cold, clear
DATE/TIME: 3/26/12 @ 1055	SAMPLERS: AD, JJ

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.27	6.09	391	9.93	76	105.6

SAMPLES

	TDS, TSS, Acidity, Alkalinity, Hardness, Carbonate, Bicarbonate, Total Sulfate, Total Chloride, pH, EC	Total Metals	Dissolved Metals, Dissolved Cations
Preservative	No	HNO3	HNO3
Filtered	No	No	Yes
Container	500ml HDPE	250ml HDPE	250ml HDPE

Streambank description: Some woody

Water flow (circle one): Laminar Stagnant Turbulent Other(describe)

Stream bed description: Rock / Gravel / Muck

Water quality description: clear

Portage

Sediment Sampling Collection Summary

Site: UBMC Date: 3/22/12

Time: 1055 Sampler(s): AL, JT

Field Sample Id#: UBMCBKFD3A Weather: Clear, wool, cold

Number / Type of Containers this Sample: 1-250ML HDPE

Sampling Method Used: GRAB

Photo: Y, 1

Sediment Analyses:

- Total Recoverable Metals (Y / N)

Chain of Custody & Shipping Information:

Hand delivered

Sample Location (latitude / longitude in *deg/min/sec*):

Other Observations:

Portage

SITE: UMBC

PERSONNEL: IAD, JJ

DATE: 3/22/12

Gage Reading: —

TIME: 1100

Gage Time —

Other: DISCHARGE CALCULATED AT OFFICE

VBAC BRSW3A

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1	0-6	0.2	.67
2	V 4		
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
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18			
19			
20			

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: UBMCBKSW3B
PROJECT NUMBER: TO-11	SAMPLE NUMBER: UBMCBKSW3B
LOCATION: UMBC	WEATHER: cool, clear, calm
DATE/TIME: 3/22/12	SAMPLERS: AO, JT

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.07	5.48	0.395	4.47	35.7	109.4

SAMPLES

	TDS, TSS, Acidity, Alkalinity, Hardness, Carbonate, Bicarbonate, Total Sulfate, Total Chloride, pH, EC	Total Metals	Dissolved Metals, Dissolved Cations
Preservative	No	HNO3	HNO3
Filtered	No	No	Yes
Container	500ml HDPE	250ml HDPE	250ml HDPE

Streambank description: Low grass

Water flow (circle one): (Laminar) Stagnant Turbulent Other(describe)

Stream bed description: Gravel

Water quality description: clear

Portage

Sediment Sampling Collection Summary

Site: UBMC
Date: 3/22/12
Time: 1115
Sampler(s): KAD, TJ
Field Sample Id#:
Weather: Clear, calm, cold
Number / Type of Containers this Sample: 1-250ML HDPE

Sampling Method Used: GRAB
Photo: Yes

Sediment Analyses:

- Total Recoverable Metals (Y)/ N)

Chain of Custody & Shipping Information:
Hand delivered

Sample Location (latitude / longitude in *deg/min/sec*):

Other Observations:

Portage

SITE: UMBC PERSONNEL: AD, JJ

DATE: 3/27/12 Gage Reading: —

TIME: 1120 Gage Time —

Other: DISCHARGE CALCULATED AT OFFICE

UBMC BRSW 3B

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1	0-1	0.1	0.17
2	Koval	YP	CAP
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Portage

Daily Contractor Quality Control Summary

Date: 3/27/12

Samples packed on ice? (Y) / N
Chain of custody complete? (Y) / N
Is sample custody secured? (Y) / N
Sampling procedures used properly? (Y) / N

Describe any deviations that occurred during field activities due to site conditions:

Were these deviations detrimental to sampling (explain)?

3/27/12

Other observations:

Portage

Groundwater Sampling Collection Summary

Site: MDEQ - UBMC Date: 3/29/12

Time: 0845 Sampler(s): MB, JT

Field Sample Id#: UBMCTOMW05 Weather: Cloudy, cold

Preservative(s): HNO3 FOR DISOLVED METALS, COOL ON ICE

Number / Type of Containers this Sample: 1-500ML HDPE, 1-250ML HDPE

Sampling Method Used: BLADDER PUMP

Photo: Y, I

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
8.17	3.72	202	9.65	73.7	190.7
8.13	3.96	201	9.55	73.0	190.5
8.18	4.04	202	9.46	72.4	191.2
8.19	4.11	203	9.34	71.7	191.7

SAMPLES

	TDS, TSS, Hardness, Total Sulfate, Total Chloride, pH, EC	Dissolved Metals, Dissolved Cations
Preservative	No	HNO_3
Filtered	No	Yes
Container	500ml HDPE	250ml HDPE

Water Table Information

Total Depth (Top of casing to bottom of well)	Static Water Level (Top of Casing to water level)	Stick Up (Top of casing to ground surface)	Water Column	Volume Purged
96.0'	73.9'	—	—	0.5L

Transducer Downloaded: NA

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Hand delivered

Portage

Groundwater Sampling Collection Summary

Site: MDEQ - UBMC Date: 3/29/12

Time: 1105 Sampler(s): AD, JJ

Field Sample Id#: UBMCTDMW4D Weather: Cloudy, cold

Preservative(s): HNO3 FOR DISOLVED METALS, COOL ON ICE

Number / Type of Containers this Sample: 1-500ML HDPE, 1-250ML HDPE

Duplicate sample is UBMCTDMW06

Sampling Method Used: BLADDER PUMP

Photo: Y

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.38	5.20	232	9.98	28.5	214.8
7.40	5.21	233	9.92	28.2	217.1
7.39	5.19	233	9.87	28.1	217.9
7.39	5.18	231	9.85	28.1	217.9

SAMPLES

	TDS, TSS, Hardness, Total Sulfate, Total Chloride, pH, EC	Dissolved Metals, Dissolved Cations
Preservative	No	HNO3
Filtered	No	Yes
Container	500ml HDPE	250ml HDPE

Water Table Information

Total Depth (Top of casing to bottom of well)	Static Water Level (Top of Casing to water level)	Stick Up (Top of casing to ground surface)	Water Column	Volume Purged
61.6'	35.31'	—	—	~5L

Transducer Downloaded: Y

Sample Location (latitude / longitude in *deg/min/sec*):

—

Chain of Custody Form Number & Shipping Information:

Hand delivered

Portage

Groundwater Sampling Collection Summary

Site: MDEQ - UBMC Date: 3/29/12

Time: 1330 Sampler(s): AD, JT

Field Sample Id#: UBMCTMW30 Weather: Cloudy, cool

Preservative(s): HNO3 FOR DISOLVED METALS, COOL ON ICE

Number / Type of Containers this Sample: 1-500ML HDPE, 1-250ML HDPE

Sampling Method Used: BLADDER PUMP

Photo: Y

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.31	5.16	641	8.31	70.4	227.6
7.31	5.18	641	8.11	70.1	227.7
7.32	5.21	642	8.10	69.7	227.3
7.32	5.21	642	8.07	~~mg/l~~ 69.7	227.2

SAMPLES

	TDS, TSS, Hardness, Total Sulfate, Total Chloride, pH, EC	Dissolved Metals, Dissolved Cations
Preservative	No	HNO_3
Filtered	No	Yes
Container	500ml HDPE	250ml HDPE

Water Table Information

Total Depth (Top of casing to bottom of well)	Static Water Level (Top of Casing to water level)	Stick Up (Top of casing to ground surface)	Water Column	Volume Purged
56.20	45.75	—	—	2.5L

Transducer Downloaded: NA

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Hand delivered

Portage

Groundwater Sampling Collection Summary

Site: MDEQ - UBMC Date: 3/29/12

Time: 1515 Sampler(s): KD, JS

Field Sample Id#: VBAC TOMW01 Weather: Cloudy, cool

Preservative(s): HNO3 FOR DISOLVED METALS, COOL ON ICE

Number / Type of Containers this Sample: 1-500ML HDPE, 1-250ML HDPE

Sampling Method Used: BLADDER PUMP

Photo: Y

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
6.34	6.57	845	6.92	55.7	229.3
6.34	6.56	845	6.80	55.6	229.3
6.33	6.55	845	6.79	55.5	229.3
6.34	6.54	845	6.77	55.4	229.4

SAMPLES

	TDS, TSS, Hardness, Total Sulfate, Total Chloride, pH, EC	Dissolved Metals, Dissolved Cations
Preservative	No	HNO_3
Filtered	No	Yes
Container	500ml HDPE	250ml HDPE

Water Table Information

Total Depth (Top of casing to bottom of well)	Static Water Level (Top of Casing to water level)	Stick Up (Top of casing to ground surface)	Water Column	Volume Purged
35.26'	15.10'	—	—	2 GL

Transducer Downloaded: Y

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Hand delivered

Portage

Groundwater Sampling Collection Summary

Site: MDEQ - UBMC Date: 3/22/12

Time: 1530 Sampler(s): AP, JS

Field Sample Id#: TOMW2D Weather: Windy, cool

Preservative(s): HNO3 FOR DISOLVED METALS, COOL ON ICE

Number / Type of Containers this Sample: 1-500ML HDPE, 1-250ML HDPE

Sampling Method Used: BLADDER PUMP

Photo: Y, N

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
Temp pH 6.73	7.03	244	6.07	49.8	226.2
6.54	7.11	245	6.05	49.6	220.5
6.76	7.14	243	6.04	49.2	218.2
6.75	7.17	243	5.99	49.3	217.8

SAMPLES

	TDS, TSS, Hardness, Total Sulfate, Total Chloride, pH, EC	Dissolved Metals, Dissolved Cations
Preservative	No	HNO_3
Filtered	No	Yes
Container	500ml HDPE	250ml HDPE

Water Table Information

Total Depth (Top of casing to bottom of well)	Static Water Level (Top of Casing to water level)	Stick Up (Top of casing to ground surface)	Water Column	Volume Purged
39.0'	12.65'	—	—	7.5L

Transducer Downloaded: Y, N

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Hand delivered

Portage

Groundwater Sampling Collection Summary

Site: MDEQ - UBMC Date: 3/27/12

Time: UBMCTDMW25 1555 Sampler(s): MD, JT

Field Sample Id#: UBMCTDMW25 Weather: c/o - 2, 0001

Preservative(s): HNO3 FOR DISOLVED METALS, COOL ON ICE

Number / Type of Containers this Sample: 1-500ML HDPE, 1-250ML HDPE

Sampling Method Used: BLADDER PUMP

Photo: Y, /

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
6.35	5.45	1260	0.82	6.6	230.4
6.34	5.46	1274	0.81	6.5	230.5
6.35	5.45	1277	0.77	6.4	230.3
6.34	5.42	1298	0.78	6.3	230.6

SAMPLES

	TDS, TSS, Hardness, Total Sulfate, Total Chloride, pH, EC	Dissolved Metals, Dissolved Cations
Preservative	No	HNO_3
Filtered	No	Yes
Container	500ml HDPE	250ml HDPE

Water Table Information

Total Depth (Top of casing to bottom of well)	Static Water Level (Top of Casing to water level)	Stick Up (Top of casing to ground surface)	Water Column	Volume Purged
20.30'	13.33'	—	—	2.5L

Transducer Downloaded: Y, /

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Hand delivered

Portage

Daily Contractor Quality Control Summary

Date: 3/29/12

Samples packed on ice?	(Y) / N
Chain of custody complete?	(Y) / N
Is sample custody secured?	(Y) / N
Sampling procedures used properly?	(Y) / N

Describe any deviations that occurred during field activities due to site conditions:

Were these deviations detrimental to sampling (explain)?

Other observations:

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: UBMCBKSW3P
PROJECT NUMBER: TO-~~11~~ 13	SAMPLE NUMBER: UBMCBKSW38
LOCATION: UMBC	WEATHER: Clear, cool
DATE/TIME: 5/12/22 @ 1109	SAMPLERS: KD, BM

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
6.91	4.54	224	11.3	89.0	182.6

SAMPLES

	TDS, TSS, Acidity, Alkalinity, Hardness, Carbonate, Bicarbonate, Total Sulfate, Total Chloride, pH, EC	Total Metals	Dissolved Metals, Dissolved Cations
Preservative	No	HNO3	HNO3
Filtered	No	No	Yes
Container	500ml HDPE	250ml HDPE	250ml HDPE

Streambank description: Trees, river rock

Water flow (circle one): (Laminar) Stagnant Turbulent Other(describe)

Stream bed description: Gravel / rock

Water quality description: clear

Portage

Sediment Sampling Collection Summary

Site: ~~Section 35~~ UBMC Date: 5/3/12

Time: 1009 Sampler(s): AD, BM

Field Sample Id#: UBMCBKCD38 Weather: Clear, cool

Number / Type of Containers this Sample: 1-250ML HDPE

Sampling Method Used: GRAB

Photo: Yes

Sediment Analyses:

- Total Recoverable Metals (Y / N)

Chain of Custody & Shipping Information:

Hand delivered

Sample Location (latitude / longitude in *deg/min/sec*):

Other Observations:

Portage

SITE: UMBC PERSONNEL: AO, BM

DATE: 5/6/12 Gage Reading: —

TIME: 1022 Gage Time —

Other: DISCHARGE CALCULATED AT OFFICE

UMCBRW38

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1 2.8	0	0	0
2 3.1		.1	.36
3 3.8		.2	.66
4 4.3		.3	1.47
5 4.8		.4	1.09
6 5.3		.4	1.44
7 5.8		.5	2.12
8 6.3		.5	2.41
9 6.8		.6	2.26
10 7.3		.6	2.41
11 7.8		.6	2.41
12 8.3		.4	2.42
13 8.8		.5	2.03
14 9.3		.5	1.72
15 9.8		.4	1.01
16 10.3		.3	1.41
17 10.8		.3	0.36
18 11.3		.1	0
19 11.8		.1	0
20 12.3		0	0

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: UMC BRSW 47
PROJECT NUMBER: TO-~~11~~ 13	SAMPLE NUMBER: UMC BRSW 47
LOCATION: UMBC	WEATHER: Cloudy, cool
DATE/TIME: 5/3/12 @ 1142	SAMPLERS: IAD, BM

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.34	6.18	232	10.44	85.6	105.9

SAMPLES

	TDS, TSS, Acidity, Alkalinity, Hardness, Carbonate, Bicarbonate, Total Sulfate, Total Chloride, pH, EC	Total Metals	Dissolved Metals, Dissolved Cations
Preservative	No	HNO3	HNO3
Filtered	No	No	Yes
Container	500ml HDPE	250ml HDPE	250ml HDPE

Streambank description: Rocky / Tailings

Water flow (circle one): (Laminar) Stagnant Turbulent Other(describe)

Stream bed description: Gravel / rocks

Water quality description: Clear / slightly turbid

Portage

Sediment Sampling Collection Summary

Site: ~~Section 35~~ UBMC Date: 3/30/12

Time: 1142 Sampler(s): KP, BM

Field Sample Id#: UBMCRRSD42 Weather: Clear, cool

Number / Type of Containers this Sample: 1-250ML HDPE

Sampling Method Used: GRAB

Photo: Y, /

Sediment Analyses:

- Total Recoverable Metals (Y / N)

Chain of Custody & Shipping Information:

Hand delivered

Sample Location (latitude / longitude in *deg/min/sec*):

Other Observations:

Portage

SITE: UMBC PERSONNEL: AL, BM

DATE: 5/21/12 Gage Reading: —

TIME: 1142 Gage Time —

Other: DISCHARGE CALCULATED AT OFFICE

URNCHKSWYP

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1	4.4	0	0
2	4.9	0.4	0.64
3	5.4	0.5	1.35
4	5.9	0.6	2.11
5	6.4	0.6	1.62
6	6.9	0.6	1.93
7	7.4	0.5	1.34
8	7.9	0.5	0.91
9	8.4	0.5	1.01
10	8.9	0.5	1.19
11	9.4	0.7	1.69
12	9.9	0.5	0.29
13	10.4	0.5	0.78
14	10.9	0.5	0.02
15	11.4	0	0
16			
17			
18			
19			
20			

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: UBMC BRSW23
PROJECT NUMBER: TO-~~11~~ 13	SAMPLE NUMBER: UBMC BRSW23
LOCATION: UMBC	WEATHER: clear, cool
DATE/TIME: 5/7/12 @ 1220	SAMPLERS: AO, RA

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.52	7.03	229	10.87	89.6	152.9

SAMPLES

	TDS, TSS, Acidity, Alkalinity, Hardness, Carbonate, Bicarbonate, Total Sulfate, Total Chloride, pH, EC	Total Metals	Dissolved Metals, Dissolved Cations
Preservative	No	HNO3	HNO3
Filtered	No	No	Yes
Container	500ml HDPE	250ml HDPE	250ml HDPE

Streambank description: Rocky

Water flow (circle one): (Laminar) Stagnant Turbulent Other(describe)

Stream bed description: Gravel/rock

Water quality description: slightly turbid

Portage

Sediment Sampling Collection Summary

Site: ~~Section 35~~ VBAC Date: 5/2/12

Time: 1225 Sampler(s): KP, BA

Field Sample Id#: VBACBKSD23 Weather: Clear, cool

Number / Type of Containers this Sample: 1-250ML HDPE

Sampling Method Used: GRAB

Photo: Y

Sediment Analyses:

- Total Recoverable Metals (Y / N)

Chain of Custody & Shipping Information:

Hand Delivered

Sample Location (latitude / longitude in *deg/min/sec*):

Other Observations:

Portage

SITE: UMBC PERSONNEL: IAP, BM

DATE: 5/7/12 Gage Reading: —

TIME: 1220 Gage Time —

Other: DISCHARGE CALCULATED AT OFFICE

VBmC BMJW23

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1	2.6	0	0
2	3.2	.3	.23
3	3.8	.5	.14
4	4.4	.3	.33
5	5.0	.4	.87
6	5.6	.5	1.72
7	6.2	.5	2.57
8	6.8	.5	3.22
9	7.4	.5	2.44
10	8.0	.4	1.88
11	8.6	.3	1.21
12	9.2	.3	1.54
13	9.8	.2	0.72
14	10.4	.3	0.10
15	11.0	.3	1.04
16	11.6	0	0
17	12.2	0	0
18			
19			
20			

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: UMBCBRSW3A
PROJECT NUMBER: TO-~~11~~13	SAMPLE NUMBER: UBMCBRSW3A
LOCATION: UMBC	WEATHER: Clear, cool
DATE/TIME: 5/7/12 @ 1245	SAMPLERS: AM, BM

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.08	7.53	336	10.91	91.0	120.1

SAMPLES

	TDS, TSS, Acidity, Alkalinity, Hardness, Carbonate, Bicarbonate, Total Sulfate, Total Chloride, pH, EC	Total Metals	Dissolved Metals, Dissolved Cations
Preservative	No	HNO3	HNO3
Filtered	No	No	Yes
Container	500ml HDPE	250ml HDPE	250ml HDPE

Streambank description: Rocky

Water flow (circle one): ~~Laminar~~ Stagnant Turbulent Other(describe)

Stream bed description: Gravel, Muck

Water quality description: clear

Portage

Sediment Sampling Collection Summary

Site: ~~Section 35~~ VBMC Date: 5/2/17

Time: 12:52 Sampler(s): AO, AM

Field Sample Id#: VBMCBKFD3A Weather: clear, cool

Number / Type of Containers this Sample: 1-250ML HDPE

Sampling Method Used: GRAB

Photo: N/A

Sediment Analyses:

- Total Recoverable Metals (Y / N)

Chain of Custody & Shipping Information:

Hand delivered

Sample Location (latitude / longitude in *deg/min/sec*):

Other Observations:

Portage

SITE: UMBC

PERSONNEL: AP, BM

DATE: 5/2/12

Gage Reading: —

TIME: 1252

Gage Time —

Other: DISCHARGE CALCULATED AT OFFICE

UBMC BRSW3A

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1	8.6	.1	.32
2	9.0	.1	.18
3	9.4	.2	.66
4	9.8	.2	.36
5	10.2	.3	.13
6	10.6	.3	.19
7	11.0	.3	.61
8	11.4	.6	.56
9	11.8	.6	.10
10	12.2	.6	0
11	12.6	.5	.42
12	13.0	0	0
13			
14			
15			
16			
17			
18			
19			
20			

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BRSW3B
PROJECT NUMBER: TO-~~11~~ 13	SAMPLE NUMBER: UBMCBRSW3B
LOCATION: UMBC	WEATHER: Clear, cool
DATE/TIME: 5/2/12 @ 1315	SAMPLERS: AD, BM

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.11	5.05	241	10.06	79.0	163.2

SAMPLES

	TDS, TSS, Acidity, Alkalinity, Hardness, Carbonate, Bicarbonate, Total Sulfate, Total Chloride, pH, EC	Total Metals	Dissolved Metals, Dissolved Cations
Preservative	No	HNO3	HNO3
Filtered	No	No	Yes
Container	500ml HDPE	250ml HDPE	250ml HDPE

Streambank description: 4?" dia CMP

Water flow (circle one): Laminar Stagnant Turbulent Other(describe)

Stream bed description: NA - Ground at culvert discharge

Water quality description: Clear

Portage

Sediment Sampling Collection Summary

Site: ~~Section 35~~ UBMC Date: 5/3/12

Time: 1315 Sampler(s): AD, BM

Field Sample Id#: UBMCBMSD3B Weather: [illegible]

Number / Type of Containers this Sample: 1-250ML HDPE

Sampling Method Used: GRAB

Photo: Yes

Sediment Analyses:

- Total Recoverable Metals (Y / N)

Chain of Custody & Shipping Information:

Hand delivered

Sample Location (latitude / longitude in *deg/min/sec*):

Other Observations:

Portage

SITE: UMBC PERSONNEL: MD, BD

DATE: 5/2/12 Gage Reading: —

TIME: 1215 Gage Time —

Other: DISCHARGE CALCULATED AT OFFICE

UBMCBRSW3B

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1	0 - 1.1	.2	3.65
2			
3	48" CAP		
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BRSW2
PROJECT NUMBER: TO~~-11~~ 13	SAMPLE NUMBER: UMBC BRSW2
LOCATION: UMBC	WEATHER: clear, cool
DATE/TIME: 7/3/12 @ 1355	SAMPLERS: AB, AM

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.13	25.6	2362	10.19	95.8	136.2

SAMPLES

	TDS, TSS, Acidity, Alkalinity, Hardness, Carbonate, Bicarbonate, Total Sulfate, Total Chloride, pH, EC	Total Metals	Dissolved Metals, Dissolved Cations
Preservative	No	HNO3	HNO3
Filtered	No	No	Yes
Container	500ml HDPE	250ml HDPE	250ml HDPE

Streambank description: tailings

Water flow (circle one): Laminar (Stagnant) Turbulent Other(describe)

Stream bed description: Tailings

Water quality description: clear

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BRSW 22
PROJECT NUMBER: TO-~~11~~ 13	SAMPLE NUMBER: UMBCBRSW22
LOCATION: UMBC	WEATHER: Clear, cool
DATE/TIME: 5/2/12 @ 1510	SAMPLERS: AM, BA

Field Duplicate is UMBC BRSW24

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.5	7.67	213	9.77	81.6	173.4

SAMPLES

	TDS, TSS, Acidity, Alkalinity, Hardness, Carbonate, Bicarbonate, Total Sulfate, Total Chloride, pH, EC	Total Metals	Dissolved Metals, Dissolved Cations
Preservative	No	HNO3	HNO3
Filtered	No	No	Yes
Container	500ml HDPE	250ml HDPE	250ml HDPE

Streambank description: Gravel / Rock

Water flow (circle one): (Laminar) Stagnant Turbulent Other(describe)

Stream bed description: Gravel / Rock

Water quality description: clear

Portage

Sediment Sampling Collection Summary

Site: UBMC | Date: 5/3/12 @ 1510
Time: 1510 | Sampler(s): AD, BM
Field Sample Id#: VBMCBRSD22 | Weather: Clear, wet
Number / Type of Containers this Sample: 1-250ML HDPE

Sampling Method Used: GRAB
Photo: Yes

Sediment Analyses:

- Total Recoverable Metals (Y / N)

Chain of Custody & Shipping Information:
Hand delivered

Sample Location (latitude / longitude in *deg/min/sec*):

Other Observations: duplicate sample is VBMCBRSD24

Portage

SITE: UMBC

PERSONNEL: AD, BB

DATE: 5/2/12

Gage Reading: —

TIME: 1510

Gage Time —

Other: DISCHARGE CALCULATED AT OFFICE

UBMC BKSV22

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1	3.4	0	0
2	3.7	.6	0.1
3	4.0	.6	.91
4	4.3	.6	.79
5	4.6	.2	.79
6	4.9	.6	1.19
7	5.2	.4	1.13
8	5.5	.2	0
9	5.8	0	0
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Portage

Daily Contractor Quality Control Summary

Date: 5/1/12

Samples packed on ice?	(Y) / N
Chain of custody complete?	(Y) / N
Is sample custody secured?	(Y) / N
Sampling procedures used properly?	(Y) / N

Describe any deviations that occurred during field activities due to site conditions:

Were these deviations detrimental to sampling (explain)?

Other observations:

Portage

Groundwater Sampling Collection Summary

Site: MDEQ - UBMC Date: 5/9/12

Time: 1325 Sampler(s): KD, BM

Field Sample Id#: UBMCTDMW5 Weather: Cloudy, cool

Preservative(s): HNO3 FOR DISOLVED METALS, COOL ON ICE

Number / Type of Containers this Sample: 1-500ML HDPE, 1-250ML HDPE

Sampling Method Used: BLADDER PUMP

Photo: Yes

WATER QUALITY PARAMETERS

~~pH (SU)~~ T	~~Temperature~~ (°C) pH	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
9.20	9.21	126	11.41	99.5	173.2
9.22	9.00	124	11.41	99.0	181.0
9.22	8.01	126	11.40	99.1	181.6

SAMPLES

	TDS, TSS, Hardness, Total Sulfate, Total Chloride, pH, EC	Dissolved Metals, Dissolved Cations
Preservative	No	HNO_3
Filtered	No	Yes
Container	500ml HDPE	250ml HDPE

Water Table Information

Total Depth (Top of casing to bottom of well)	Static Water Level (Top of Casing to water level)	Stick Up (Top of casing to ground surface)	Water Column	Volume Purged
121.01	65.81'	—	—	None

Transducer Downloaded: NA

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Hand Delivered

Portage

Groundwater Sampling Collection Summary

Site: MDEQ - UBMC Date: 5/1/12 AD

Time: 1541 Sampler(s): AD, BM

Field Sample Id#: UBMCMW49 Weather: Lt. cloudy, cool

Preservative(s): HNO3 FOR DISOLVED METALS, COOL ON ICE

Number / Type of Containers this Sample: 1-500ML HDPE, 1-250ML HDPE

Sampling Method Used: BLADDER PUMP

Photo: Yes

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.52	7.99	124	10.64	90.1	154.9
7.45	8.07	124	10.51	89.0	155.1
7.42	8.11	126	10.56	89.4	154.8
7.42	8.07	126	10.67	89.9	154.1

SAMPLES

	TDS, TSS, Hardness, Total Sulfate, Total Chloride, pH, EC	Dissolved Metals, Dissolved Cations
Preservative	No	HNO_3
Filtered	No	Yes
Container	500ml HDPE	250ml HDPE

Water Table Information

Total Depth (Top of casing to bottom of well)	Static Water Level (Top of Casing to water level)	Stick Up (Top of casing to ground surface)	Water Column	Volume Purged
61.2'	36.15'	—	—	1.6L

Transducer Downloaded: — from Lower Application

Sample Location (latitude / longitude in *deg/min/sec*):

—

Chain of Custody Form Number & Shipping Information:

Not delivered

Portage

Groundwater Sampling Collection Summary

Site: MDEQ - UBMC Date: 5/9/12

Time: 1640 Sampler(s): KAD., MM

Field Sample Id#: UBMCTDMW3D Weather: Part. cloudy, cool

Preservative(s): HNO3 FOR DISOLVED METALS, COOL ON ICE

Number / Type of Containers this Sample: 1-500ML HDPE, 1-250ML HDPE

Sampling Method Used: BLADDER PUMP

Photo: Y

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
6.70	6.77	448	9.53	78.1	181.2
6.71	6.85	452	9.58	78.7	181.7
6.72	6.88	455	9.69	79.5	182.4

SAMPLES

	TDS, TSS, Hardness, Total Sulfate, Total Chloride, pH, EC	Dissolved Metals, Dissolved Cations
Preservative	No	HNO_3
Filtered	No	Yes
Container	500ml HDPE	250ml HDPE

Water Table Information

Total Depth (Top of casing to bottom of well)	Static Water Level (Top of Casing to water level)	Stick Up (Top of casing to ground surface)	Water Column	Volume Purged
59.7	45.92	—	—	~5L

Transducer Downloaded: NA

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Hand Delivered

Portage

Groundwater Sampling Collection Summary

Site: MDEQ - UBMC Date: 5/9/12

Time: 1250 Sampler(s): AP., BM

Field Sample Id#: UBMC TOMW2 Weather: Pt. Cloudy, cool

Preservative(s): HNO3 FOR DISOLVED METALS, COOL ON ICE

Number / Type of Containers this Sample: 1-500ML HDPE, 1-250ML HDPE

Sampling Method Used: BLADDER PUMP

Photo: Y

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
6.07	7.01	557	6.07	70.2	189.4
6.07	7.02	556	5.99	69.5	189.9
6.07	7.07	555	5.94	68.9	190.2

SAMPLES

	TDS, TSS, Hardness, Total Sulfate, Total Chloride, pH, EC	Dissolved Metals, Dissolved Cations
Preservative	No	HNO_3
Filtered	No	Yes
Container	500ml HDPE	250ml HDPE

Water Table Information

Total Depth (Top of casing to bottom of well)	Static Water Level (Top of Casing to water level)	Stick Up (Top of casing to ground surface)	Water Column	Volume Purged
35.5'	11.39'	—	—	2.5L

Transducer Downloaded: NA

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Hand delivered

Portage

Groundwater Sampling Collection Summary

Site: MDEQ - UBMC Date: 5/9/12

Time: 1330 Sampler(s): KO, BM

Field Sample Id#: UBMC TDMW20 Weather: Pt+. cloudy, cool

Preservative(s): HNO3 FOR DISOLVED METALS, COOL ON ICE

Number / Type of Containers this Sample: 1-500ML HDPE, 1-250ML HDPE

Sampling Method Used: BLADDER PUMP

Photo: Y

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
6.91	7.64	264	6.87	57.6	200.2
6.91	7.61	265	6.86	57.5	200.4
6.92	7.62	264	6.81	57.1	200.0

SAMPLES

	TDS, TSS, Hardness, Total Sulfate, Total Chloride, pH, EC	Dissolved Metals, Dissolved Cations
Preservative	No	HNO3
Filtered	No	Yes
Container	500ml HDPE	250ml HDPE

Water Table Information

Total Depth (Top of casing to bottom of well)	Static Water Level (Top of Casing to water level)	Stick Up (Top of casing to ground surface)	Water Column	Volume Purged
38.1	11.49	—	—	25L

Transducer Downloaded: Y

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Hand delivered

Portage

Groundwater Sampling Collection Summary

Site: MDEQ - UBMC Date: 5/9/12

Time: 1702 Sampler(s): AD, BM

Field Sample Id#: UBMC TDMW25 Weather: Part. cloudy, cool

Preservative(s): HNO3 FOR DISOLVED METALS, COOL ON ICE

Number / Type of Containers this Sample: 1-500ML HDPE, 1-250ML HDPE

Sampling Method Used: BLADDER PUMP

Photo: Yes

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
6.07	6.83	2577	0.82	6.8	208.7
6.08	6.71	2571	0.66	5.4	208.0
6.09	6.72	2560	0.51	4.2	206.5
6.09	6.75	2554	0.47	4.0	206.1

SAMPLES

	TDS, TSS, Hardness, Total Sulfate, Total Chloride, pH, EC	Dissolved Metals, Dissolved Cations
Preservative	No	HNO3
Filtered	No	Yes
Container	500ml HDPE	250ml HDPE

Water Table Information

Total Depth (Top of casing to bottom of well)	Static Water Level (Top of Casing to water level)	Stick Up (Top of casing to ground surface)	Water Column	Volume Purged
20.1'	11.41'	—	—	≈ 6L

Transducer Downloaded: Yes

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Hand delivered

Portage

Daily Contractor Quality Control Summary

Date: 5/9/12

Samples packed on ice?	(Y) / N
Chain of custody complete?	(Y) / N
Is sample custody secured?	(Y) / N
Sampling procedures used properly?	(Y) / N

Describe any deviations that occurred during field activities due to site conditions:

Transducer from TPMW 4D is not working properly

Were these deviations detrimental to sampling (explain)?

Other observations:

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BKSW3P
PROJECT NUMBER: TO-~~11~~ 13	SAMPLE NUMBER: UBMCBKSW3P
LOCATION: UMBC	WEATHER: Sunny, light wind, cool
DATE/TIME: 10/2/17 @ 1019	SAMPLERS: AD, MT

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.16	7.19	300	9.7	79.7	152.1

SAMPLES

	TDS, TSS, Acidity, Alkalinity, Hardness, Carbonate, Bicarbonate, Total Sulfate, Total Chloride, pH, EC	Total Metals	Dissolved Metals, Dissolved Cations
Preservative	No	HNO3	HNO3
Filtered	No	No	Yes
Container	500ml HDPE	250ml HDPE	250ml HDPE

Streambank description: Rivulet, tailings

Water flow (circle one): (Laminar) Stagnant Turbulent Other(describe)

Stream bed description: Rock, gravel

Water quality description: clear

Portage

Sediment Sampling Collection Summary

Site: UBMC
Date: 10/2/12
Time: 1019
Sampler(s): AA, MT
Field Sample Id#: UBMC BKS037 Weather: clear, breezy, cool
Number / Type of Containers this Sample: 1-250ML HDPE

Sampling Method Used: GRAB
Photo: Yes

Sediment Analyses:

- Total Recoverable Metals (Y / N)

Chain of Custody & Shipping Information:
Hand delivered

Sample Location (latitude / longitude in *deg/min/sec*):

Other Observations:

Portage

SITE: UMBC PERSONNEL: AP, AT

DATE: 10/2/17 Gage Reading: —

TIME: 1317 Gage Time —

Other: DISCHARGE CALCULATED AT OFFICE

UBMC BRSW 3R

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1	5.2	0	0
2	5.7	0.1	0
3	6.2	.1	0
4	6.7	.2	2.28
5	7.2	.3	1.53
6	7.7	.3	1.33
7	8.2	.2	1.63
8	8.7	.2	1.22
9	9.2	.2	1.41
10	9.7	.2	1.47
11	10.2	.2	0.01
12	10.7	.1	0.52
13	11.2	.1	0
14	11.7	.1	0
15	12.2	0	0
16			
17			
18			
19			
20			

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BMSW4P
PROJECT NUMBER: TO-~~11~~ 13	SAMPLE NUMBER: UMBCBMSW4P
LOCATION: UMBC	WEATHER: Clear, cool, breezy
DATE/TIME: 12/2	SAMPLERS: VA, MT

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.75	11.24	324	10.13	92.7	-2.4

SAMPLES

	TDS, TSS, Acidity, Alkalinity, Hardness, Carbonate, Bicarbonate, Total Sulfate, Total Chloride, pH, EC	Total Metals	Dissolved Metals, Dissolved Cations
Preservative	No	HNO3	HNO3
Filtered	No	No	Yes
Container	500ml HDPE	250ml HDPE	250ml HDPE

Streambank description: Rock, tailings

Water flow (circle one): (Laminar) Stagnant Turbulent Other(describe)

Stream bed description: Rock, gravel

Water quality description: clear

Portage

Sediment Sampling Collection Summary

Site: UBMC Date: 10/9/12

Time: 12-12 Sampler(s): [illegible], MT

Field Sample Id#: UBMCBRSD48 Weather: clear, cool, gust, wind

Number / Type of Containers this Sample: 1-250ML HDPE

Sampling Method Used: GRAB

Photo: Yes

Sediment Analyses:

- Total Recoverable Metals (Y / N)

Chain of Custody & Shipping Information:

Hand delivered

Sample Location (latitude / longitude in *deg/min/sec*):

Other Observations:

Portage

SITE: UMBC PERSONNEL: VAO, MT

DATE: 10/2/12 Gage Reading: —

TIME: 1212 Gage Time —

Other: DISCHARGE CALCULATED AT OFFICE

UMBCBRTWYP

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1	3	0	0
2	3.8	0.2	0
3	4.6	.2	0.22
4	5.4	.2	0
5	6.2	.2	0
6	7.0	.2	.14
7	7.8	.3	.21
8	8.6	.2	.32
9	9.4	0	0
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BRSW23
PROJECT NUMBER: TO-11	SAMPLE NUMBER: UBMC BRSW23
LOCATION: UMBC	WEATHER: Clear, cool, windy
DATE/TIME: 10/2/12 @ 1245	SAMPLERS: VA, MT

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.88	11.69	274	10.28	99.4	67.5

SAMPLES

	TDS, TSS, Acidity, Alkalinity, Hardness, Carbonate, Bicarbonate, Total Sulfate, Total Chloride, pH, EC	Total Metals	Dissolved Metals, Dissolved Cations
Preservative	No	HNO3	HNO3
Filtered	No	No	Yes
Container	500ml HDPE	250ml HDPE	250ml HDPE

Streambank description: Rocky

Water flow (circle one): ~~Laminar~~ Stagnant Turbulent Other(describe)

Stream bed description: Rock gravel

Water quality description: Clear

Portage

Sediment Sampling Collection Summary

Site: UBMC Date: 10/2/12

Time: 1245 Sampler(s): VD, MT

Field Sample Id#: UBMCBRSD23 Weather: Clear, cool, windy

Number / Type of Containers this Sample: 1-250ML HDPE

Sampling Method Used: GRAB

Photo: Y

Sediment Analyses:

- Total Recoverable Metals (Y / N)

Chain of Custody & Shipping Information:

Hand Delivered

Sample Location (latitude / longitude in *deg/min/sec*):

Other Observations:

Portage

SITE: UMBC **PERSONNEL:** AD, MT

DATE: 10/2/12 **Gage Reading:** —

TIME: 1245 **Gage Time** —

Other: DISCHARGE CALCULATED AT OFFICE

UBMCBK1W23

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1	1.8	0	0
2	2.2	0.2	0
3	2.8	0.2	0
4	3.4	.2	0
5	4.0	.2	0
6	4.6	.2	.11
7	5.2	.2	.74
8	5.8	.2	.58
9	6.4	.2	.14
10	7.0	.2	0
11	7.6	.2	.09
12	8.2	.2	.35
13	8.8	.2	.05
14	9.4	.1	0
15	10.0	0	0
16			
17			
18			
19			
20			

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BRSW 3A
PROJECT NUMBER: TO-~~11~~ 13	SAMPLE NUMBER: UBMCRRSW3A
LOCATION: UMBC	WEATHER: Clear, early, windy
DATE/TIME: 10/2/12 @ 1318	SAMPLERS: AD, MT

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.44	10.41	259	93.7	10.42	101.3

SAMPLES

	TDS, TSS, Acidity, Alkalinity, Hardness, Carbonate, Bicarbonate, Total Sulfate, Total Chloride, pH, EC	Total Metals	Dissolved Metals, Dissolved Cations
Preservative	No	HNO3	HNO3
Filtered	No	No	Yes
Container	500ml HDPE	250ml HDPE	250ml HDPE

Streambank description: F V, vegetation

Water flow (circle one): Laminar Stagnant Turbulent Other(describe)

Stream bed description: gravel, muck

Water quality description: clear

Portage

Sediment Sampling Collection Summary

Site: UBMC Date: 10/2/12

Time: 1317 Sampler(s): AD, MT

Field Sample Id#: UBMC MS03A Weather: clear, cold, windy

Number / Type of Containers this Sample: 1-250ML HDPE

Sampling Method Used: GRAB

Photo: X-1

Sediment Analyses:

- Total Recoverable Metals (Y / N)

Chain of Custody & Shipping Information:

Hand delivered

Sample Location (latitude / longitude in *deg/min/sec*):

Other Observations:

Portage

SITE: UMBC PERSONNEL: AO, MT

DATE: 10/27/12 Gage Reading: —

TIME: 1318 Gage Time —

Other: DISCHARGE CALCULATED AT OFFICE

UBMC BRSW3A

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1	3.0	0	0
2	3.4	.1	3
3	3.8	.1	0
4	4.2	.1	0
5	4.6	.2	0
6	5.0	.2	.67
7	5.4	.2	1.53
8	6.0	.3	.38
9	6.4	.3	0
10	6.8	.2	0
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BRSW3B
PROJECT NUMBER: TO- 13	SAMPLE NUMBER: UBMC BRSW32
LOCATION: UMBC	WEATHER: Clear, cool, windy
DATE/TIME: 10/7/12 @ 1349	SAMPLERS: IAJ, LT

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.80	7.57	220	11.22	93.2	109.1

SAMPLES

	TDS, TSS, Acidity, Alkalinity, Hardness, Carbonate, Bicarbonate, Total Sulfate, Total Chloride, pH, EC	Total Metals	Dissolved Metals, Dissolved Cations
Preservative	No	HNO3	HNO3
Filtered	No	No	Yes
Container	500ml HDPE	250ml HDPE	250ml HDPE

Streambank description: took from

Water flow (circle one): (Laminar) Stagnant Turbulent Other(describe)

Stream bed description: Gravel

Water quality description: clear

Portage

Sediment Sampling Collection Summary

Site: UBMC Date: 10/2/12

Time: 1349 Sampler(s): KD, MT

Field Sample Id#: UBMC BRSD3B Weather: Clear, windy, cool

Number / Type of Containers this Sample: 1-250ML HDPE

Sampling Method Used: GRAB

Photo: Y

Sediment Analyses:

- Total Recoverable Metals (Y / N)

Chain of Custody & Shipping Information:

Hand delivered

Sample Location (latitude / longitude in *deg/min/sec*):

Other Observations:

Portage

SITE: UMBC PERSONNEL: IM, MT

DATE: 10/2/17 Gage Reading: —

TIME: 1349 Gage Time —

Other: DISCHARGE CALCULATED AT OFFICE

UBMCBRSW3B

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1	0-1.1	0.1	3.5 P
2			
3	48" CMP		
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BKSW2
PROJECT NUMBER: TO- 13	SAMPLE NUMBER: UBMCBKSW2
LOCATION: UMBC	WEATHER: Clear, cool, windy
DATE/TIME: 10/2/12 @ 1745	SAMPLERS: AD, MT

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.62	17.03	3920	9.64	90.8	123.5

SAMPLES

	TDS, TSS, Acidity, Alkalinity, Hardness, Carbonate, Bicarbonate, Total Sulfate, Total Chloride, pH, EC	Total Metals	Dissolved Metals, Dissolved Cations
Preservative	No	HNO3	HNO3
Filtered	No	No	Yes
Container	500ml HDPE	250ml HDPE	250ml HDPE

Streambank description: Tidings

Water flow (circle one): Laminar (Stagnant) Turbulent Other(describe)

Stream bed description: Tidings

Water quality description: clear

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BRSW22
PROJECT NUMBER: TO- 13	SAMPLE NUMBER: VBMCBRSW22
LOCATION: UMBC	WEATHER: clear, cool, gusty wind
DATE/TIME: 10/2/12 @ 1525	SAMPLERS: VB., MT

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.39	10.61	316	10.25	92.2	119.4

Duplicate sample is VBMCBRSW24

SAMPLES

	TDS, TSS, Acidity, Alkalinity, Hardness, Carbonate, Bicarbonate, Total Sulfate, Total Chloride, pH, EC	Total Metals	Dissolved Metals, Dissolved Cations
Preservative	No	HNO3	HNO3
Filtered	No	No	Yes
Container	500ml HDPE	250ml HDPE	250ml HDPE

Streambank description: Rocky

Water flow (circle one): (Laminar) Stagnant Turbulent Other(describe)

Stream bed description: Rock, gravel

Water quality description: clear

Portage

Sediment Sampling Collection Summary

Site: UBMC Date: 10/2/12

Time: 1520 Sampler(s): KA., MT

Field Sample Id#: UBMCBESD22 Weather: clear, cool, wind

Number / Type of Containers this Sample: 1-250ML HDPE

Sampling Method Used: GRAB

Photo: X

Sediment Analyses:

- Total Recoverable Metals (Y / N)

Chain of Custody & Shipping Information:

Hand delivered

Sample Location (latitude / longitude in *deg/min/sec*):

Other Observations: Duplicate sample is UBMCBESD24

Portage

SITE: UMBC PERSONNEL: AP, MT

DATE: 10/2/12 Gage Reading: —

TIME: 152p Gage Time —

Other: DISCHARGE CALCULATED AT OFFICE

UBMC BRW22

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1	0	0	0
2	.1	.2	0
3	.2	.2	.11
4	.3	.2	.10
5	.4	.2	.07
6	.5	.1	.17
7	.6	.1	.27
8	.7	0	0
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BRSW1
PROJECT NUMBER: TO-13	SAMPLE NUMBER: UBMLBRSW1
LOCATION: UMBC	WEATHER: Clear, cool, windy
DATE/TIME: 11/2/12 @ 1620	SAMPLERS: AB, MT

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.91	7.19	213	12.43	104.5	72.2

SAMPLES

	TDS, TSS, Acidity, Alkalinity, Hardness, Carbonate, Bicarbonate, Total Sulfate, Total Chloride, pH, EC	Total Metals	Dissolved Metals, Dissolved Cations
Preservative	No	HNO3	HNO3
Filtered	No	No	Yes
Container	500ml HDPE	250ml HDPE	250ml HDPE

Streambank description: Willow, gravel

Water flow (circle one): (Laminar) Stagnant Turbulent Other(describe)

Stream bed description: Gravel, rocks

Water quality description: clear

Portage

Sediment Sampling Collection Summary

Site: UBMC Date: 1-12-12

Time: 1620 Sampler(s): AA, MT

Field Sample Id#: UBMCBASD12 Weather: Clear, cold, windy

Number / Type of Containers this Sample: 1-250ML HDPE

Sampling Method Used: GRAB

Photo: Y

Sediment Analyses:

- Total Recoverable Metals (Y / N)

Chain of Custody & Shipping Information:

Hand delivered

Sample Location (latitude / longitude in *deg/min/sec*):

Other Observations:

Portage

SITE: UMBC PERSONNEL: AD, MT

DATE: 10/2/12 Gage Reading: —

TIME: 1620 Gage Time —

Other: DISCHARGE CALCULATED AT OFFICE

UBMCBRIW2

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1	2	0	0
2	2.4	.1	0
3	2.8	.1	.19
4	3.2	.1	.23
5	3.6	.2	.44
6	4	.2	.62
7	4.4	.2	.78
8	4.8	.2	.25
9	5.2	.2	.44
10	5.6	.1	.18
11	6	.1	0
12	6.4	0	0
13			
14			
15			
16			
17			
18			
19			
20			

Portage

Daily Contractor Quality Control Summary

Date: 10/2/12

Samples packed on ice? (Y) / N
Chain of custody complete? (Y) / N
Is sample custody secured? (Y) / N
Sampling procedures used properly? (Y) / N

Describe any deviations that occurred during field activities due to site conditions:

Were these deviations detrimental to sampling (explain)?

Other observations:

Portage

Groundwater Sampling Collection Summary

Site: MDEQ - UBMC Date: 10/4/12

Time: 1055 Sampler(s): KB, MT

Field Sample Id#: UBMCTDMW5 Weather: Cloudy, cold, calm

Preservative(s): HNO3 FOR DISOLVED METALS, COOL ON ICE

Number / Type of Containers this Sample: 1-500ML HDPE, 1-250ML HDPE

Sampling Method Used: BLADDER PUMP

Photo: Yes

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.) 82.4	ORP (mv)
7.18	4.23	232	11.32	78.9	132.7
7.33	4.36	284	10.23	78.1	130.9
7.40	4.43	302	10.12	76.3	129.3
7.44	4.48	309	9.88	↓	123.2

SAMPLES

	TDS, TSS, Hardness, Total Sulfate, Total Chloride, pH, EC	Dissolved Metals, Dissolved Cations
Preservative	No	HNO3
Filtered	No	Yes
Container	500ml HDPE	250ml HDPE

Water Table Information

Total Depth (Top of casing to bottom of well)	Static Water Level (Top of Casing to water level)	Stick Up (Top of casing to ground surface)	Water Column	Volume Purged
103	33.15	—	—	N/A

Transducer Downloaded: N/A

Sample Location (latitude / longitude in *deg/min/sec*):

—

Chain of Custody Form Number & Shipping Information:

Hand Delivered

Portage

Groundwater Sampling Collection Summary

Site: MDEQ - UBMC Date: 10/4/12

Time: 1340 Sampler(s): KD, MT

Field Sample Id#: UBMC TDMW40 Weather: Overcast, calm, cold

Preservative(s): HNO3 FOR DISOLVED METALS, COOL ON ICE

Number / Type of Containers this Sample: 1-500ML HDPE, 1-250ML HDPE

Sampling Method Used: BLADDER PUMP

Photo: Yes

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.25	4.49	340	11.5	1.46	104.5
7.25	4.61	340	7.1	0.92	104.8
7.25	4.61	339	7.3	0.94	104.4

SAMPLES

	TDS, TSS, Hardness, Total Sulfate, Total Chloride, pH, EC	Dissolved Metals, Dissolved Cations
Preservative	No	HNO_3
Filtered	No	Yes
Container	500ml HDPE	250ml HDPE

Water Table Information

Total Depth (Top of casing to bottom of well)	Static Water Level (Top of Casing to water level)	Stick Up (Top of casing to ground surface)	Water Column	Volume Purged
76.2'	46.38'	—	—	~6L

Transducer Downloaded: NA

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Hand delivered

Collected duplicate sample TDMW6

Portage

Groundwater Sampling Collection Summary

Site: MDEQ - UBMC Date: 10/4/12

Time: 1539 Sampler(s): KD, MT

Field Sample Id#: UBMCTOMW3D Weather: Overcast, cold

Preservative(s): HNO3 FOR DISOLVED METALS, COOL ON ICE

Number / Type of Containers this Sample: 1-500ML HDPE, 1-250ML HDPE

Sampling Method Used: BLADDER PUMP

Photo: Y / N

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
6.61	5.46	564	8.93	71.3	97.8
6.62	5.59	587	7.71	69.5	99.2
6.62	5.68	595	7.62	69.0	99.5

SAMPLES

	TDS, TSS, Hardness, Total Sulfate, Total Chloride, pH, EC	Dissolved Metals, Dissolved Cations
Preservative	No	HNO_3
Filtered	No	Yes
Container	500ml HDPE	250ml HDPE

Water Table Information

Total Depth (Top of casing to bottom of well)	Static Water Level (Top of Casing to water level)	Stick Up (Top of casing to ground surface)	Water Column	Volume Purged
72.5	54.36	—	—	~5L

Transducer Downloaded: N/A

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Hand delivered

Portage

Groundwater Sampling Collection Summary

Site: MDEQ - UBMC Date: 10/4/12

Time: 1221 Sampler(s): AS, MT

Field Sample Id#: UBMC-TDMW1 Weather: Cold, Overcast

Preservative(s): HNO3 FOR DISOLVED METALS, COOL ON ICE

Number / Type of Containers this Sample: 1-500ML HDPE, 1-250ML HDPE

Sampling Method Used: BLADDER PUMP

Photo: Y

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
6.19	6.55	540	4.23	303	87.5
6.18	6.68	551	5.45	44.6	86.3
6.16	6.67	554	5.30	43.6	82.8
6.16	6.67	554	5.29	42.6	82.8

SAMPLES

	TDS, TSS, Hardness, Total Sulfate, Total Chloride, pH, EC	Dissolved Metals, Dissolved Cations
Preservative	No	HNO3
Filtered	No	Yes
Container	500ml HDPE	250ml HDPE

Water Table Information

Total Depth (Top of casing to bottom of well)	Static Water Level (Top of Casing to water level)	Stick Up (Top of casing to ground surface)	Water Column	Volume Purged
—	18.85'	—	—	2.6L

Transducer Downloaded: NA

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Hand delivered

Portage

Groundwater Sampling Collection Summary

Site: MDEQ - UBMC Date: 10/4/12

Time: 1901 Sampler(s): AA, MT

Field Sample Id#: UBMCTRMW2D Weather: Overcast, cold

Preservative(s): HNO3 FOR DISOLVED METALS, COOL ON ICE

Number / Type of Containers this Sample: 1-500ML HDPE, 1-250ML HDPE

Sampling Method Used: BLADDER PUMP

Photo: Yes

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
6.76	6.90	253	6.44	53.3	85.0
6.75	6.91	256	6.29	51.9	86.5
6.75	6.90	254	6.15	50.6	86.4

SAMPLES

	TDS, TSS, Hardness, Total Sulfate, Total Chloride, pH, EC	Dissolved Metals, Dissolved Cations
Preservative	No	HNO_3
Filtered	No	Yes
Container	500ml HDPE	250ml HDPE

Water Table Information

Total Depth (Top of casing to bottom of well)	Static Water Level (Top of Casing to water level)	Stick Up (Top of casing to ground surface)	Water Column	Volume Purged
—	15.06'	—	—	4 GL

Transducer Downloaded: Yes

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Hand Delivered

Portage

Groundwater Sampling Collection Summary

Site: MDEQ - UBMC Date: 10/4/12

Time: 1845 Sampler(s): AO, MT

Field Sample Id#: UBMCTMW25 Weather: Overcast, cold

Preservative(s): HNO3 FOR DISOLVED METALS, COOL ON ICE

Number / Type of Containers this Sample: 1-500ML HDPE, 1-250ML HDPE

Sampling Method Used: BLADDER PUMP

Photo: Y

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
5.24	8.12	1513	1.35	10.5	105.6
5.26	8.32	1495	1.22	10.5	105.5
5.29	8.50	1488	1.02	8.9	105.6
5.30	8.55	1482	0.96	8.3	105.5
5.31	8.55	1481	0.96	8.3	105.5

SAMPLES

	TDS, TSS, Hardness, Total Sulfate, Total Chloride, pH, EC	Dissolved Metals, Dissolved Cations
Preservative	No	HNO3
Filtered	No	Yes
Container	500ml HDPE	250ml HDPE

Water Table Information

Total Depth (Top of casing to bottom of well)	Static Water Level (Top of Casing to water level)	Stick Up (Top of casing to ground surface)	Water Column	Volume Purged
—	15.21	—	—	27L

Transducer Downloaded: NA

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Hand delivered

Portage

Daily Contractor Quality Control Summary

Date: 10/4/12

Samples packed on ice?	(Y) / N
Chain of custody complete?	(Y) / N
Is sample custody secured?	(Y) / N
Sampling procedures used properly?	(Y) / N

Describe any deviations that occurred during field activities due to site conditions:

Were these deviations detrimental to sampling (explain)?

Other observations:

Portage

Groundwater Sampling Collection Summary

Site: MDEQ – SECTION 35 Date: 10/5/12

Time: 1218 Sampler(s): AO, AS

Field Sample Id#: S35MW04 Weather: Clear, cold

Preservative(s): HNO3 FOR DISOLVED METALS, COOL ON ICE

Number / Type of Containers this Sample: 1-500ML HDPE, 2-250ML HDPE

Sampling Method Used: BLADDER PUMP

Photo: Y, I

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
6.73	6.28	335	10.18	82.2	71.9
6.95	6.07	336	10.46	84.0	72.3
6.96	5.81	337	10.46	84.0	72.2
6.95	5.79	338	10.41	83.9	72.9

SAMPLES

	TDS, TSS, Acidity, Alkalinity, Hardness, Carbonate, Bicarbonate, Total Sulfate, Total Chloride, pH, EC	Total Metals, Total Cations	Dissolved Metals, Dissolved Cations
Preservative	No	HNO_3	HNO_3
Filtered	No	No	Yes
Container	500ml HDPE	250ml HDPE	250ml HDPE

Water Table Information

Total Depth (Top of casing to bottom of well)	Static Water Level (Top of Casing to water level)	Stick Up (Top of casing to ground surface)	Water Column	Volume Purged
43.0'	39.29'	—	—	2GL

Transducer Downloaded: Y, I

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Hand delivered

Portage

Groundwater Sampling Collection Summary

Site: MDEQ – SECTION 35 Date: 10/5/12

Time: 1430 Sampler(s): MO, MT

Field Sample Id#: S35MW02 Weather: Cold, clear

Preservative(s): HNO3 FOR DISOLVED METALS, COOL ON ICE

Number / Type of Containers this Sample: 1-500ML HDPE, 2-250ML HDPE

Sampling Method Used: BLADDER PUMP

Photo: Y.

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.67	8.05	2.84	7.72	64.8	70.9

SAMPLES

	TDS, TSS, Acidity, Alkalinity, Hardness, Carbonate, Bicarbonate, Total Sulfate, Total Chloride, pH, EC	Total Metals, Total Cations	Dissolved Metals, Dissolved Cations
Preservative	No	HNO_3	HNO_3
Filtered	No	No	Yes
Container	500ml HDPE	250ml HDPE	250ml HDPE

Water Table Information Purged dry. Sample after recharge.

Total Depth (Top of casing to bottom of well)	Static Water Level (Top of Casing to water level)	Stick Up (Top of casing to ground surface)	Water Column	Volume Purged
83.3	81.56	—	—	2/L

Transducer Downloaded: Y.

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Hand delivered

Portage

Groundwater Sampling Collection Summary

Site: MDEQ – SECTION 35 Date: 10/-/12

Time: 1634 Sampler(s): HO, MT

Field Sample Id#: 53-MW04 Weather: Clear, cold

Preservative(s): HNO3 FOR DISOLVED METALS, COOL ON ICE

Number / Type of Containers this Sample: 1-500ML HDPE, 2-250ML HDPE

Sampling Method Used: BLADDER PUMP

Photo: Yes

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
6.89	5.34	343	8.75	70.5	45.7
6.90	5.72	360	8.03	64.4	64.1
6.90	5.92	351	8.01	64.1	66.0

SAMPLES

	TDS, TSS, Acidity, Alkalinity, Hardness, Carbonate, Bicarbonate, Total Sulfate, Total Chloride, pH, EC	Total Metals, Total Cations	Dissolved Metals, Dissolved Cations
Preservative	No	HNO_3	HNO_3
Filtered	No	No	Yes
Container	500ml HDPE	250ml HDPE	250ml HDPE

Water Table Information

Total Depth (Top of casing to bottom of well)	Static Water Level (Top of Casing to water level)	Stick Up (Top of casing to ground surface)	Water Column	Volume Purged
69.2'	35.26'	—	—	2 GL

Transducer Downloaded: Yes

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Hand Delivered

Portage

Daily Contractor Quality Control Summary

Date: 10/5/12

Samples packed on ice?	(Y) / N
Chain of custody complete?	(Y) / N
Is sample custody secured?	(Y) / N
Sampling procedures used properly?	(Y) / N

Describe any deviations that occurred during field activities due to site conditions:

Were these deviations detrimental to sampling (explain)?

Other observations:

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BRSW39
PROJECT NUMBER: TO- 13	SAMPLE NUMBER: UMCBRSW38
LOCATION: UMBC	WEATHER: Partly cloudy, cold, windy
DATE/TIME: 2/10/12 @ 1106	SAMPLERS: BG, MT

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
6.79	0.78	409	11.85	82.9	169.1

SAMPLES

	TDS, TSS, Acidity, Alkalinity, Hardness, Carbonate, Bicarbonate, Total Sulfate, Total Chloride, pH, EC	Total Metals	Dissolved Metals, Dissolved Cations
Preservative	No	HNO3	HNO3
Filtered	No	No	Yes
Container	500ml HDPE	250ml HDPE	250ml HDPE

Streambank description: Rocky, tall grass

Water flow (circle one): (Laminar) Stagnant Turbulent Other(describe)

Stream bed description: Rock/Gravel

Water quality description: Clear

Portage

Sediment Sampling Collection Summary

Site: UBMC Date: 11/10/12

Time: 1106 Sampler(s): AD, AT

Field Sample Id#: UBMCBR1038 Weather: Cloudy, cold

Number / Type of Containers this Sample: 1-250ML HDPE

Sampling Method Used: GRAB

Photo: Y / N

Sediment Analyses:

- Total Recoverable Metals (Y / N)

Chain of Custody & Shipping Information:

Hand delivered

Sample Location (latitude / longitude in *deg/min/sec*):

Other Observations:

Portage

SITE: UMBC PERSONNEL: AD, MT

DATE: 12/10/12 Gage Reading: —

TIME: 1106 Gage Time —

Other: DISCHARGE CALCULATED AT OFFICE

UMBC BRIDGE

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1	6.0	0	0
2	6.5	.1	0
3	7	.2	.11
4	7.5	.2	.21
5	8	.2	.17
6	8.5	.2	.22
7	9	.2	.23
8	9.5	.2	.24
9	10	.2	.46
10	10.5	.2	.43
11	11	.2	0
12	11.5	.1	.1
13	12	0	0
14			
15			
16			
17			
18			
19			
20			

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BR1 SW YP
PROJECT NUMBER: TO- 17	SAMPLE NUMBER: UMC BR1 SW YP
LOCATION: UMBC	WEATHER: Cloudy, cold
DATE/TIME: 12/10/2020 1225	SAMPLERS: AM, MT

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
6.75	0.75	390	11.82	92.9	68.0

SAMPLES

	TDS, TSS, Acidity, Alkalinity, Hardness, Carbonate, Bicarbonate, Total Sulfate, Total Chloride, pH, EC	Total Metals	Dissolved Metals, Dissolved Cations
Preservative	No	HNO3	HNO3
Filtered	No	No	Yes
Container	500ml HDPE	250ml HDPE	250ml HDPE

Streambank description: Rocky, tailings

Water flow (circle one): (Laminar) Stagnant Turbulent Other(describe)

Stream bed description: Rocks, gravel

Water quality description: clear

Portage

Sediment Sampling Collection Summary

Site: UBMC | Date: 12/10/12

Time: 1225 | Sampler(s): AD, MT

Field Sample Id#: UBMC-SRS048 | Weather: cold, cloudy

Number / Type of Containers this Sample: 1-250ML HDPE

Sampling Method Used: GRAB

Photo: Yes

Sediment Analyses:

- Total Recoverable Metals (Y / N)

Chain of Custody & Shipping Information:

Hand delivered

Sample Location (latitude / longitude in *deg/min/sec*):

Other Observations:

Portage

SITE: UMBC **PERSONNEL:** AD, MT

DATE: 12/10/12 **Gage Reading:** —

TIME: 1225 **Gage Time** —

Other: DISCHARGE CALCULATED AT OFFICE

UBMC BRSW48

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1	3.5	0	0
2	4.0	.1	0
3	4.5	.2	0
4	5	.1	0
5	5.5	.1	0.31
6	6	.1	0
7	6.5	.1	0
8	7	.1	0
9	7.5	.1	0.27
10	8	.2	0.45
11	8.5	.2	0.42
12	9	.1	0.34
13	9.5	.1	0.35
14	10	0	0
15			
16			
17			
18			
19			
20			

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BRSW23
PROJECT NUMBER: TO- 13	SAMPLE NUMBER: UBMCBRSW23
LOCATION: UMBC	WEATHER: Cloudy, cold
DATE/TIME: 12/13/12 @ 1308	SAMPLERS: AS, MT

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.11	0.93	710	12.26	99.0	131.8

SAMPLES

	TDS, TSS, Acidity, Alkalinity, Hardness, Carbonate, Bicarbonate, Total Sulfate, Total Chloride, pH, EC	Total Metals	Dissolved Metals, Dissolved Cations
Preservative	No	HNO3	HNO3
Filtered	No	No	Yes
Container	500ml HDPE	250ml HDPE	250ml HDPE

Streambank description: Rocky

Water flow (circle one): (Laminar) Stagnant Turbulent Other(describe)

Stream bed description: Rock, gravel

Water quality description: clear

Portage

Sediment Sampling Collection Summary

Site: UBMC | Date: 12/10/18
Time: 1708 | Sampler(s): AD, BT
Field Sample Id#: UBMCBRJ023 | Weather: cloudy, cold
Number / Type of Containers this Sample: 1-250ML HDPE

Sampling Method Used: GRAB
Photo: Yes

Sediment Analyses:

- Total Recoverable Metals (Y / N)

Chain of Custody & Shipping Information:
Hand delivered

Sample Location (latitude / longitude in *deg/min/sec*):

Other Observations:

Portage

SITE: UMBC PERSONNEL: AL, MT

DATE: 12/10/12 Gage Reading: —

TIME: 1308 Gage Time —

Other: DISCHARGE CALCULATED AT OFFICE

UBMC BRSW23

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1	3	.1	0
2	3.5	.1	0
3	4	.1	.12
4	4.5	.1	0
5	5	.2	0
6	5.5	.2	0
7	6	.2	.05
8	6.5	.2	.24
9	7	.3	.02
10	7.5	.4	0
11	8	.4	0
12	8.5	.1	.13
13	9	.3	.39
14	9.5	.2	.01
15	10	.1	0
16	10.5	0	0
17	11	0	0
18			
19			
20			

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BRSW3A
PROJECT NUMBER: TO- 13	SAMPLE NUMBER: UMBC BRSW3A
LOCATION: UMBC	WEATHER: Cloudy, cold
DATE/TIME: 12/10/12	SAMPLERS: VM, MT

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.25	3.52	315	10.14	81.3	136.1

SAMPLES

	TDS, TSS, Acidity, Alkalinity, Hardness, Carbonate, Bicarbonate, Total Sulfate, Total Chloride, pH, EC	Total Metals	Dissolved Metals, Dissolved Cations
Preservative	No	HNO3	HNO3
Filtered	No	No	Yes
Container	500ml HDPE	250ml HDPE	250ml HDPE

Streambank description: Grass, gravel

Water flow (circle one): (Laminar) Stagnant Turbulent Other(describe)

Stream bed description: gravel, muck

Water quality description: clear

Portage

Sediment Sampling Collection Summary

Site: UBMC Date: 12/10/12

Time: 1336 Sampler(s): VA, MT

Field Sample Id#: UBMCBRSW3A Weather: Cloudy, wild

Number / Type of Containers this Sample: 1-250ML HDPE

Sampling Method Used: GRAB

Photo: X

Sediment Analyses:

- Total Recoverable Metals (Y / N)

Chain of Custody & Shipping Information:

Hand delivered

Sample Location (latitude / longitude in *deg/min/sec*):

Other Observations:

Portage

SITE: UMBC PERSONNEL: AD, MT

DATE: 12/10/12 Gage Reading: —

TIME: 1336 Gage Time —

Other: DISCHARGE CALCULATED AT OFFICE

UBMC BMSW3A

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1	0.2	.1	0.29
2	0.4	.1	1.24
3	0.6	.1	1.91
4	0.8	.1	1.77
5	1.0	.1	1.78
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BRSW3B
PROJECT NUMBER: TO- 13	SAMPLE NUMBER: UBMCBRSW3B
LOCATION: UMBC	WEATHER: Cold, cloudy
DATE/TIME: 12/10/17 @ 1402	SAMPLERS: MA, MT

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.68	9.4	242	11.34	87.1	136.4

SAMPLES

	TDS, TSS, Acidity, Alkalinity, Hardness, Carbonate, Bicarbonate, Total Sulfate, Total Chloride, pH, EC	Total Metals	Dissolved Metals, Dissolved Cations
Preservative	No	HNO3	HNO3
Filtered	No	No	Yes
Container	500ml HDPE	250ml HDPE	250ml HDPE

Streambank description: Took dam

Water flow (circle one): (Laminar) Stagnant Turbulent Other(describe)

Stream bed description: Gravel

Water quality description: clear

Portage

Sediment Sampling Collection Summary

Site: Section 35 Date: 12/10/12

Time: 1412 Sampler(s): AD, MT

Field Sample Id#: UBMC3S1023 Weather: Cold, cloudy

Number / Type of Containers this Sample: 1-250ML HDPE

Sampling Method Used: GRAB

Photo: Y N

Sediment Analyses:

- Total Recoverable Metals (Y) N)

Chain of Custody & Shipping Information:

Hand delivered

Sample Location (latitude / longitude in *deg/min/sec*):

Other Observations:

Portage

SITE: UMBC

PERSONNEL: Al, MT

DATE: 12/10/12

Gage Reading: —

TIME: 1402

Gage Time —

Other: DISCHARGE CALCULATED AT OFFICE

UBMC BRSU3B

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1	0-1.2	0.1	0.91
2	46' CMP	Undmt	
3		center	
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BRSW22
PROJECT NUMBER: TO- 13	SAMPLE NUMBER: UMCBRSW22
LOCATION: UMBC	WEATHER: Cold, cloudy
DATE/TIME: 12/10/12 @ 1510	SAMPLERS: MD, MT

Duplicate sample: UMCBRSW24

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.07	1.67	496	10.44	78.5	133.6

SAMPLES

	TDS, TSS, Acidity, Alkalinity, Hardness, Carbonate, Bicarbonate, Total Sulfate, Total Chloride, pH, EC	Total Metals	Dissolved Metals, Dissolved Cations
Preservative	No	HNO3	HNO3
Filtered	No	No	Yes
Container	500ml HDPE	250ml HDPE	250ml HDPE

Streambank description: Rock

Water flow (circle one): Laminar Stagnant Turbulent Other(describe)

Stream bed description: Rock, gravel

Water quality description: clear

Portage

Sediment Sampling Collection Summary

Site: UBMC | Date: 12/10/12

Time: UBMCBR122 | Sampler(s): AO, MT

Field Sample Id#: 1510 | Weather: Cold, cloudy

Number / Type of Containers this Sample: 1-250ML HDPE

Duplicate sample is UBMCBR1224

Sampling Method Used: GRAB

Photo: Y, I

Sediment Analyses:

- Total Recoverable Metals (Y / N)

Chain of Custody & Shipping Information:

Hand delivered

Sample Location (latitude / longitude in *deg/min/sec*):

Other Observations:

Portage

SITE: UMBC PERSONNEL: AD, MT

DATE: 12/10/12 Gage Reading: —

TIME: 1510 Gage Time —

Other: DISCHARGE CALCULATED AT OFFICE

UBMC BRIW22

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1	0.2	.2	0
2	0.4	.2	0.01
3	0.6	.2	0.01
4	0.8	.2	0.02
5	0.10	.2	0.01
6	0.12	0	0
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Portage

SURFACE WATER SAMPLING RECORD

PROJECT: MDEQ-UMBC	STATION NUMBER: BRW1
PROJECT NUMBER: TO-11	SAMPLE NUMBER: UMBC_BRW1
LOCATION: UMBC	WEATHER: cold, cloudy
DATE/TIME: 12/10/12 @ 1600	SAMPLERS: AO, MT

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.68	0.60	210	12.10	85.0	115.1

SAMPLES

	TDS, TSS, Acidity, Alkalinity, Hardness, Carbonate, Bicarbonate, Total Sulfate, Total Chloride, pH, EC	Total Metals	Dissolved Metals, Dissolved Cations
Preservative	No	HNO3	HNO3
Filtered	No	No	Yes
Container	500ml HDPE	250ml HDPE	250ml HDPE

Streambank description: Willow, gravel

Water flow (circle one): ~~Laminar~~ Stagnant Turbulent Other(describe)

Stream bed description: Gravel

Water quality description: clear

Portage

Sediment Sampling Collection Summary

Site: UBMC | Date: 12/13/12

Time: 1608 | Sampler(s): VAO, MT

Field Sample Id#: VBMCBRSD2 | Weather: Cloudy, cold

Number / Type of Containers this Sample: 1-250ML HDPE

Sampling Method Used: GRAB

Photo: yes

Sediment Analyses:

- Total Recoverable Metals (Y / N)

Chain of Custody & Shipping Information:

Hand delivered

Sample Location (latitude / longitude in *deg/min/sec*):

Other Observations:

Portage

SITE: UMBC **PERSONNEL:** AO, MT

DATE: 12/10/12 **Gage Reading:** —

TIME: 1608 **Gage Time** —

Other: DISCHARGE CALCULATED AT OFFICE

UBMC BRSW1

DISCHARGE MEASUREMENTS

	Tape (ft)	Depth (ft)	Velocity (ft/sec)
1	2.7	.1	0
2	2.8	.1	0
3	3.2	.2	0
4	3.6	.2	0.03
5	4.0	.3	0.07
6	4.4	.3	0.36
7	4.8	.3	0.34
8	5.2	.3	0.32
9	5.6	.2	0.04
10	6.0	.2	0
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Portage

Daily Contractor Quality Control Summary

Date: 12/11/12

Samples packed on ice? (Y) / N
Chain of custody complete? (Y) / N
Is sample custody secured? (Y) / N
Sampling procedures used properly? (Y) / N

Describe any deviations that occurred during field activities due to site conditions:

Were these deviations detrimental to sampling (explain)?

Other observations:

Portage

Groundwater Sampling Collection Summary

Site: MDEQ - UBMC Date: 12/17/12

Time: 0952 - 1157 Sampler(s): AD, MT

Field Sample Id#: UBMC TDMW05 Weather: Sunny, cold

Preservative(s): HNO3 FOR DISOLVED METALS, COOL ON ICE

Number / Type of Containers this Sample: 1-500ML HDPE, 1-250ML HDPE

Sampling Method Used: BLADDER PUMP

Photo: Yes

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
6.63	4.98	2.56	10.89	89	195.1
6.31	4.96	271	9.64	75.2	194.2
6.26	4.94	274	9.25	72.0	194.0
6.81	4.92	277	9.19	71.5	193.5

SAMPLES

	TDS, TSS, Hardness, Total Sulfate, Total Chloride, pH, EC	Dissolved Metals, Dissolved Cations
Preservative	No	HNO_3
Filtered	No	Yes
Container	500ml HDPE	250ml HDPE

Water Table Information

Total Depth (Top of casing to bottom of well)	Static Water Level (Top of Casing to water level)	Stick Up (Top of casing to ground surface)	Water Column	Volume Purged
27	22.51	—	—	~5.5L

Transducer Downloaded: NA

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Hand delivered

Portage

Groundwater Sampling Collection Summary

Site: MDEQ - UBMC Date: 12/12/12

Time: 1406 Sampler(s): AO, MT

Field Sample Id#: UBMC TAMW4D Weather: Sn - W, 60's

Preservative(s): HNO3 FOR DISOLVED METALS, COOL ON ICE

Number / Type of Containers this Sample: 1-500ML HDPE, 1-250ML HDPE

Duplicate of UBMC TAMW4D

Sampling Method Used: BLADDER PUMP

Photo: Y

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.53	3.33	725	3.93	30.0	156.8
7.58	3.81	338	1.85	14.7	155.9
7.60	3.80	343	1.20	9.2	154.9
7.59	3.80	343	1.24	9.3	154.2

SAMPLES

	TDS, TSS, Hardness, Total Sulfate, Total Chloride, pH, EC	Dissolved Metals, Dissolved Cations
Preservative	No	HNO_3
Filtered	No	Yes
Container	500ml HDPE	250ml HDPE

Water Table Information

Total Depth (Top of casing to bottom of well)	Static Water Level (Top of Casing to water level)	Stick Up (Top of casing to ground surface)	Water Column	Volume Purged
—	46.29'	—	—	12.5L

Transducer Downloaded: NA

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Hand delivered

Portage

Groundwater Sampling Collection Summary

Site: MDEQ - UBMC Date: 12/12/12

Time: 1542 Sampler(s): AD, MT

Field Sample Id#: UBMCTDMW3D Weather: Cloudy, cold

Preservative(s): HNO3 FOR DISOLVED METALS, COOL ON ICE

Number / Type of Containers this Sample: 1-500ML HDPE, 1-250ML HDPE

Sampling Method Used: BLADDER PUMP

Photo: Y, ,

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
6.93	5.43	746	8.95	70.5	147.3
6.99	5.46	745	8.96	70.3	147.1
6.96	5.48	743	8.95	70.4	147.0
6.93	5.52	740	8.90	69.9	148.3
6.84	5.52	739	8.82	70.02	148.6

SAMPLES

	TDS, TSS, Hardness, Total Sulfate, Total Chloride, pH, EC	Dissolved Metals, Dissolved Cations
Preservative	No	HNO3
Filtered	No	Yes
Container	500ml HDPE	250ml HDPE

Water Table Information

Total Depth (Top of casing to bottom of well)	Static Water Level (Top of Casing to water level)	Stick Up (Top of casing to ground surface)	Water Column	Volume Purged
—	53.36'	—	—	7.4L

Transducer Downloaded: NA

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Hand delivered

Portage

Groundwater Sampling Collection Summary

Site: MDEQ - UBMC Date: 12/12/12

Time: 1007 Sampler(s): AO, MT

Field Sample Id#: UBMC TMW1 Weather: Cloudy, cold

Preservative(s): HNO3 FOR DISOLVED METALS, COOL ON ICE

Number / Type of Containers this Sample: 1-500ML HDPE, 1-250ML HDPE

Sampling Method Used: BLADDER PUMP

Photo: Yes

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
6.65	5.86	833	6.13	56.3	178.8
6.52	6.04	829	5.30	43.0	181.6
6.45	6.13	823	4.71	37.7	182.3
6.42	6.11	821	4.83	34.0	183.6
6.42	6.14	821	4.74	33.3	183.6

SAMPLES

	TDS, TSS, Hardness, Total Sulfate, Total Chloride, pH, EC	Dissolved Metals, Dissolved Cations
Preservative	No	HNO3
Filtered	No	Yes
Container	500ml HDPE	250ml HDPE

Water Table Information

Total Depth (Top of casing to bottom of well)	Static Water Level (Top of Casing to water level)	Stick Up (Top of casing to ground surface)	Water Column	Volume Purged
—	18.46'	—	—	2 ML

Transducer Downloaded: NA

Sample Location (latitude / longitude in *deg/min/sec*):

—

Chain of Custody Form Number & Shipping Information:

Hand delivered

Portage

Groundwater Sampling Collection Summary

Site: MDEQ - UBMC Date: 12/13/12

Time: 1054 Sampler(s): AJ, MT

Field Sample Id#: UBMCTDMW2D Weather: Cloudy, cold

Preservative(s): HNO3 FOR DISOLVED METALS, COOL ON ICE

Number / Type of Containers this Sample: 1-500ML HDPE, 1-250ML HDPE

Sampling Method Used: BLADDER PUMP

Photo: Yes

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
7.30	6.20	326	5.77	43.1	182.4
7.26	6.24	334	5.06	41.0	182.9
7.20	6.21	343	4.80	38.9	183.7
7.19	6.23	342	4.79	38.2	184.0

SAMPLES

	TDS, TSS, Hardness, Total Sulfate, Total Chloride, pH, EC	Dissolved Metals, Dissolved Cations
Preservative	No	HNO_3
Filtered	No	Yes
Container	500ml HDPE	250ml HDPE

Water Table Information

Total Depth (Top of casing to bottom of well)	Static Water Level (Top of Casing to water level)	Stick Up (Top of casing to ground surface)	Water Column	Volume Purged
—	15.00	—	—	3 4L

Transducer Downloaded: Yes

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Hand Delivered

Portage

Groundwater Sampling Collection Summary

Site: MDEQ - UBMC Date: 12/13/12

Time: 1059 – 1102 Sampler(s): AD, MT

Field Sample Id#: UBMCTOMW25 Weather: Cloudy, cold

Preservative(s): HNO3 FOR DISOLVED METALS, COOL ON ICE

Number / Type of Containers this Sample: 1-500ML HDPE, 1-250ML HDPE

Sampling Method Used: BLADDER PUMP

Photo: Y

WATER QUALITY PARAMETERS

pH (SU)	Temperature (°C)	Conductivity (µs/cm)	D.O. (mg/l)	D.O. (%sat.)	ORP (mv)
6.20	4.14	1871	0.09	6.2	187.6
6.23	4.80	1895	0.60	4.2	186.0
6.23	4.89	1891	0.62	4.7	185.3
6.22	4.85	1901	0.64	4.9	185.1

SAMPLES

	TDS, TSS, Hardness, Total Sulfate, Total Chloride, pH, EC	Dissolved Metals, Dissolved Cations
Preservative	No	HNO_3
Filtered	No	Yes
Container	500ml HDPE	250ml HDPE

Water Table Information

Total Depth (Top of casing to bottom of well)	Static Water Level (Top of Casing to water level)	Stick Up (Top of casing to ground surface)	Water Column	Volume Purged
—	151'	—	—	

Transducer Downloaded: NA

Sample Location (latitude / longitude in *deg/min/sec*):

Chain of Custody Form Number & Shipping Information:

Hand delivered

Portage

Daily Contractor Quality Control Summary

Date: 12/13/12

Samples packed on ice?	(Y) / N
Chain of custody complete?	(Y) / N
Is sample custody secured?	(Y) / N
Sampling procedures used properly?	(Y) / N

Describe any deviations that occurred during field activities due to site conditions:

Were these deviations detrimental to sampling (explain)?

Other observations:

Appendix D

Site Photos

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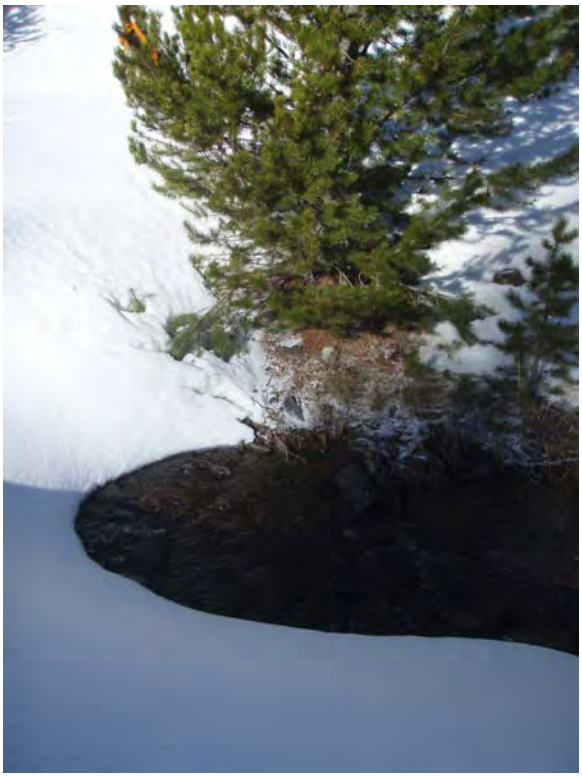
BRSW-38 March 2012



BRSW-23 March 2012



BRSW-48 March 2012



BRSW-3A March 2012



BRSW-3B March 2012



Sump-N March 2012



TDMW-5 March 2012



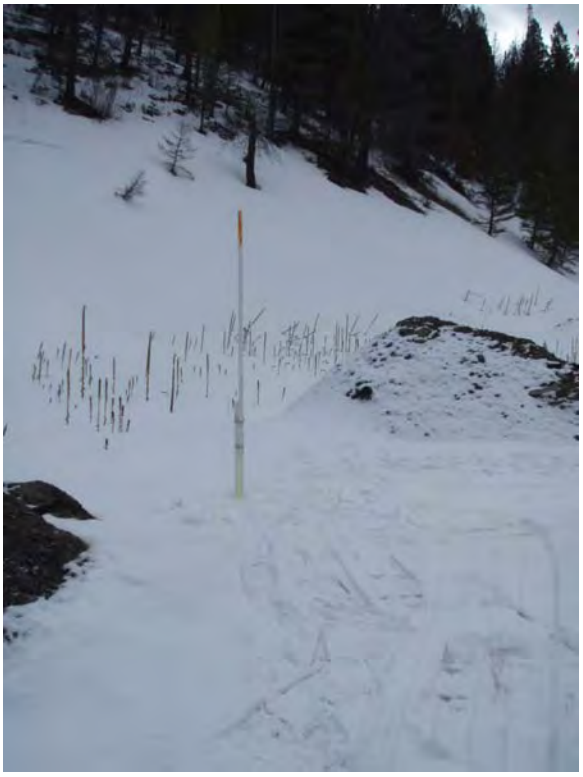
TDMW-4S March 2012



GW-2 March 2012



PZ-09 March 2012



PZ-02B-C March 2012



Sump-S-a, b March 2012



TDMW-3S March 2012



TDMW-2D, S March 2012



TDMW-3D March 2012



TDMW-1 March 2012



BRSW-48 May 2012



BRSW-3A May 2012



BRSW-3B May 2012



Dry seeps May 2012



Dry seeps May 2012



BRSW-22 May 2012



Dry seep May 2012



BRSW-1 May 2012



Sump-S-A, B May 2012



GW-2a May 2012



TDMW-5 May 2012



GW-2 May 2012



PZ-02B-C



TDMW-1 May 2012



TDMW-3S, D May 2012



GW-01a May 2012



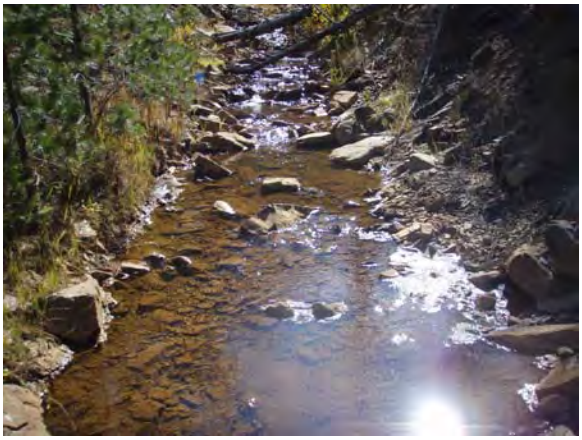
GW-01c May 2012



BRSW-38 November 2012



TDMW-2S May 2012



BRSW-48 November 2012



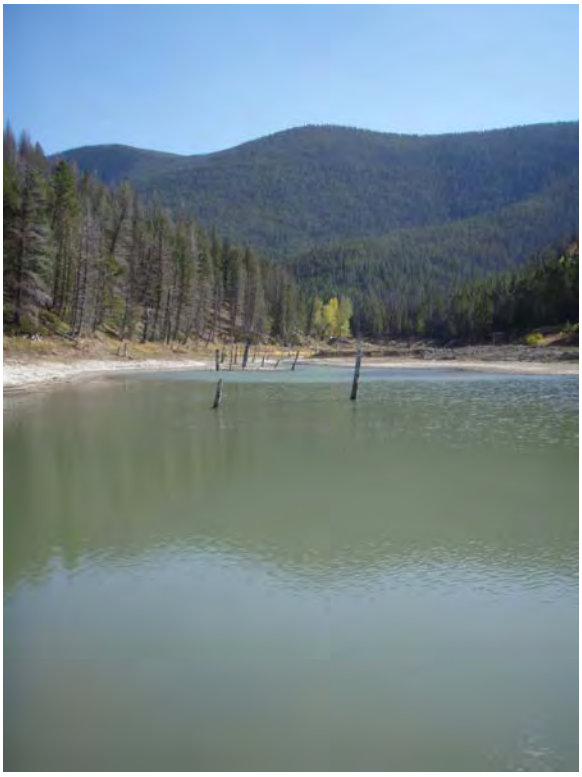
BRSW-23 November 2012



BRSW-3A November 2012



BRSW-3B November 2012



BRSW-2 November 2012



BRSW-22 November 2012



TDMW-5 November 2012



BRSW-1 November 2012



Sump-S-A, B November 2012



Sump-N November 2012



GW-2a November 2012



PZ-09 November 2012



PZ-02B-C November 2012



TDMW-4S, D November 2012



GW-2a November 2012



TDMW-3S, D November 2012



P-5 November 2012



PZ-03A-A, B-B November 2012



TDMW-2S, D November 2012



GW-01c November 2012



BRSW-38 December 2012



BRSW-48 December 2012



BRSW-3A December 2012



BRSW-23 December 2012



BRSW-3B December 2012



BRSW-2 December 2012



BRSW-1 December 2012



BRSW-22 December 2012



TDMW-5 December 2012



Sump-S-A, B December 2012



GW-02a December 2012



Sump N December 2012



PZ-02B-C December 2012



TDMW-3A, B December 2012



GW-01a December 2012



PZ-09 December 2012



P-5 December 2012



GW-01c December 2012



TDMW-2S, D December 2012



TDMW-1 December 2012

Appendix E

Data Logger Graphical Output

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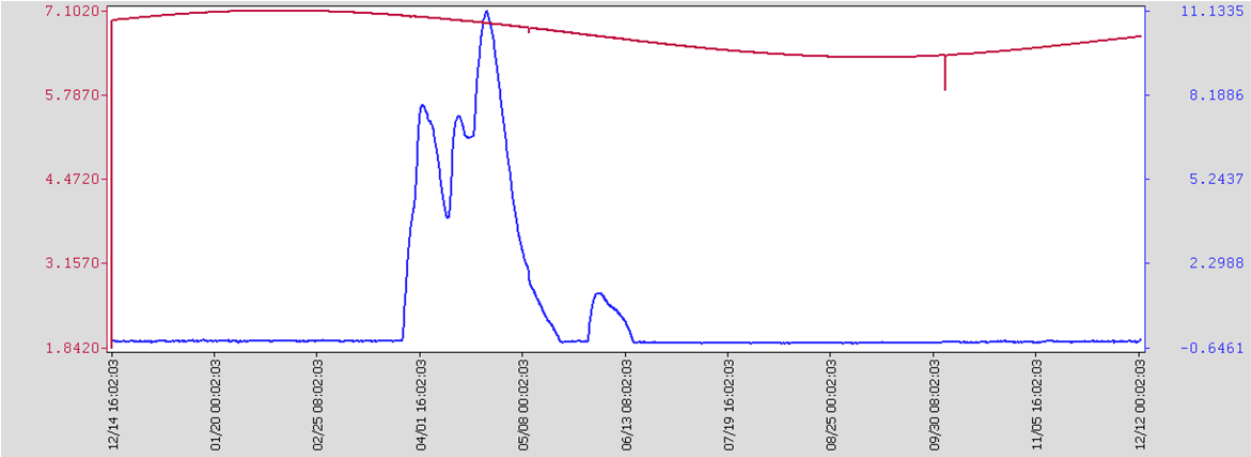
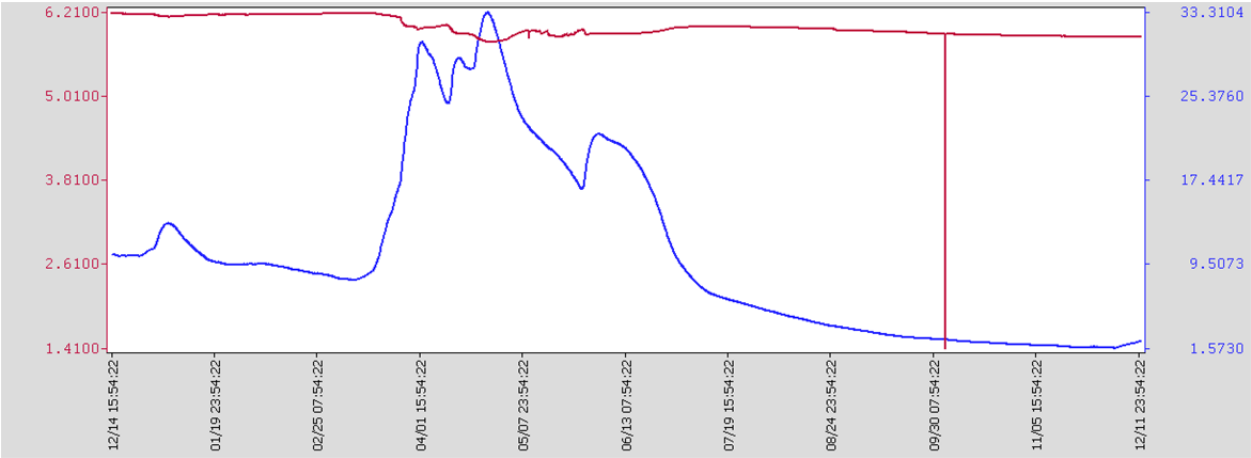


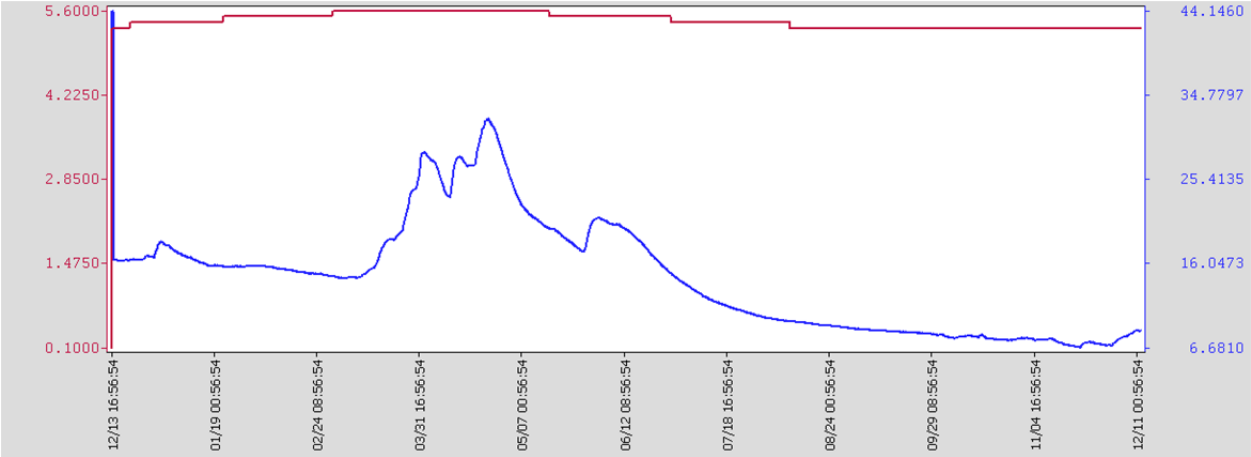
Temperature (°C) Level (ft)

GW-1A



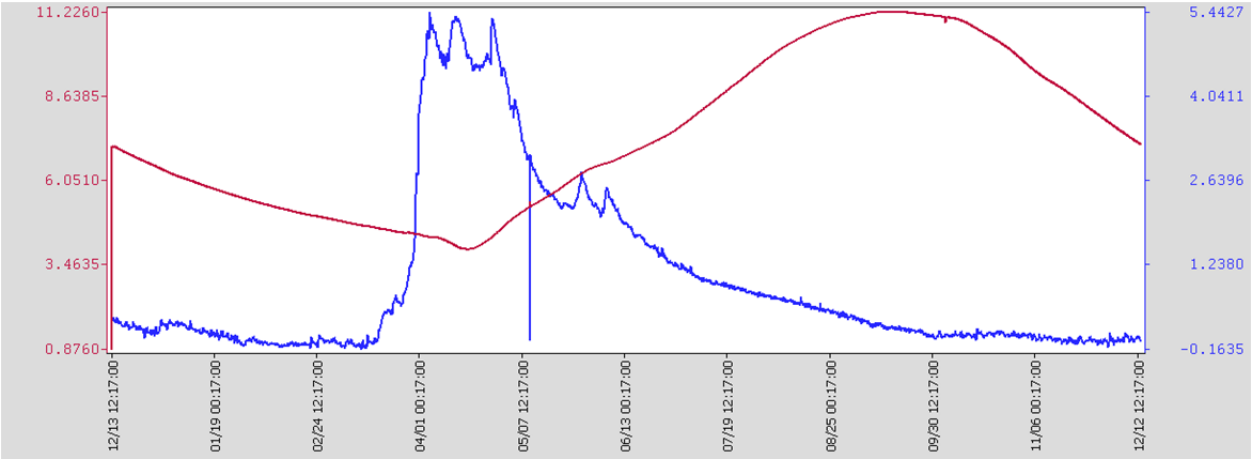
Temperature (°C) Level (ft)

GW-1C



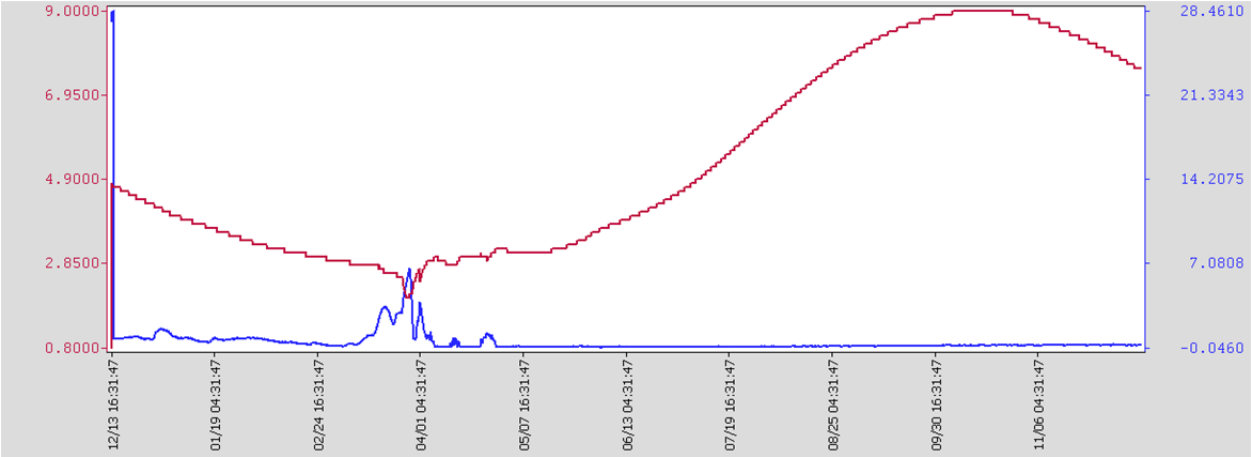
Temperature (°C) Level (ft)

PZ-02B-C



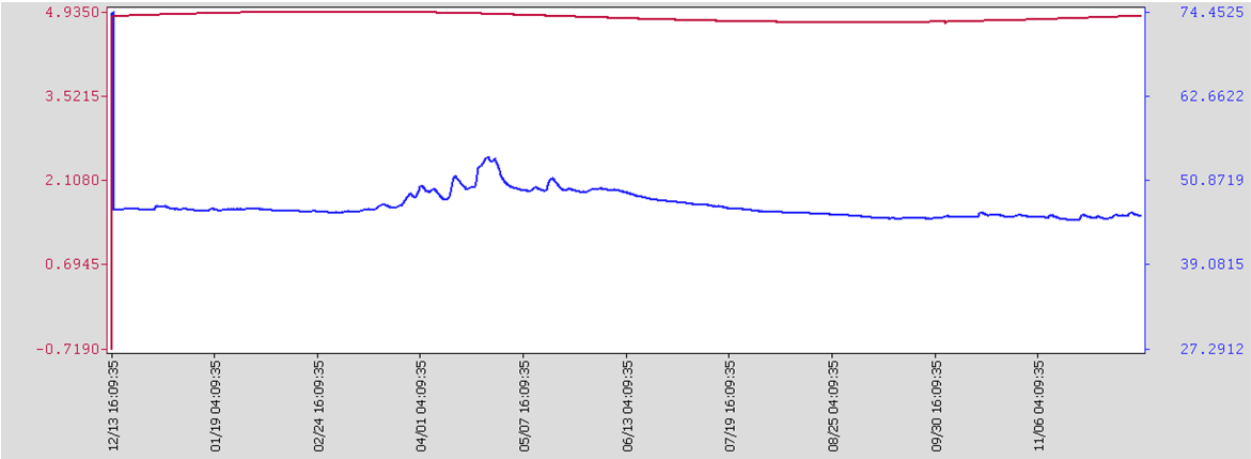
Temperature (°C) Level (ft)

PZ-05



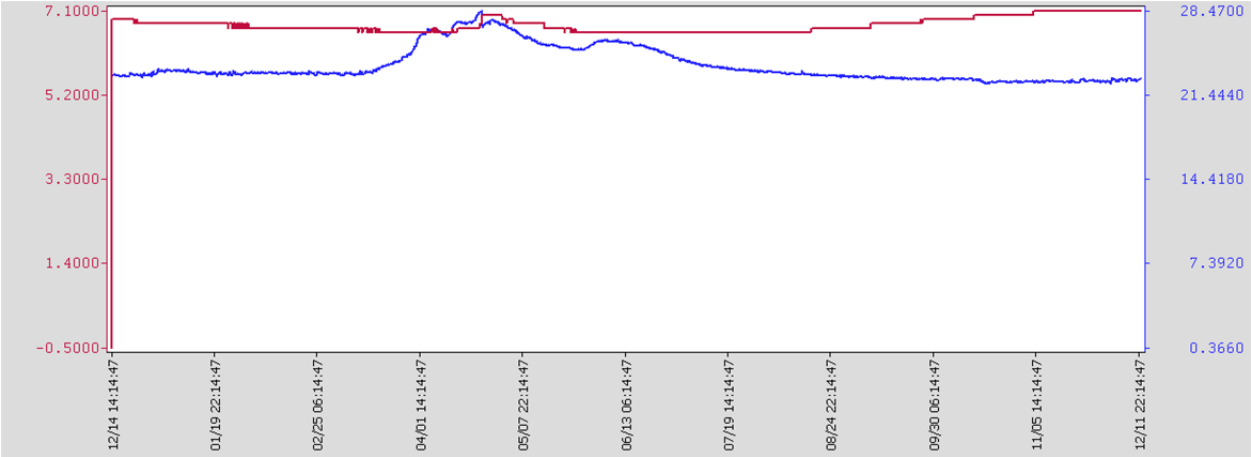
Temperature (°C) Level (ft)

PZ-09



Temperature (°C) Level (ft)

SUMP-S-b



Temperature (°C) Level (ft)

TDMW-2D

Appendix F

Certifications

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TRS Environmental
1830 West Airfield Drive
DFW Airport, Texas 75261

Calibration Certificate Traceability Statement

Asset Number:	1101434
MFG/Model Number:	YSI/556-02
Serial Number:	09J100079
Description:	MULTIPARAMETER
Customer:	PORTAGE INC
Address:	1065 N. EWING HELENA MT 59601
Customer P.O. No:	CC 1434609
Rental Agreement Number:	1434609-0
Certificate Number:	143460901101434115 2

This certifies that the above product was calibrated to manufacturer's specifications using approved procedures and traceable measurement standards.

This calibration was performed by TRS-Environmental, located at 1830 West Airfield Drive DFW Airport, TX 75261.

The Quality System of TRS-Environmental is registered by UL DQS Certificate Number 10000112 to the Quality Management System Standard ISO 9001:2008.

Measurement standards are calibrated at planned intervals. Traceability is to the International System of Units (SI) through the National Institute of Standards and Technology (NIST) or other recognized National Metrology Institute (NMI), natural physical constants, consensus standards, or by ratio type measurements using self calibrating techniques. Supporting documentation relative to traceability is available for review by appointment.

This instrument is initially being sent to the above customer calibrated and fully functional.

This certificate pertains to only the asset listed above and cannot be reproduced, except in full, without written approval of TRS-Environmental.

To determine the date for recalibration, the customer should use an interval that satisfies their own organization's internal quality system requirements.

Conditions of calibration are as follows:

Calibration Date: May 02, 2011

Calibrated By: TOM COLLINS

Quality Assurance:

Peel Off Sticker Here --->

TRS-Environmental 800-532-3384
ID: 1101434 Date: 05/02/11
COLLINTO

Certificate Print Date: May 2, 2011

TRS Environmental
Equipment Now. Service Beyond.
1830 West Airfield Drive
DFW Airport, Texas 75261

Calibration Certificate Traceability Statement

Asset Number:	1101434
MFG/Model Number:	YSI/556-02
Serial Number:	09J100079
Description:	MULTIPARAMETER
Customer:	PORTAGE INC
Address:	1065 N. EWING HELENA MT 59601
Customer P.O. No:	CC 1434609
Rental Agreement Number:	1434609-0
Certificate Number:	143460901101434115 2

Laboratory Standards

MFG/MDL	Description	Asset	Cal. Type	Cal. Date	Due Cal
TEST SOLUTION	WATER, DEIONIZED	1091991	CNC	Feb 24, 2011	Feb 24, 2012
TEST SOLUTION	CONDUCTIVITY STANDARD	1091992	CNC	Jun 21, 2010	Jun 21, 2011
TEST SOLUTION	REDOX BUFFER (ZOBELLS)	1091993	CNC	Nov 18, 2010	Nov 18, 2011
TEST SOLUTION	BUFFER SOLUTION PH 4.0	1091995	CNC	Nov 09, 2010	Nov 09, 2012
TEST SOLUTION	BUFFER SOLUTION PH 7.0	1091996	CNC	Nov 16, 2010	Nov 16, 2012
TEST SOLUTION	BUFFER SOLUTION PH 10.0	1091997	CNC	Aug 16, 2010	Aug 16, 2012
OAKTON/03316-72	BAROMETER	1106232	CNC	Oct 18, 2010	Oct 18, 2011

Peel Off Sticker Here --->

TRS-Environmental 800-532-3384
ID: 1101434 Date: 05/02/11
COLLINTO

Certificate Print Date: May 2, 2011

TRS Environmental
Equipment Now. Service Beyond.
1830 West Airfield Drive
DFW Airport, Texas 75261

Certificate of Functionality

Asset Number:	1119309
MFG/Model Number:	GEO/GEOCONTROL PRO-V2
Serial Number:	1113/103
Description:	GEOCONTROL PRO
Customer:	PORTAGE INC
Address:	1065 N. EWING HELENA MT 59601
Customer P.O. No:	CC RA # 1431903
Rental Agreement Number:	1431903-0
Certificate Number:	14319030111930911421

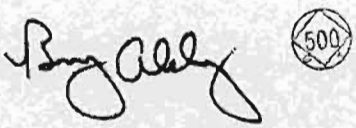
The Quality System of TRS-Environmental is registered by UL DQS Certificate Number 10000112 to the Quality Management System Standard ISO 9001:2008.

The operation of this instrument was verified before shipment. Calibration is not required.

This certificate pertains to only the asset listed above and cannot be reproduced, except in full, without written approval of TRS-Environmental.

Verified By: TOM COLLINS **Verified Date:** 4/21/2011

Quality Assurance:



Peel Off Sticker Here --->

TRS-Environmental 800-532-3384
ID: 1119309 Date: 04/21/11
COLLINTO FUNC/CHECK

Certificate Print Date: April 21, 2011

YSI incorporated

1700/1725 Brannum Lane
Yellow Springs OH 45387 USA
tel: 937-767-7241 • fax: 937-767-9353

SonTek/YSI Inc.
San Diego, CA

Packing List

Delivery Number	Packing Slip Number	Date Shipped
804546	YSI-243746	11-MAY-11
Shipped Via: FEDEX-Truck-Ground		

CERTIFICATE OF COMPLIANCE

This is to certify that the materials, processes and finished products were controlled, tested, and accepted in accordance with our quality system and the applicable specifications.

Rick Omlor
President / CEO

SOLD TO
PORTAGE INC
1065 N EWING
HELENA, MT 59601, United States

SHIP TO
PORTAGE INC
1065 N EWING
HELENA, MT 59601, United States

PICKUP DATE	PAYMENT TERMS	FREIGHT TERMS	SR NUMBER	F.O.B	TAX NAME	TAX NO.	Supplier No.
11-MAY-11	Net 30 Days	Prepaid	287140	Shipping Point	Exempt		

ORDER LINE NO.	YSI ITEM NO.	ORDER NO.	CUSTOMER ITEM NO.	PO NO.	PO Line#	DESCRIPTION	HS NO.	UOM	QTY ORDERED	QTY SHIPPED	BACK ORDERED
2.1	R556	635598		WARRANT Y		Repair,Model 556 556 SN 11C100910 CUSTOMER CONCERN: PH PROBE SOCKET PIN, DO PROBE HANDHELD TESTED/ PASSED BOARD TEST UNIT MEETS YSI SPECS	9801.10.0000	EA	1	1	0
4.1	R5563-4	635598		WARRANT Y		Repair,Model 5563-4 5563-4 SN 11C01 CUSTOMER CONCERN; PH PROBE SOCKET PIN, DO CABLE TESTED FOR SHORTS, HIGH IMPEDENCE LEAKAGE AND PHYSICAL DAMAGE/ NO PROBLEM FOUND	9801.10.0000	EA	1	1	0

-For terms and conditions refer to WWW.YSI.COM/TERMS_CONDITIONS
-These commodities, technology or software were exported from the United States in accordance with the Export Administration Regulations. Diversion contrary to U.S. law is prohibited.

OPEN CHANNEL
CALIBRATION CERTIFICATE

Model: 2000-51 Serial Number: 2007542

Sensor #: 53165

Type of Reading

(Velocity: FPS)

Level:
☐ ~~IN~~
☑ N/A

	Static Velocity	Dynamic Velocity	Level
Standard:	Zero	2.02	N/
Measured:	-0.001	2.01	/A
Tolerance:	±0.05 FPS	±2%	±0.4 in.

Calibration Technician: [signature] Date: 4-15-11

Calibration is traceable to the National Institute of Standards and Technology (NIST), Gaithersburg, MD. For Product information, service, or calibration, please contact the Customer Service Department.

MARSH
McBIRNEY
A Hach Company Brand
PO Box 389, Loveland, CO 80539-0389
(970) 669-3050 • (800)-227-4224 • FAX (970) 669-2932
www.hach.com

P/N 101001301

Appendix G

DEQ Purge Water Flowchart

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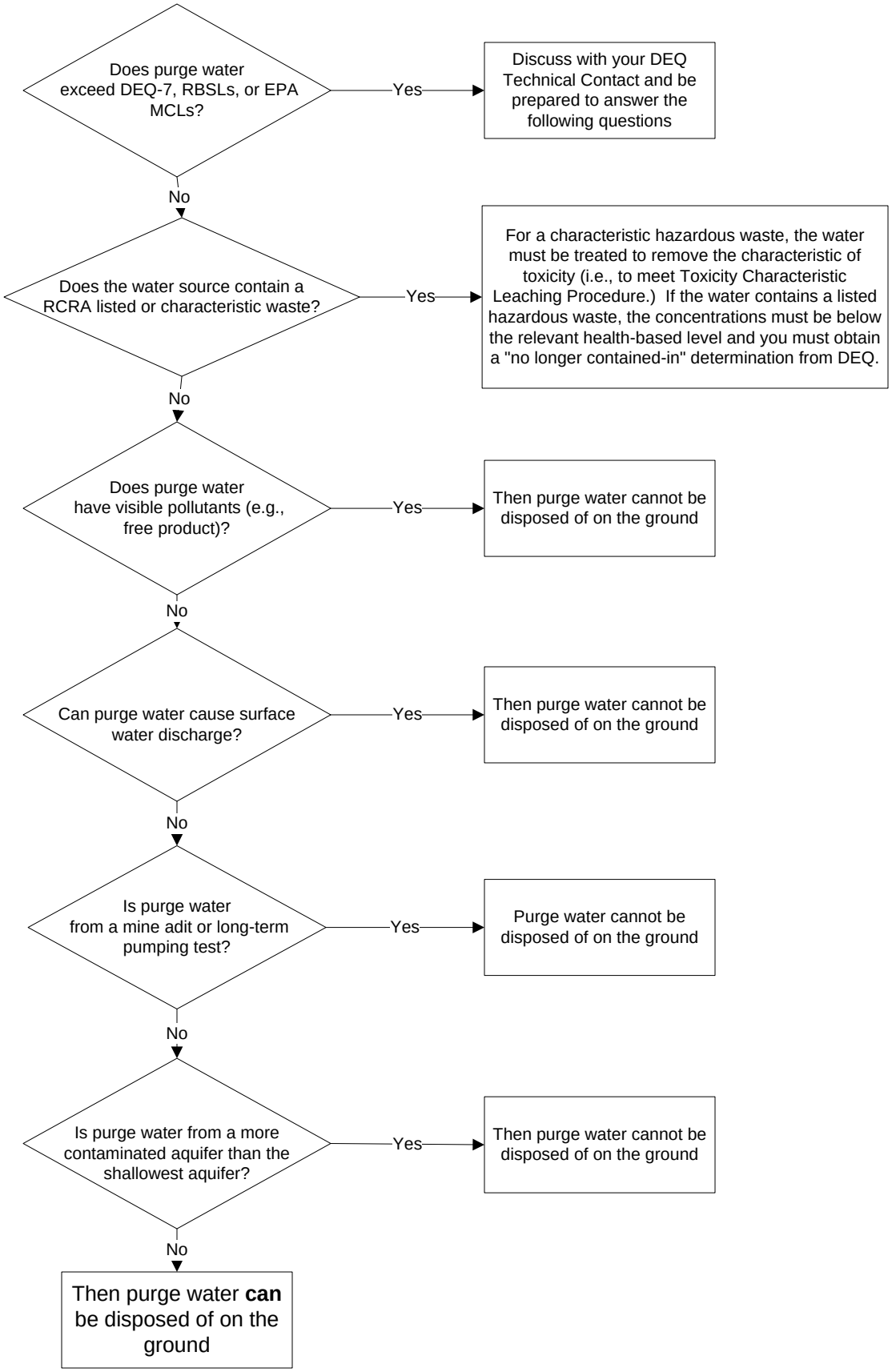
PURGE WATER DISPOSAL FLOWCHART
(Untreated)
2/22/11



*** More detailed requirements can be found at: http://www.deq.mt.gov/LUST/TechGuidDocs/techguid10.pdf**

Appendix H

Electronic Copies

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